

# ON EXPORTS AND DOMESTIC TRANSPORT COSTS: AN INDUSTRY VIEWPOINT

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## ABSTRACT

In recent years, transport costs have been recognised as having important and significant impacts on trade patterns and globalised production. Both international and domestic transport costs have been empirically found to affect trade negatively. The effect of transport costs on trade is exacerbated by distance, not only from import markets but also from a port. South Africa's position in terms of its geographical location as well as the internal geography of its economic activity, justifies investigations into its transport costs. South Africa's domestic transport costs are significantly higher than that of other emerging markets which reduces the competitiveness of exports. Several studies have been conducted on South Africa's transport costs, but none has focused on the impact that transport costs have from an industry point of view. This paper analyses factors that influence the domestic transport costs of exporters to transport goods from their premises to the port. These factors include the relationship with the freight forwarder, the type of cargo and container loads. Information is obtained through actual quotations from the freight forwarding industry. Analysis of different export scenarios enables recommendations to exporters in reducing their domestic transport costs.

**Key words:** domestic transport costs, exports, South Africa

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## 1. Introduction

Exports are important for growth and development (Edwards, 1997; Sala-i-Martin 1997; Sachs & Warner, 1997; Elbadawi, 1998). Foster (2006) summarises the literature on exports and growth and discusses the reasons why exports are good for growth. The reasons include better benefits due to economies of scale, knowledge spillovers and greater competitiveness and efficiency. In general, studies on exports are conducted and results reported on a country level. Few studies (e.g. Nicolini, 2003) have focused on the spatial dimension of exports. In other words, from where in a country do exports originate?

Naudé and Matthee (2007) examine the spatial distribution of exports in South Africa. They provide empirical evidence (through the application of cubic-spline density functions) of the impact of domestic transport costs on both manufactured exports and the spatial location of such exporters. In a spatial context of exports, domestic transport costs matter, as it influences the competitiveness of exports. Exporters located further from an export hub incur higher costs than exporters located in the vicinity of such a hub. Naudé and Matthee (2007) observe that the largest volume (between 70% and 98%) of exports from magisterial districts is generated within 100 km from the export hub. The patterns and evolution of the location of manufacturing exporters in South Africa support the idea that domestic transport costs matter for exports. However, several exporters are also located 200 km to 400 km from the export hub. Therefore, factors other than distance might influence the location of exporters and subsequently the competitiveness of exports.

Research up to this point has indicated that domestic transport costs are positively related to distance. Transport costs were measured (proxied) by the shortest distance from a town or city to the nearest export hub, for example Johannesburg or Durban. This paper aims to further focus on the importance of distance, or domestic transport costs, for two reasons. Firstly, there is little research on transport costs in South Africa. Existing research indicates that the high transport costs in South Africa make exports expensive and uncompetitive (Radelet & Sachs, 1998; Ramos, 2005). Secondly, investment in infrastructure is currently advocated in South Africa, but how much should be invested and where should the investment take place? In this paper more direct measures of transport costs are provided to better understand what factors influence domestic transport costs in order to assist exporters in reducing these costs and becoming more competitive.

The paper is structured as follows. Section 2 presents a brief overview of the state of the economics literature on the relationship between transport costs, distance and exports. Section 3 discusses South Africa's domestic transport costs, overland transport modes as well as the spatial patterns of economic activity in South Africa. Section 4 discusses the methodology used. Section 5 reports the cost and non-cost factors that influence domestic transport costs of exporters in various scenarios and section 6 concludes with recommendations.

## 2. Theoretical background

In this paper, transport costs are defined as the costs incurred in moving freight<sup>4</sup>. These freight costs comprise direct and indirect elements. Direct elements include freight charges and insurance on the freight, whereas indirect elements include all costs incurred by the transport operator. Indirect elements vary with the shipment's characteristics. Examples include: holding costs for the products in transit, inventory costs (in the case of late deliveries) and costs incurred during preparation for transit (which depends on the shipment size) (Anderson & Van Wincoop, 2003).

In recent years, transport costs have been recognised as having important and significant impacts on trade patterns and globalised production (Hoffmann, 2002). Limão and Venables (2001) state that transport and other costs of conducting business on an international level are key determinants of a country's ability to participate fully in the world economy, and especially to grow exports. Porto (2005) finds that for low-income countries, transport costs are amongst the most important of trade barriers.

