CHAPTER 2

OTHER POTENTIAL CAUSES OF FOOD PRICE INCREASES: 'COLLUSIVE' BEHAVIOUR OF SILO OWNERS AND TRANSPORT COSTS

2.1 Introduction

The purpose of this Chapter is to explore a number of other factors that may inflate food prices. One of these factors is, the perception (rightfully or wrongfully) that silo owners hoard grain to push up grain prices, thereby cause a spiral of rising prices in the food sector. This is dealt with in Section 2.2.

Another concern amongst maize farmers and food manufacturers relates to the inefficiency of South Africa's rail network - and transport system in general - which causes food manufacturers to transport by road, a very expensive but time-efficient solution. The concerns and issues related to this factor are debated in detail in Section 2.3.

2.2 The ability of silo-owners to influence commodity prices

This Section aims to verify whether it is possible for co-operatives/agribusiness or silo owners to influence the market price for agricultural commodities through hoarding. It is hoped that the discussion in this Section will clear up the misunderstandings surrounding the grain trade and stock holding of grain.

Ever since the deregulation of the market the international maize price and the factors affecting this price, have gradually played a larger role in determining the South African maize price. This phenomenon can be seen in the seasonality of the maize price, as shown in Figure 2.1. At the beginning of the season, when maize is scarce, the domestic market price for maize moves closer to the import parity price. Later in the season, however, when the surplus of maize might be exported, the domestic price tends towards the export parity price. At the beginning of a season, when farmers prepare to plant, the price is very volatile.

The actual level of the domestic price lying between the minimum and maximum level will depend on local (SA) supply as well as on demand in the local market, albeit we need to recognise that the latter is relatively stable in the short to medium term. In Figure 2.1 below, the SAFEX spot prices of white and yellow maize are plotted against the monthly deliveries over the past three years. From the graph it can be seen that trend in spot prices is declining at the time of the harvest. Even during the 2002 harvest season when extremely high producer prices were the reality, a declining trend can be identified.

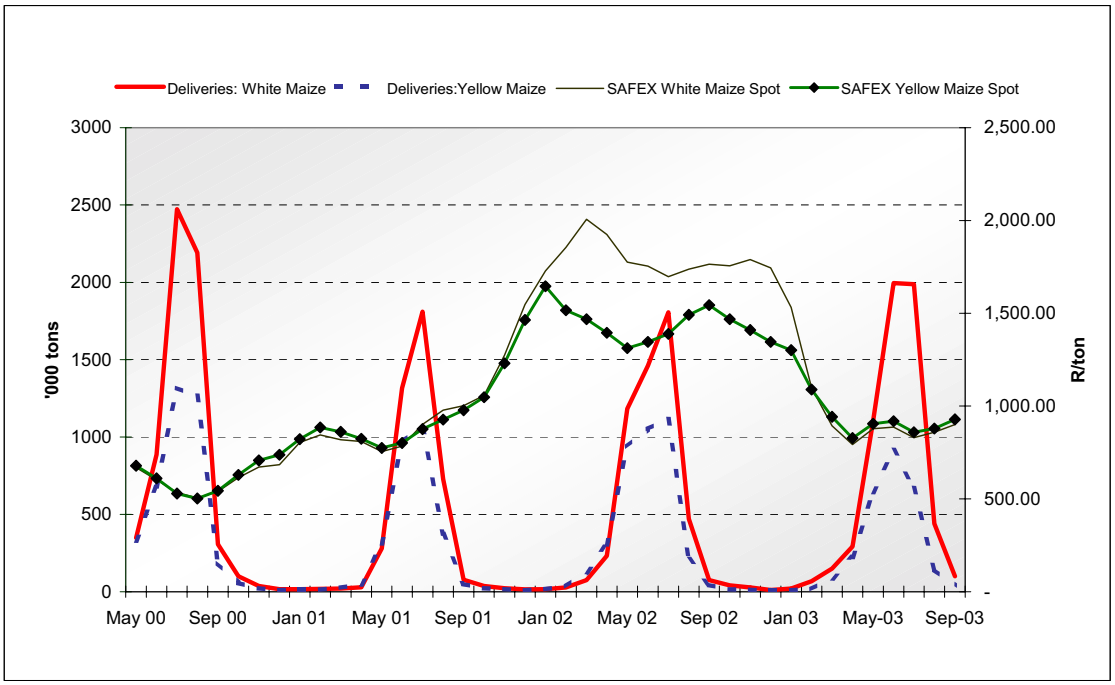

Figure 2.1: SA white and yellow maize monthly deliveries versus maize prices

Source: SAGIS & SAFEX

According to the Grain Silo Industry (2002), the total grain silo storage capacity in South Africa is estimated at 17.5 million tonnes, which comprises 14.5 million tonnes in the northern provinces, 970 000 tonnes in the south and 2.1 million tonnes at the harbours and with private owners. There exists quite a high amount of concentration with three silo owners owning 70.3% of all the domestic storage facilities.