Empirical studies support theoretical views by providing the relevant evidence of the significance of transport costs for trade. The general consensus is that international transport costs negatively affect a country's trade volumes. Evidence from Limão and Venables (2001) indicate that if transport costs increased by 10%, trade volume would be reduced by 20%. High transport costs reduce foreign earnings from exports (UNCTAD Secretariat, 2003) and increase the price of imports, which elevates production costs and subsequently inflation (Radelet & Sachs, 1998; Hoffmann, 2002).

For countries located far from markets, the effect of transport costs on trade is more severe. Distance is an important part of international trade relations and the impact of distance on transport costs has been widely documented. As distance increases, trade volumes decrease (Venables, 2001). Countries tend to trade with proximate partners (Grossman, 1998, cited in The Round Table, 2004), even if transport costs over distance have fallen (Hummels, 1999a). Approximately half of the world's trade takes place between countries located within 3 000 km of each other (The Round Table, 2004). The average distance of trade between countries around the world has decreased, implying that distance matters (Carrere & Schiff, 2004). A possible reason for this occurrence is that increased distance increases costs. It directly increases transaction costs in terms of additional transport costs of shipping goods, time costs of shipping date-sensitive goods, the costs of contracting at a distance (search costs), costs of obtaining information on remote economies and costs of communicating with distant locations (Overman, Redding & Venables, 2001; Venables, 2001).

Limão and Venables (2002) demonstrate that exports and imports of both final and intermediate goods carry transport costs that increase with distance. If a country is situated far from its trading partners, its CIF/FOB ratio<sup>5</sup> is higher than a country located close to its foreign markets. For example, Australia's CIF/FOB ratio is 10.3, whereas Switzerland has a ratio of only 1.7 (Radelet & Sachs, 1998). Busse (2003) illustrates this

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<sup>4</sup> In a broader sense, transport costs could also include any number of costs that impede trade such as policy-induced trade barriers, and cultural or sociological barriers (Brakman, Garretsen & Van Marrewijk, 2001).

<sup>5</sup> CIF (Cost, Insurance, Freight) measures the value of imports, from the point at which they enter a country. This value includes cost, insurance and freight. FOB (Free On Board) measures the value of exports from the point at which the merchandise is placed on the carrier. The difference between the values of these two incoterms is a measure of the cost of transporting an item from the exporting country to the importing country (Hummels, 1999a, 1999b; Brakman *et al.*, 2003).

point through another example. The cost to ship a 40-foot container from Baltimore to China is around US\$13 000, whereas the cost to Rotterdam is only US\$2 000 (he follows the same method as Limão and Venables (2001), using 2002 data). Venables (2005) argues that remoteness from economic activity increases transport costs and accounts for the poor export performance of many developing countries situated far from the major markets.

Apart from a country's external geography, its internal geography (whether it is landlocked or coastal) also affects its transport costs. Landlocked countries also tend to have poor internal geography (access to ports), which correlates negatively with transport costs (Redding & Venables, 2003). Therefore, landlocked countries' transport costs are higher (approximately 50%) and they have lower trade volumes (around 60%) than coastal countries (Radelet & Sachs, 1998; Limão & Venables, 2001). Martínez-Zarzoso, Gracia-Menéndez and Suárez-Burguet (2003) support this argument by proving that exporters situated in landlocked countries incur extra costs since products transported have to switch between more modes of transport than is the case for coastal countries. These landlocked countries also seem to experience higher *ad valorem* rates than coastal countries and this exacerbates the effect of the higher transport costs. Busse (2003) concludes that even with technological developments in transport, many developing countries continue to be challenged by geography due to being remote from major markets or being landlocked.

Various methods have been used to measure the impact of transport costs on trade. The most popular measure of international transport costs is to calculate the CIF/FOB ratio (see footnote 2). Other methods are more direct, such as obtaining quotes from freight forwarders (Hummels, 1999b; Limão & Venables, 2001) and conducting interviews with transport operators (Martínez-Zarzoso *et al.*, 2003). The measurement of domestic transport costs has not been as popular a topic, with no commonly used method. In most cases, a proxy for domestic transport costs is applied. Elbadawi, Mengistae and Zeufack (2001) include domestic transport costs in an index that measures supplier and market access. The variables they use to measure domestic transport costs are the density of the road network (kilometres of roads), the quality of roads (the number of paved roads) and the total land territory of a country. They find that domestic transport costs act as a stronger constraint on exports than international transport costs. Limão and Venables (2001) use similar indicators to measure the costs of travel in and through a country. They add the density of the rail network, as well as the main telephone lines per person. Limão and Venables (2001) estimate that overland distance is seven times more expensive than sea distance. Combes and Lafourcade (2005) extend existing research by developing a methodology to measure domestic transport costs accurately. They compute a measure of generalised transport costs by determining distance costs (fuel, price and fuel consumption, costs due to tolls that have to be paid on highways and maintenance operating costs) and time costs (labour costs, insurance charges, depreciation costs and general charges such as taxes).

From the above discussion it can be concluded that both international and domestic transport costs have significant effects on international trade, and that domestic transport costs may have a much stronger effect on exports than international transport costs. Despite this, the majority of studies have focused on international transport costs, with only a few studies (as cited above) focusing on domestic transport costs. Even fewer studies are available that investigate the importance of domestic transport costs in an African country. Arguably, following recent contributions by Venables (2005) and Artadi and Sala-i-Martin (2003), Africa is the one continent in the world that faces the most significant challenges in terms of growth, development, exports and integration into the

world economy, and is also one of the continents facing the most adverse physical geography (Bloom & Sachs, 1998). The effect of domestic transport costs on the competitiveness of exports in Africa is therefore highly relevant. This paper attempts to fill this vacuum by studying the case of domestic transport costs and exports in South Africa.

### **3. The context of South Africa**

This section discusses South Africa's domestic transport costs, the overland transport modes, as the spatial patterns of economic activity in South Africa.

#### **3.1 Domestic transport costs**

The largest part of South Africa's total logistics cost is attributed to transport costs. Logistics costs include throughput (i.e. the total amount of goods that are transported and stored), transport costs, warehousing costs, inventory costs and management and administration costs (CSIR, 2004). Transport costs, as a component of total logistics cost increased by 11% from 2003 to 2004 (CSIR, 2005). Transport costs make up 78% of the secondary sector's total logistics costs and 60% of the primary sector's (CSIR, 2004 & 2005).

Ramos (2005) indicates that South Africa's transport costs accounted for around 13% of the gross domestic product (GDP) in 2003, which is high in comparison with other emerging markets. Brazil's transport costs, for example, are only 8% of their GDP. These high costs contribute to the deterioration of South Africa's overall competitiveness and in terms of exports.

#### **3.2 South Africa's transport network**

South Africa has a diverse transport network that moves freight via road, rail, air and sea (South Africa Business Guidebook, 2005/2006). This network of transport infrastructure serves as an engine of growth and integrates South Africa's geographically dispersed domestic economy (DoT, 2002). The largest volume of freight (70%) is transported by private sector enterprises, with the remainder transported by Transnet. Four commercial institutions are involved in the operational side of transport activities, which enables the Department of Transport to focus on the policy side (South Africa Business Guidebook, 2003). Each of the overland transport modes is discussed in the following paragraphs.

The rail network is controlled by Spoornet and the South African Rail Commuter Corporation (SARCC) (South Africa Business Guidebook, 2005/2006). In terms of moving freight, this network has primary and secondary networks equipped to transport bulk and non-bulk commodities. The rail network carried approximately 180 million tons of cargo in 2003, which constitutes 26% of the total freight transported domestically. Around 122 million of the 180 million is mining output transported to Richards Bay and Saldanha (DoT, 2005). The tonnage transported by rail declined during 1997 to 2003, due to operational inefficiencies (e.g. unreliable rail services) (CSIR, 2005; Furlonger, 2007). Road transport captured these tonnages (CSIR, 2005), causing road transport to

grow at an annual rate of 4% in comparison with rail (DoT, 2005). Unfortunately, the gap between road and rail corridor transport is continuing to widen (CSIR, 2005). There is however plans to upgrade railway lines. Recently R400 million was budgeted to assist the motor industry to become a more cost-competitive supplier by providing wagons designed for motor-vehicle transport (Furlonger, 2007).