Silo owners store the following grain stocks: farmer's stocks, grain pools, back-to-back contracts, and hedge stocks. These are discussed in detail below.

Farmer's Stock

The producer is the owner of the maize. The maize can either be stored on the farm or in the silo. When the farmer delivers his/her maize (or any grain) for storage in the silo, it is unknown whether this maize has been sold or not since the sale of the grain takes place by means of a 'silo-certificate'. When the maize is delivered to the silo a silo certificate is issued and the producer can decide when to sell this certificate. The producer is exposed to the price risk and can hedge against this risk. The silo owner merely supplies the services of storage and handling at a specific cost per month. The delivery (i.e. the movement out of the silo bin) of the physical stock of grain to a trader will only take place through an instruction from the farmer.

Part 5

Grain Pools

A group of producers delivers their maize in a pool. An organisation appointed by the group of producers will do the marketing and sale of the grain stock. A silo-owner can be appointed by the group of producers to administer the pool, and he provides services in terms of handling and storage. The stock belongs to the producers participating in this pool. The pool is exposed to price risk and, therefore, has to hedge itself. All price risks and hedging costs are for the account of the specific pool.

Grain stocks related to 'back-to-back contracts'

The silo-owner acts as the agent of the buyer of maize (millers/processors) and purchases the maize from the producer. The buyer determines the price and the quality of the grain. The stock belongs to the buyer (the milling company/processor and NOT the silo-owner). The buyer will also determine where and when this stock will be utilized. After the maize has been purchased, the silo owner acts as the supplier of storage and handling services.

Hedged Stock

The silo-owner purchases the maize from the producer. The silo owner is now exposed to price risk, which might be hedged on the futures market. Any role player on SAFEX can now buy this stock from the silo-owner. As soon as the silo-owner has hedged the stock on the futures market, he is no longer exposed to the fluctuation of prices and, therefore, can earn the amount that is charged for handling and storage. The risk of any price movement is through the SAFEX hedge transferred to another player on SAFEX.

The deliveries received by all silo-owners during the past 3 seasons can be grouped according to the classifications above. The first 3 classifications can be considered as deliveries/stock for other people's accounts, while purchases by the silo-owners for their own account make up the balance. As indicated in Table 2.1 (below), the latter is, generally, the smallest component of all stocks and deliveries – thus making it almost impossible for silo-owners to influence the market.

Table 2.1: Grain deliveries to silos

	2000/01			**2001/02**			**2002/03**		
	Total deliveries (t)	Own account (%)	Other accounts (%)	Total deliveries (t)	Own account (%)	Other accounts (%)	Total deliveries (t)	Own account (%)	Other accounts (%)
White maize	4 281 951	1.3	98.7	3 934 741	2.1	97.9	4 245 747	0.6	99.4
Yellow maize	2 382 224	2.0	98.0	2 721 341	1.6	98.4	3 082 797	0.9	99.1
Sunflower	539 405	0.05	99.95	573 739	0.35	99.65	572 758	0.2	99.8
Wheat	1 893 301	2.5	97.5	1 944 699	2.9	97.1	2 046 272	2.2	97.8
Sorghum	203 311	0.23	99.77	111 821	0.45	99.55	112 746	2.05	97.95

The working of a 'trading book'

There exists a wide range of marketing options for all the role players in the maize market, which depends on factors such as the time of marketing, the trends in futures prices, the cash flow position, and quite a few others. In this Section, some of these marketing strategies will be illustrated through explaining the basic functioning of a "trading book", which role players have to maintain in the market. A "trading book" contains all the open positions that a role player has in the market. These positions can either turn out in a profit or a loss, depending on the trend in the futures market. It follows that these positions need to be managed with skill and discipline. This discussion of the trading book also shows that it is unlikely that a silo-owner can, or wants, to use his trading book to influence the futures market.