South Africa has an extensive road network spanning all nine provinces. The national road network comprises 7 200 km of which 1 900 km are toll roads and is controlled by the South African National Road Agency Unlimited (SANRAL) (South Africa Business Guidebook, 2005/2006). The provincial road network is under the control of the provinces and has 56 000 km surfaced and 301 000 km gravel roads (DoT, 2005). Between 70% and 80% of all freight is moved by road, as it is more flexible than rail, with most of the freight moved by the producing companies themselves. The road market share of moving freight domestically has increased from 65% in 1990 to 75% in 2004 (CSIR, 2005). Of this market share, the largest volume is carried by the corridors between the major hubs of economic activity. South Africa has seven corridors – the main three are Gauteng to Durban, Gauteng to Cape Town and Gauteng to Port Elizabeth. Around 62% of all imports and exports are moved through one or more of these corridors (DoT, 2005).

Road transport is not without problems. Many companies that want to save costs move their freight through on the provincial roads in order to avoid the toll plazas on the national roads. The freight trucks are often overloaded in a further attempt to save costs. The result is deterioration of roads, as provincial roads are not built to handle the overloaded trucks (DoT, 2005). Further problems constitute inadequate road infrastructure and bottlenecks in traffic (DoT, 2002). Large investments have been allocated to preserve and develop the road network (Masango, 2007).

Although rail transport is more cost-effective than road transport, it is not used to capacity due to the above-mentioned problems. This decreases the competitiveness of South Africa's exports, considering South Africa's spatial distribution of economic activity.

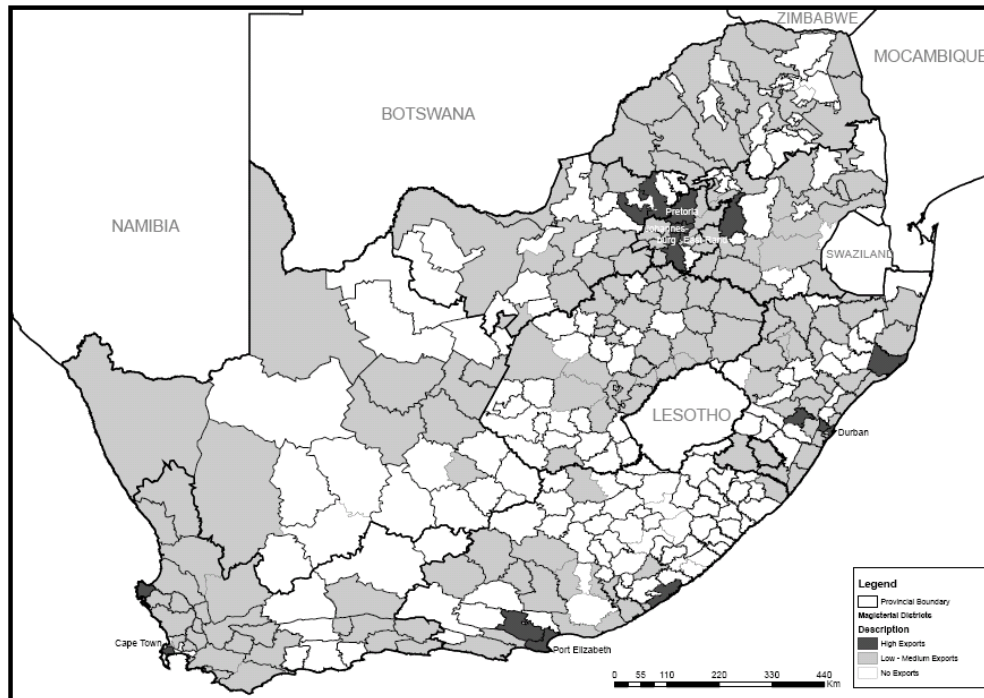
### **3.3 South Africa's spatial patterns**

South Africa's spatial distribution of economic activity is highly skewed. Around 70% of the country's GDP is produced in only 19 of the urban areas (Naudé & Krugell, 2005). If one considers manufactured exports, around 22 of the 354 magisterial districts produced 84% of the total manufactured exports in 2002. South Africa's skew spatial distribution is clearly evident here, as Gauteng (Johannesburg, Randburg, Boksburg, Germiston and Kempton Park) produce 33% of the 84%. The other large agglomerations that export manufactures are Durban-Pietermaritzburg (11%), Pretoria-Brits (8%) and Cape Town-Belville (6%) (Naudé & Gries, 2004; Naudé & Krugell, 2005). Economic activity is also skewed in the sense that the cities located near ports are smaller than those situated inland (Krugell, 2005). This contrasts with theory that argues that exporters will locate closer to ports in order to minimise transport costs. The reason is that distance creates transport costs which, in turn, influence the location decisions of firms that produce manufactures for the export market (Naudé & Gries, 2004).

Figure 1 illustrates this by indicating where (i.e. from which regions or magisterial districts) manufactured exports in South Africa originate from. The shaded districts in figure 1 are those that have positive manufactured exports. The relative volume of

exports is indicated according to the percentage of exports from a particular district. For instance, the areas shaded black are areas where the district contributes more than 1% of total manufactured exports and the areas shaded grey between 0.1% and 0.99%. It is evident that the majority of manufactured exports originate in the vicinity of one of the major export hubs, namely City Deep (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).

Figure 1: Exports per magisterial district



Source: Naudé & Matthee, 2007

Therefore, domestic transport costs are a relevant issue in South Africa, especially as the major sources of economic activity and exports are located inland.

#### 4. Methodology

The majority of export and economic activity in South Africa take place in Gauteng and its surrounding regions. Therefore, in order to illustrate the direct measures of transport costs, four cities within this region were chosen as a base from which exports are transported. The distances of these cities to the City Deep Container Depot differ and each has a number of export companies that organise the transport of exports from that city. The four cities are: Johannesburg (0-40 km from City Deep Container Depot), Pretoria (40 – 80 km from City Deep Container Depot), Rustenburg (135 km from City Deep Container Depot) and Nelspruit (355 km from City Deep Container Depot).

In order to explain the impact of direct measures of transport costs on competitiveness, one need to understand that transport costs are not only influenced by rand and cent costs, but also by non-cost factors. Section 5.1 provides an explanation of

the rand and cent costs. The costs shown here are based on quotations received from three local transport companies for the transport of intermediaries (e.g. spare parts) from export companies within these four cities. Section 5.2 reveals the non-cost factors that influence domestic transport costs.

## **5. Measures of domestic transport costs**

The charges provided in this section are based on the following scenario: an empty vehicle is sent to an export company's premises (in each of the four cities) to pick up the cargo of spare parts as specified above, and then delivering it to one of two destinations. The first destination is the Container Depot based in Johannesburg, and the second is the Container Depot at the Durban port. These two destinations were chosen because cargo can either be sent directly to the port or can be sent via City Deep. The difference between these two destinations is that when the cargo is taken directly to Durban harbour only road transport may be used. If, however, it is taken to the depot in Johannesburg it is sent further by rail or road to the port. That method of transport is chosen at the Container Depot's own discretion. This section provides a breakdown of transport costs in South Africa and the various factors that influence these costs.

### **5.1 Costs involved in the transport of normal containers**

In this section, rand and cent costs of the transportation of non-hazardous cargo is explained. The costs are based on the size of the container, the cargo load and the distance between the exporter and a container depot.

There are two containers commonly used for the transportation of cargo, namely a 6 metre (or 20 foot) container and a 12 metre (or 40 foot) container. A 6 metre container can be classified into two types (light and heavy) according to the container's capacity. A light 6 metre container has a 0 – 12 000 kg capacity, whereas a heavy 6 metre container as a 12 000 – 24 000 kg capacity. A 12 metre container as a 0 – 24 000 kg capacity

The choice of container depends on the volume and weight of the cargo. For example, if the cargo weighs very little, but the volume is greater than a 6m container, the transport operator will use a 12m container for transportation. Any cargo that is heavier than 24 000 kg is seen as out of gauge and will need special transportation methods, such as abnormal vehicles, etc.

The container mass or size has to be declared on the transport operator's delivery instructions. Containers may be weighed by the Road Traffic Authorities (RTA) at Weigh Bridges at specific locations around the country. Should the container mass be greater than declared and/or should the cargo be unevenly packed, the RTA could impose fines and penalties. They may even detain the container until the transport operator makes the necessary arrangements for correct documentation or repacking of containers. Therefore, it is extremely important that the correct container is used and that it is correctly packed.