It is assumed that the spot price for white maize on SAFEX (nearby contract) trades at R900/ton, 4 months ahead of the harvest period (see Table 2.2). Two scenarios are used as an example to depict the possible functioning of the market. For the first scenario, it is assumed that the SAFEX spot price increases by R200/ton, and for the second scenario it is assumed that the SAFEX spot price decreases by R200/ton. The term "spot price" refers to the price of the nearby contract, which is traded on the futures market on the selected trading day.

Four months before the harvest time the silo owner (e.g. Afgri) buys maize from the farmer. The contract price, or the farm gate price (realisation price), is R800/ton (R900/ton minus R60/ton transport differential minus R25/ton handling fee and R15/ton commission). The silo-owner immediately hedges his downside price risk by selling a future contract on SAFEX. All major role players have taken a position in the market and, therefore, have "opened their trading book". Now they need to manage their risk on these open positions in their trading book.

Scenario 1: The SAFEX price increases by R200/ton

At the time of delivery/sale to a maize miller or processor, the SAFEX spot price has increased to R1100 per ton. The miller buys at an actual price of R1015 when transport and the handling fee are accounted for. The silo-owner gains R215/ton on the physical trade of maize because he bought it at a lower price (of R800), but loses R200/ton on the futures market by means of buying back the future contract. The net gain of the silo-owner is R15/ton; the initial commission that was charged when the maize was bought from the farmer. The miller's call option is "in the money". He can either exercise or sell this call option. For simplicity's sake, it is assumed that the call option is sold at a profit of R200/ton and he buys the physical maize from the silo-owner at R1100. Hence, the miller loses only the R30/ton premium he initially paid for the call option.

Part 5

Table 2.2: Trading book of various roll players in the maize market

TRANSACTION	SAFEX Price	Transp. Differen-tial	Handl-ing	Commiss-ion	Premium	Realisa-tion Price
1) 4 MONTHS AHEAD OF HARVEST						
The Farmer						
Farmer sells physical maize to silo	900	60	25	15		800
Farmer buys future contract on SAFEX	900					
The Silo-owner						
Silo-owner buys from farmer	900	60	25	15		800
Silo-owner sells future contract on SAFEX	900					
The Miller						
Miller buys call option on SAFEX	900				30	
2) AT HARVEST TIME						
a) Scenario 1: SAFEX price increases by R200/ton						
Farmer sells future contract on SAFEX	1100					
Silo-owner sells physical maize to miller	1100	60	25			1015
Silo-owner buys back future contract	1100					
Miller sells call option on SAFEX	1100					1070
Profits and Losses						
Farmer	R200/ton loss on physical maize. R200/ton profit on futures market					
Silo-owner	R200/ton profit on physical maize + R15/ton commission. R200/ton loss on futures market					
Miller	R200/ton loss on physical maize. R170/ton profit on call option.					
b) Scenario 2: SAFEX price decreases by R200/ton						
Farmer sells future contract on SAFEX	700					
Silo-owner sells physical maize to miller	700	60	25			615
Silo-owner buys back future contract	700					
Miller's call option expires	700					
Profits and Losses						
Farmer	R200/ton profit on physical maize. R200/ton loss on futures market					
Silo-owner	R200/ton loss on physical maize. R200/ton profit on futures market+ R15/ton commission					
Miller	R200/ton profit on physical maize. R30/ton costs of call option					

Scenario 2: The SAFEX price decreases by R200/ton

Under this scenario, the silo-owner sells/delivers to the maize miller at a lower price of R700/ton (an actual price of R615/ton when transport and handling fee is accounted for). The loss on the physical trade is R185/ton (R800-R615). Through buying back the futures contract a profit on SAFEX trade of R200/ton is made. The net gain from running the trading book is once again R15/ton.

From this explanation and from the information presented it is evident that it would not be in a silo owner's interest to hold back stock and so influence the market price. From the evidence provided here, it is also unlikely that the silo-owner will actually be able to do that since the grain in the silos belongs to different role players.

2.3 Transport costs and food prices

Introduction

Recent studies have shown that retail and transport margins have a huge impact on food prices. There is also a view that the South African Transport Policy, as currently implemented, is eroding competitiveness of South African goods particularly because of the inefficiencies in the rail transport. Another view is that the axle load on the road and poor inspection by the road traffic inspectors has resulted in overloading and free riding by heavy vehicle users at the expense of light vehicle users.