Transport operators generally divide provinces, such as Gauteng, into different zones. The further the location of the cargo from their premises, the higher are the costs incurred to pick up the cargo and deliver it to a container depot. Therefore, the distance between the exporter and the transport operator and the container depot matters.

Usually the following zones are applied: zone A is between 0 and 40 km from the container depot and zone B between 40 and 80 km. Any destination outside of these zones will be handled on a case by case basis and quotations are based on the actual costs involved for that specific request.

### 5.1.1 Transport of full container loads (FCL)

Based on the cost factors explained above, one can first consider cargo transported on a FCL basis. This implies that the client's cargo fills up a full container load. Two sets of rates are provided for the transportation of the container. The first is where the cargo is transported from the client's premises to the Johannesburg Container Depot (from there the cargo is transported via rail to the Durban Container Depot) (see table 1). The second is where the cargo is transported directly to the Durban Container Depot (see table 3). The rates for both 6 metre and 12 metre containers are given, as this determines the size of the vehicle that the haulier has to use. The rates are calculated on a fuel surcharge of 15% (this percentage can fluctuate depending on the current fuel price).

It is important to note that the rates in tables 1 and 3 are calculated on the basis that the haulier is sending an empty container to the client's premises, and then returning with the cargo. If the haulier has the opportunity to transport a different container to a client in that specific area first, and then pick up the client's cargo on the way back, the charges will be slightly less. However, this is out of the client's control and will be at the haulier's own discretion. This will mostly only affect the cargo collected at points further than the basic 80 km zone (zone B in the previous section), as trips to these destinations do not occur as regularly as it does in zone A.

Table 1 provides the costs of two different sized containers transported from the client (situated in the four cities) to the Johannesburg Container Depot.

*Table 1: Transport cost from the client to Johannesburg Container Depot*

<b>Pickup from:</b>	<b>6m container</b>	<b>12m container</b>
Johannesburg (0 – 40 km)	2 280	3 085
Pretoria (40 – 80 km)	3 200	4 695
Rustenburg (135 km)	7 800	7 800
Nelspruit (355 km)	9 700	9 700

From table 1, it is important to note that when a haulier has to pick up FCL containers from any client based further than 80 km, the charge for a 6m or a 12m container will most likely be the same. The reason is that it is more beneficial and cost effective for a haulier to simultaneously carry two 6m containers on a 12m vehicle, than to only carry one 6m container. This is also due to the fact that most 6m containers weigh the same as a light 12m container and road regulations stipulate that in South Africa a vehicle cannot exceed a certain weight. Therefore, the haulier must often use a 12m trailer to transport the 6m container.

The rates provided in table 1 are only to transport the cargo from the client's premises to the Container Depot in Johannesburg. The container then still needs to be transported to Durban (this is where South Africa's biggest port of loading for seafreight is located). Here it is assumed that the containers are railed from the City Deep Container Depot to the Durban harbour. The rates are provided in table 2. The total cost of transportation is therefore the sum of the rates in tables 1 and 2.

*Table 2: FCL railage rates from Johannesburg to Durban (costs at net)*

<b>Pickup from:</b>	<b>6m container</b>	<b>12m container</b>
Light container (<12.5 tons)	1 890	3 828
Heavy container (>12.5 tons)	3 400	6 874

If the container is transported by the operator from the client's premises directly to the Container Depot in Durban, it is deemed as long distance transport. The distance between Johannesburg and Durban is about 650 km and this adds to the cost of transport. Table 3 provides the costs for the same FCL containers transported from the client to the Durban Container Depot (no railage is incurred).

*Table 3: Transport cost from the client to Durban Container Depot*

<b>Pickup from:</b>	<b>6m container</b>	<b>12m container</b>
Johannesburg (0 – 40 km)	4 600	6 000
Pretoria (40 – 80 km)	6 000	7 500
Rustenburg (135 km)	10 300	10 300
Nelspruit (355 km)	13 500	13 500

If one now compare the charges provided in tables 1 and 2 to the charges in table 3, it is clear that in the case of a 6m container it is less costly to transport the cargo to the Johannesburg Container Depot and then to rail it to the Durban port of loading. On a 12m container the charges are also similar. Therefore, other factors influence the transport decision, such as the time within which the cargo needs to be transported, the type of cargo, etc. These factors are discussed in more details in section 5.2.