The South African government transport strategy is reflected in the Moving South Africa project. The Moving South Africa Project (MSA) was designed to " provide safe, reliable, effective, efficient and fully integrated transport operations and infrastructure which will best meet the needs of freight and passenger customers at improving levels of service and cost in a fashion which supports government strategies for economic and social development whilst being environmentally and economically sustainable."[1]

It has been argued that recent government policies have relied on a simple yet contentious hypothesis that market-oriented policies in South Africa will result in allocative efficiency. Following this argument it is presumed that less government is better government and that competition increases welfare. This argument infers that privatisation and deregulation (which both reduce government involvement and increase competition) necessarily enhance economic efficiency. Despite theories of second best and of market failure, this (old) article of faith remains seductive, particularly, where roads and rail transport are concerned, sectors that straddle the grey zone between pure public and pure private goods. In this murky area, however, the design and implementation of the process can also be centralised; privatisation alone might well not be a necessary and sufficient condition for the achievement of efficiency and welfare gains.

This reveals some inefficiencies in both road and rail transport that do have an impact food prices at the expense of the consumer. One suggestion is that Government levels the playing field between road and rail by addressing the axle size and invests in rail to reduce the costs of transport.

Background

In recent years, the number of toll-roads in South Africa and the volume of traffic they carry have expanded sharply. Some were originally built and maintained by the South African National Roads Agency (SANRA), which subsequently outsourced their

[1] Moving SA, 1998, Department of Transport, Government Printers, Pretoria

operation, the maintenance and the toll collection to the private sector. Since 1997, the process has also made allowances for unsolicited bids, that is, private consortia obtaining the right to levy toll from traffic on a particular route by paying SANRA for an existing road and agreeing to maintain it for a fixed period. Currently, SANRA maintains South Africa's roads using funds allocated by Parliament. It performs some of the work itself, the remainder of the upkeep and construction activities it puts out on tender. Privatisation is seen as an alternative process that contributes funds to the fiscus and reduces subsequent demands on it.

The government transport policy document, "Moving South Africa", requires that the tolling system be economically efficient. In its overview, Government proposes the objective that tolls should: *"recover full costs from user*s". This is based on two premises: the first requires that users be charged for the full cost of their use of the infrastructure and operations used, as well as the full cost of all externalities they generate. The second premise requires that users *not* be charged full costs in order to support infrastructure and operations that do not provide them with benefits.

Economic efficiency requires that the price paid by a road user equals the marginal social costs incurred. It requires that each road user pay toll fees equal to the incremental costs which that user is imposing:

a) on maintaining the road – marginal operating costs
b) on other road users – marginal external costs
c) for the road itself – amortisation/interest on capital expended

A final caveat is that no group of users should cross-subsidise another. Leighman (2003) has concluded that in South Africa light motor vehicles subsidise heavy vehicles. Therefore, in terms of systemic efficiency, the cross-subsidization of heavy vehicles has implications for the competitiveness of Spoornet. These will be discussed later in this Chapter. It will be argued that economic efficiency requires a rise in the ratio of the toll paid by a heavy vehicle to that paid by a light one; moreover, that such tolls be collected on *all* the roads in the country, and that the means of calculating and collecting tolls be changed.

The toll system in South Africa has some points of failure. One obvious weakness is that the tolls levied in South Africa are not based on actual axle loading, but on potential vehicle capacity (number of axles). A vehicle laden to the legal limit pays no more than one carrying a far lesser load. The implicit incentive is to reduce the number of vehicles and to load them more heavily. This reinforces the effects of existing scale-economies in road transport, which already induce overloading.

An even more central tenet is that an increase in the number of axles *reduces* the damage done by a given load, yet the South African tolling system *increases* the charge as the number of axles rises. A true 'the user pays' toll should be based on a combination of: loading per axle/ number of axles/distance covered. Such tolling systems are already used in places like Oregon, Iceland, New Zealand and Norway. In South Africa, the

transactions cost of establishing and monitoring such a toll form the immediate constraints on its introduction.

Another issue is that fully laden heavy vehicles are not paying the full costs that they impose on the network; they are, in fact subsidised by tolls paid by light vehicles. Moreover, tolling one road in a network has impacts on traffic flows elsewhere. It can lead to distortions and unexpected costs that threaten the efficiency of the overall transport network. Currently, the bulk freight transport system is already subject to distortions.