### **5.1.2 Transport of less than full container loads (LCL)**

One may also consider a scenario where the volume of the cargo transported does not justify a full container load. Whether or not a full container load is used, is determined by the freight forwarding agent. If the cargo is too small or weighs too little to fill up a full container, it is combined with the cargo of other clients to fill a container. The reason is

that it is not cost-effective to transport it as a FCL shipment. In this case, the client shares the costs of the transport with other clients. This lowers the costs on the total export of the shipment. Cargo handled in this manner is handled as LCL, i.e. as loose cargo combined with other cargo in the same container. This is also known as Groupage cargo (the cargo is “grouped” with other cargo in the same container).

To illustrate the costs of such a shipment, a basic shipment of general non-hazardous cargo to the weight of 5 tonnes is used (see table 4). The comparison is again drawn between transporting the cargo to the Johannesburg Container Depot and directly to the Durban Container Depot.

The haulier’s calculation of these charges is generally based on a rate per weight measure instead of a rate per container. The rate per weight measure is mostly influenced by the current fuel price in South Africa and is then based on the distance that the cargo has to be transported. In this case the haulier quoted a rate of R8.36 per kilometre, plus a loading fee of R275. However, each haulier has his or her own rate based on their profit mark-up, running costs, etc.

*Table 4: Transport cost from the client to Johannesburg / Durban Container Depot*

<b>Pickup from:</b>	<b>Jhb Container Depot</b>	<b>Dbn Container Depot</b>
Johannesburg (0 – 40 km)	700	3 700
Pretoria (40 – 80 km)	1 100	4 800
Rustenburg (135 km)	1 400	6 600
Nelspruit (355 km)	3 075	8 500

Once again the rates provided in table 4 are only to transport the cargo from the client’s premises to the Container Depot in Johannesburg. The container then still needs to be transported to Durban. If the containers are railed from the City Deep Container Depot to the Durban port of loading, the rates provided in table 5 applies. In total, the client pays the sum of the rates in tables 4 and 5. When comparing the two methods of transport, it is cheaper to transport the cargo via City Deep to Durban.

*Table 5: LCL railage rates from Johannesburg to Durban*

	<b>6m container</b>	<b>12m container</b>
Groupage /LCL railage	1 890	3 828

## **5.2 Other factors that influence the cost of transport**

In the previous sections the focus was on the rand and cent costs of transporting general non-hazardous cargo from the client’s premises to the various container depots. This,

however, does not reflect the various factors that have an influence on transport costs. The various factors influencing the price will be discussed in this section.

### **5.2.1 Security of the cargo**

The first factor to keep in mind when one considers the various transport options is the issue of security of the cargo. From the situation currently experienced in South Africa in the transport industry, it is clear that there is danger involved in cargo transportation. Not only the cargo transported, but also the driver and the vehicle (when using road transport) are at risk.

When cargo is railed from Johannesburg to Durban, 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. The process can be further slowed down when LCL cargo is handed over to a container depot. If the cargo is then railed at the depot's own discretion, the cargo itself could stand at the depot for at least 2 days as it falls in queue for transportation to the Durban port.

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 from railage 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.

Therefore, if the safety of the cargo is a client's highest priority, the choice of the appropriate transport mode requires careful consideration.

### **5.2.2 Type of cargo**

The second factor that influences the transport cost of cargo is the type of cargo that needs to be transported. The various types of cargo can have a major impact on costs, as the haulier might need to use different types of vehicles and special equipment.

When cargo is transported as breakbulk cargo, e.g. a full load of maize or heavy duty equipment, the haulier requires a special trailer designed to handle the specific type of cargo. The haulier will also need special equipment to load the cargo onto the trailer.

Dangerous or hazardous cargo incurs higher transport costs. Most hauliers add a 25% fee to their transport costs as the cargo has to be handled differently. It has to be transported as a shipment on its own, as hazardous cargo cannot be transported in the same vehicle as normal cargo. Also, certain markings must be added onto a hauliers vehicle to inform authorities on the content of the vehicle in the case of an accident.