Spoornet, the SA rail operator, not only has to cover the running costs of its own haulage operations but is also responsible for all track construction and maintenance. In contrast to this, hauliers do not pay for road damages or any clean ups (e.g. chemical spills) that are caused by accidents involving trucks, while rail operators have to cover all cost associated with rail accidents. Also, road haulers are not subjected to variable tariffs to make them liable for either road construction costs or for their share of road maintenance costs. While such distortions are in place, the market mechanism cannot be relied on to allocate resources efficiently. This pattern of distortions and the advantages enjoyed by road hauliers over rail transport are especially marked in South Africa. Another example of this is that the maximum gross vehicle mass allowed on the roads is 56 tonnes; well above the limit of 48 tonnes in the early 1990s, and far above the 38 tonne limit in the USA (and SADC countries such as Mozambique and Angola). Overloading of trucks is another aspect. The CSIR and the Road Freight Association estimate that 15% to 20% of all heavy vehicles are overloaded, and that these are responsible for approximately 60% of the road damage (which they value at R600 million annually). Heavy vehicles loaded according to regulations cause the bulk of the remaining damage, and light vehicles cause virtually none.

In 2000, the Department of Public Enterprises (DPE) of the South African Government announced its plan to break Spoornet into separate businesses and concession them to the private sector. Two years later, after more than eight months engagement with the railway trade unions, Government accepted that this plan made no developmental, business or financial sense.

Who is Spoornet?

Spoornet is the largest railroad and heavy haulier in Southern Africa with annual revenue of over R10 billion, generated by the transportation of 181 million tonnes (mt) of freight. It has a 55% market share of the 329 mt cargo available in South Africa. To serve these markets, it utilises 19,282 active route kilometres and an active fleet of 2,410 locomotives and 88,000 wagons. In addition to its extensive rail network, which represents 80% of

Africa's rail infrastructure, Spoornet also connects with rail networks of the Sub Saharan region.

The business focus in the different markets is ensured through the operations of strategic business units, namely GFB (domestic and export general freight cargo), COALlink (export coal), OREX (export iron ore), Luxrail (5 star hotel on wheels) and Shosholoza-Meyl (inter-city passenger transport). GFB is the largest business unit of Spoornet in terms of revenue, and the number of customer accounts and people employed. It handles in excess of 52% of Spoornet's freight tonnage per annum.

Spoornet's competitive position in terms of the market share is measured as a percentage of the total surface freight public transport market, and, more specifically, in the three main sectors of the economy, namely agriculture, manufacturing and mining. Diagram A (below) quantifies modal volume movement, classified by type of traffic. (*ATD = Average Transport Distance*) The Diagram reveals that 59 mt of the 147 mt transported by public road (transport for hire or reward) is long distance traffic on the main road corridors, which is commonly regarded as natural rail type traffic. This road traffic can therefore be seen as theoretical potential rail traffic for Spoornet.

Table 2.3: Turnover in the different business sectors of Spoornet

BUSINESS SECTOR	**2001/2002**	
	Tonnes (Millions)	**External Turnover (Millions)**
Industrial Mining	19	1,353
Grain and Timber	**12**	**796**
Building, Construction & Coal	16	956
Steel	23	1,563
Fuel, Chemicals & Fertilizers	10	1,074
Consumerware	7	851
Consolidation Customers	3	262
TOTAL GFB	**90**	**6,855**
COALlink	**65**	**2,476**
OREX	26	892
Luxrail	N/A	55
Shosholoza-Meyl	N/A	262
TOTAL	**181**	**10,540**

Diagram A

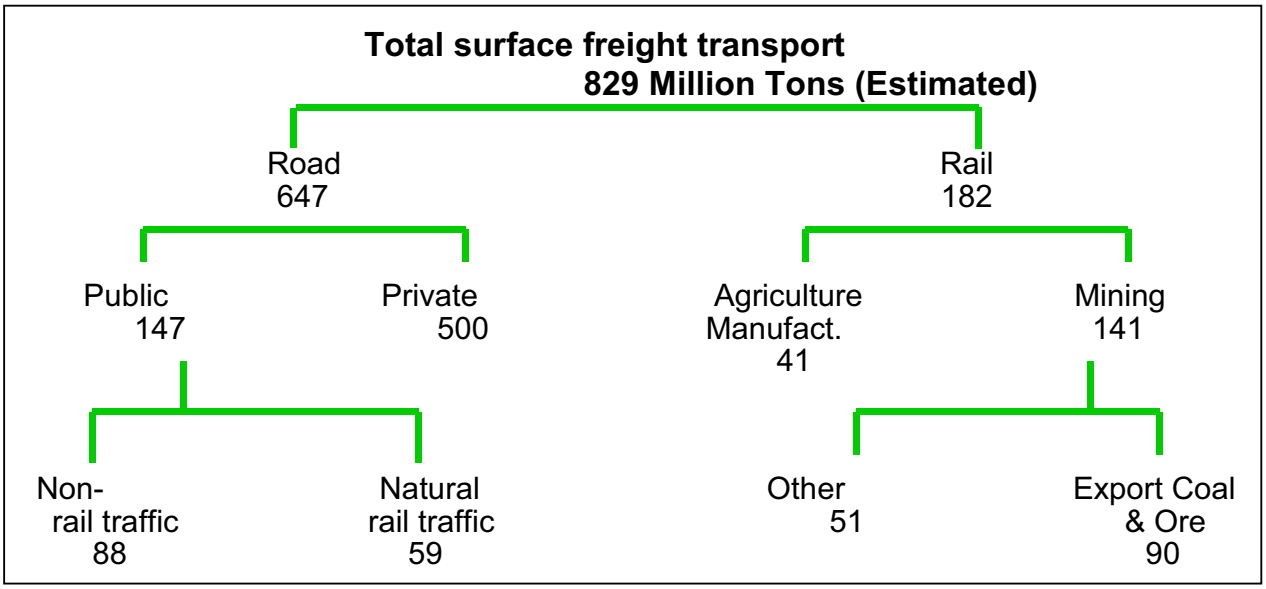

Diagram B

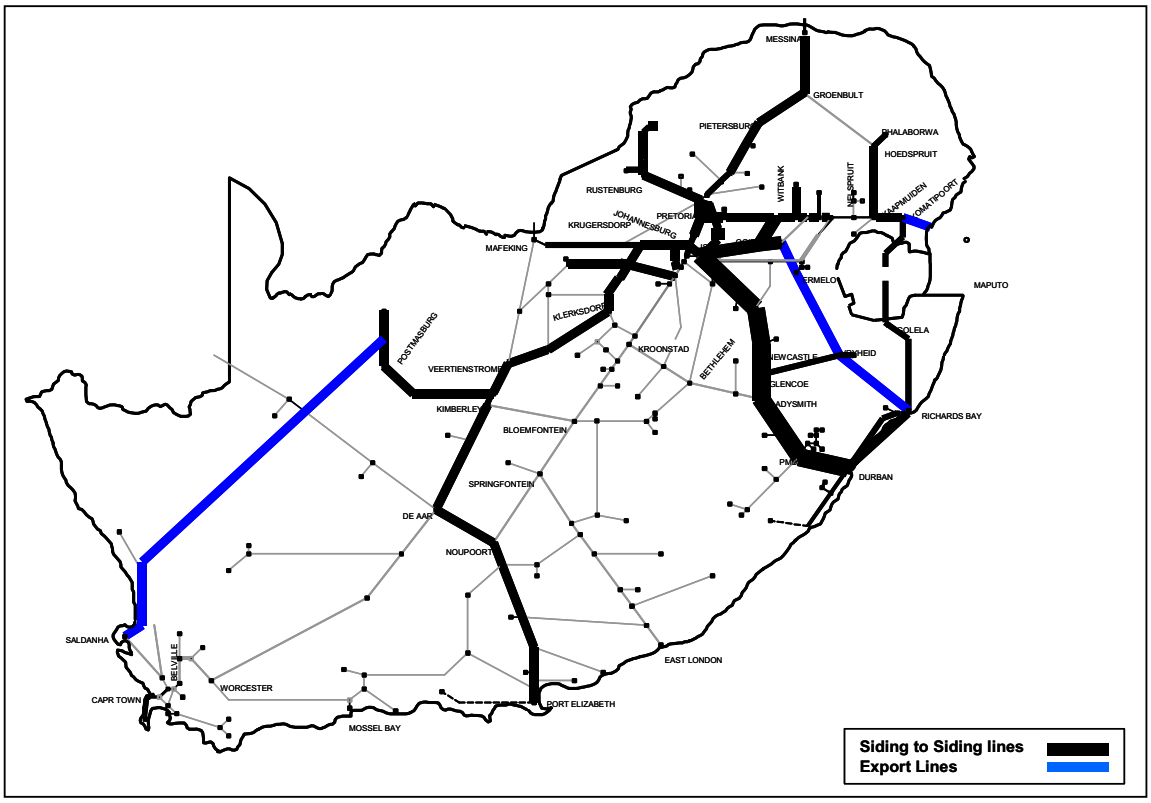

Diagram C

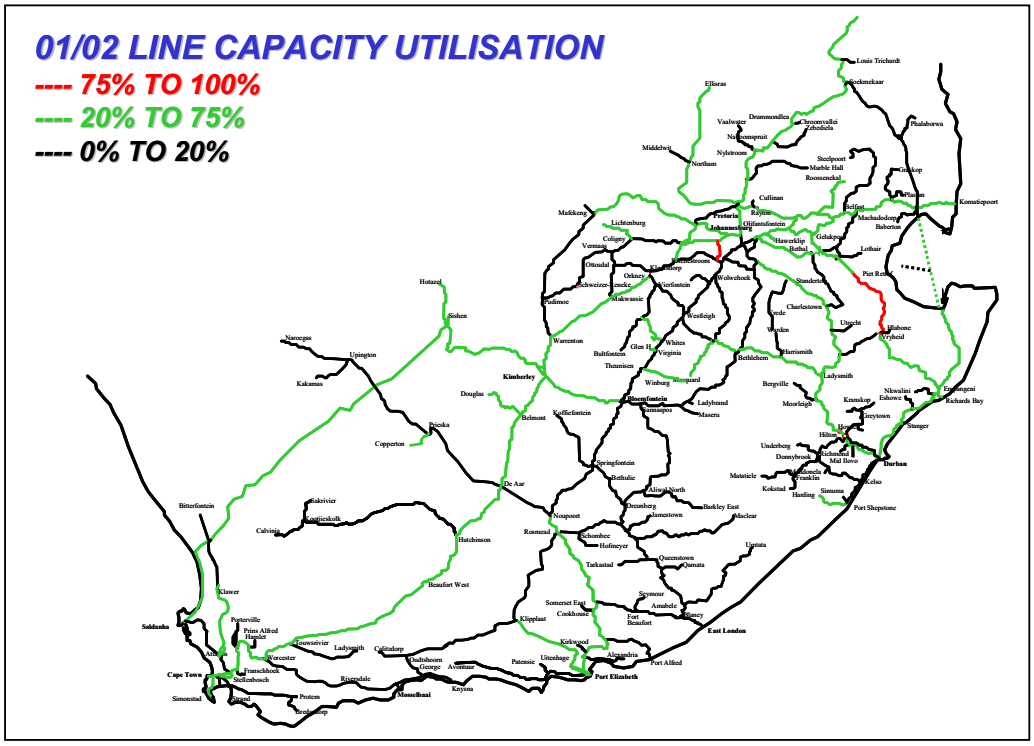

Diagram B shows the export lines and sidings for rail freight. Diagram C indicates that the rural network is 0–20% utilised. Therefore, most of the farming output, when transported by road, impacts negatively on the road infrastructure and pushes the transport costs up as the price of diesel increases. Spoornet argues that transport is a derived demand, consequently they reason that there is therefore minimal scope for Spoornet to stimulate the demand for transport in farming communities.

The capital-intensive nature of Spoornet's business and the long life cycle of its assets contribute to an inflexible cost structure. Spoornet hired a consulting company, Halcrow, to address the above situation through product efficiencies and cost containment. Halcrow's findings include a proposal to rationalize non-profit customers that are the greatest cost contributors. It further proposes a network rationalization, which, together with measures for improvement, will create a GFB that could be funding its own capital investment. Management has implemented some of the proposals; they have resulted in allegations, however, that the closure of certain lines has led to high transport costs particularly for grain and timber.

Spoornet's share of medium value and medium volume that benefited agricultural products traditionally sent by rail is being eroded by road competition as a result of Spoornet's poor service delivery, capacity constraints, and ageing equipment. During the 2001/2002 financial year, 90 million tonnes were transported by GFB against 94 million tonnes in 2000/2001, with a fleet best suited for 82 million tonnes per annum. This placed excessive demands on Spoornet's resources and directly affected their ability to service

base-load business. The inability to transport the required demand resulted in extreme customer dissatisfaction.