Perishable cargo is also handled differently, because it requires refrigerated containers or vehicles. As this type of cargo cannot be in transit for days on end, it is usually exported by airfreight. Perishable cargo is transported directly to O.R. Tambo International Airport in Johannesburg by the haulier.

Therefore, the type of cargo adds on certain special equipment levies and labour fees onto the transport costs.

### **5.2.3 Relationship between the client and the freight forwarder:**

Many freight forwarding agents have clients they have dealt with for many years. The transport costs agreed upon in the initial contracts are increased with a certain percentage every year, parallel to the increases experienced in the industry as a whole. This may imply that the client is paying a transport rate that might be slightly higher than those paid by new clients. When a freight forwarder signs up a new client, they try to provide the client with the most competitive rates possible in order to secure the business. Therefore, the new client might have much lower rates than the clients that have been with them for a longer period.

It is crucial that a client regularly review and compare his or her transport rates with other rates available in the industry. However, a long-term relationship with a freight forwarder has several benefits that might outweigh rates. A client's current freight forwarding agent know the client's business, method of work, contacts and continuously performs special favours wherever possible in order to keep the client satisfied. Other transport and freight forwarding agents may not provide these same favours that the client is used to.

The relationship between the exporter and his freight forwarding agent will have a major impact on the cost of transport.

### **5.2.4 Economy and fuel prices**

Another factor that plays a role in transport costs is the state of the country's economy. Mostly this refers to two influences, namely interest rates and fuel prices (crude oil prices).

As a country's interest rate fluctuates, most transport companies have to increase rates and add charges to cover these increased costs. This directly impacts on transport costs, as the haulier has to provide more for the down-payment on vehicles, services on the vehicles, etc.

The crude oil price influences the fuel prices in the country. Fuel prices fluctuate over time. The fuel price has increased severely over the last few months and the transport companies will in time increase their fuel levies accordingly, especially on long distance transport.

## 6. Conclusions and recommendations

In the geographical economics literature, transport costs influence international trade patterns and volumes. In recent years, a growing number of studies have focused on establishing the empirical relevance of international transport costs. This literature is accumulating evidence that international transport costs have a significant impact on a country's trade volumes, especially if that country is landlocked or remote from its trading partners. As far as the effects of domestic transport costs are concerned, there have been fewer empirical studies despite the fact that the geographical economic literature emphasises that domestic transport costs may influence the spatial location of exporters within a particular country or region. This paper attempted to provide evidence for the significance of domestic transport costs in exports from an industry viewpoint.

South Africa's position in terms of its geographical location as well as the location of its economic activity, justifies investigations into its transport costs. Several studies have been conducted on South Africa's domestic transport costs, but none has focused on the impact that transport costs have from an industry point of view. This paper analysed the factors that influence the domestic transport costs of exporters to transport goods from their premises to the port. Information was obtained through actual quotations from the freight forwarding industry.

The measurement of domestic transport costs were divided into two categories, namely a category that explains rand and cent costs of transportation and a category that discusses non-cost factors. In terms of actual costs, it is more cost effective for exporters to transport their cargo by road to the City Deep Container Depot in Johannesburg and then by rail to Durban harbour. However, no decision on transportation can be made without acknowledging other factors. For example, security (cargo is more secure if transported via road), the relationship with the freight forwarder (a longstanding relationship between the client and freight forwarder might not provide the best rates but it has other non-cost advantages) the type of cargo (perishable cargo must be transported via road), fuel prices and interest rates (increasing crude oil prices and interest rates increases costs) and container loads (if an exporter's cargo does not fill a container, it is more cost effective to ship is as less than full container loads).

Scenarios on the different factors enable the following recommendations to exporters in reducing their domestic transport costs, as South Africa's domestic transport costs are significantly higher than that of other emerging markets which reduces the competitiveness of exports. First, greater distance from Johannesburg and Durban brings with it greater transport costs. However, exporters that consider relocation should balance the transport cost savings with rental rates and labour costs at the hubs. Second, exporters should always shop around for the latest transport cost quotes, but keep in mind that a long-standing relationship with their freight forwarder may also be beneficial, particularly if you have cargo that requires special attention.

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