GFB cannot afford to maintain its historic asset base because of the high level of maintenance and renewal/investment cost which this requires. This lack of financial resources is caused by the fact that a significant amount of current business is transported at a loss, which is not sustainable in the long term. The well-publicised price hikes of around 40% were introduced, partly to address these problems but might lead to further erosion of the remaining slice of the market in favour of road transport

The legislative bias towards road usage, where "road trains" can transport a maximum of 58.8 tonnes (including 5% margin of error allowed by the Department of Transport), has, over the years, led to a considerable decline in general freight tonnage transported by rail.

In other words, it is relatively easy to gain access into the road transport market. As a result, road hauliers have experienced excess transport capacity, and, so, cut-throat prices are offered, while at the same time gross overloading has become the norm in order to compensate for depressed prices.

As sole owner and user of rail, Spoornet bears the total cost of its infrastructure and maintenance, which is not the case with road hauliers. Spoornet is experiencing turbulent times as markets and customers respond to the threats and opportunities of globalisation, but also to current structural changes in domestic markets. Against the backdrop of the general economic outlook, Spoornet's current market position is affected by the following:

- There is a rising demand for rail transport in many of the primary sectors of the economy. Spoornet's ability to capitalise on this is influenced by the number of players and size of consignments, the latter being predominantly single wagonload traffic.

- Productivity improvements to overcome capacity restraints in wagons and locomotives are influenced by their effect on customers. Notably improved wagon utilisation also requires the active co-operation and buying in of customers re improved loading and off-loading times.

- A climate of uncertainty is not conducive for an enthusiastic marketing and service-oriented delivery.

- A focus on profitability as opposed to income will affect the majority of GFB business.

- There is an increase in competition by road hauliers creating market niches.

Table 2.4: Spoornet budget and operating costs: 2000/01 to 2002/03

Components	00/01	01/02	02/03
	Actual	Actual	Budget
Total Labour Costs	4 042 034 460	4 045 208 932	4 351 500 000
Total Operating Costs	9 721 486 746	10 033 118 097	11 314 100 000
Labour Cost as % of Operating Costs	41,58%	40,32%	38,46%

Conclusion

As the traditional freight carriers, Spoornet has been confronted by new State regulations that raised the maximum gross (road) vehicle mass to 56 tonnes, an unusually high level by international standards. The greater flexibility of road transport and the economies of scale when trucks are heavily loaded, have resulted in more and more freight being diverted from rail to road. The state's failure to recover the costs that these vehicles impose on the road system has distorted the system further in the favour of road haulage. Because road haulage is cross-subsidised by taxpayers and drivers of small vehicles, it has made the current system unsustainable. With no alternative but road transport, this has led to an increase in the price of food and other commodities in rural areas. .

South Africa is a country with a high quality road infrastructure; at the same time, it lacks sufficient funds to maintain it. In public meetings on unsolicited bids for the privatisation of arterial roads, it has become clear that 'interested and affected parties' are willing to pay for the certainty that these roads will be maintained in the future. It is not clear, however, how much they are willing and able to pay; how payment must be exacted; and what is desirable in terms of economic efficiency.

It appears that Spoornet may also have been responsible for the diversion of the transport of goods from rail to road because of poor service delivery caused by the ageing fleet. This situation has been aggravated by the legislative bias towards road transport, where "road trains" can transport a maximum of 58.8 tonnes. In response to these challenges, Spoornet has increased its prices to maintain its fleet and in so doing, increased transport costs, making it even less popular as an alternative for transport. In a growing economy where there is an excess demand for transport, Spoornet should perform well, even when charging higher prices, which are inflexible because of its cost structure, as long as the network and service is reliable.

There is a need to recapitalise Spoornet. This has been recognised by Government. Recapitalisation will assist in improving Spoornet's efficiency. Another, even more important, aspect is the need to amend the Road Act, which favours road haulage to the detriment of rail transport.

South Africa needs to look at its macroeconomic strategy, particularly that of creating employment in rural areas aimed at alleviating poverty. One of the policy options is the provision of a direct subsidy by the National Treasury to Spoornet to keep the networks alive. This will ensure that Spoornet does not raise prices; at the same time this will create employment and in doing so it will assist in the alleviation of poverty. In essence,

it is virtually impossible for any railway to make money on a stand-alone basis. The State either provides a subsidy directly or ring fences areas that have huge negative externalities. The State has a responsibility to also ensure that food is accessible to all and that there is mobility to reach out to the poorest in time of food insecurity. An investment in rail services will reduce the cost of transport and so result in food prices becoming affordable. At the same time, revitalising the rural rail networks promotes local economic development, which the country desperately needs.