

# Institutional Constraints to the Competitiveness of the South African Citrus Exports

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Received: January 10, 2013 / Published: July 20, 2013.

**Abstract:** This paper examined the dual institutional constraints arising from the market liberalisation of the South African citrus industry and the stringent food safety health and private standards associated with the globalisation of the agri-business industry. The aim of this paper was to explore the institutional challenges influencing the competitiveness of the South African citrus industry in the export markets. It also explored the implications of the institutional environment on market access. The logistic regression model was used to analyse the statistical data while simple ranking was used to indicate the new and emerging forces affecting the profitability of the industry in recent years. The results show that access to market information, economies of scale, compliance with strict food safety and quality standards, lack of proper infrastructure including transport and challenges of managing a business within the international business environment exerted significant effects on the competitiveness of the industry as well as the ability of domestic producers to enter the export markets. There is need for government intervention especially aligned to investing in infrastructure. Coupled with the support of private institutions, the government needs to support the exporters and producers in complying with private standards.

**Key words:** Institutional constraints, performance, competitiveness, South African citrus industry, export markets.

## 1. Introduction

The South African apartheid era was characterised by a complex array of tariffs which underpinned its protectionist policies. South Africa committed itself to extensive tariff reduction reached at when the country took part in the Uruguay Round of multilateral trade negotiations that commenced in 1986 and was finalised in Marrakech in January 1994. Thus, trade liberalisation coincided with transition to a democratic government. The new government's Reconstruction and Development Programme (RDP) emphasised worker rights and growth through redistribution [1].

The deregulation exerted pressure on the industry as it was coupled with eliminating subsidies, research support, price support, phasing out certain export and import controls and introducing import tariffs [1]. The South African fruit industry was exposed to intense

competition with the world's best and farmers had to position themselves as players in the globally competitive environment [2]. Essential services such as storage, value adding, information dissemination and research, grading and deliveries which were formerly provided by marketing boards were interrupted for a short while. Price risk management was consequently provided by specialised marketing institutions such as South African Futures Exchange (Safex) and the Agricultural Futures Market of JSE [2].

South Africa's deregulation exercise went beyond the requirements of the Uruguay Round Agreement [3]. Consequently, the South African agriculture sector became one of the least protected in the world [4]. The producers were caught in between the impasse of rising quality standards and falling prices [5] at a time when they were least prepared [6]. Competition against the heavily subsidised producers in developed countries became stiff. Neither could the

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local producers compete against highly subsidised imported commodities [7]. It appears though that the policies embarked on did not take into consideration the potential effect on the emerging farmers [1]. Given that the highly demanding international trade environment poses challenges for the established commercial producers, the small producers may not make it either without government support.

The deregulation of the fruit industry led to many changes that affected the performance of the industry. Some of the changes include an opportunity for anyone to register as an export agent, increased foreign direct investment, changes in the structure of employment and increase in the need for additional infrastructure and infrastructural changes. Also, deregulation led to an improved level of customer service, fragmentation of the citrus commodity chain, difficulty to cope with the volatile free market without government support by the small farmers and losses for inexperienced new entrants. Competition associated with the deregulation of the fruit industry led to an improved payment system for all growers [8]. Payments in the regulated system were slow, but are more prompt for the liberated growers. The former were characterised by fixed payments and minimum guarantees.

The ability of anyone to register as an export agent resulted in the emergence of a large number of domestic export agents [9], which caused a 20% export loss for the Capespan in the year following deregulation. By 1999, the number of export agents had grown to over 160. The Fresh Produce Exporter's Forum (FPEF) was then formed by export agents to address problems such as competition of agents against each other which usually led to oversupply in some markets. Consequently, oversupply led to poorer prices for the growers [10].

The increased foreign investment which was facilitated by the deregulation of the agricultural sector saw the establishment of companies associated with citrus export industry within exporting countries.

Two of the world's largest multinationals, namely Dole and Del Monte established their branches in South Africa. Dole and Del Monte invested in packing and cold storage facilities [8]. Doubtless, this significantly shaped the industry, impacting on its competitiveness in the international market. Many farm workers lost their jobs and some inefficient farmers failed to survive global competition without government support in the form of subsidies. While globalisation improves overall competitiveness of nations and production efficiencies, the resultant jobs creation and reduction of unemployment is mostly experienced in the advanced nations [11]. It ultimately has the potential of bringing about poverty in the less developed ones. For instance, about 200,000 permanent and another 200,000 seasonal farm workers lost their jobs between 1986 and 1996 as a result of the deregulation of the agricultural sector [9]. This impacted on productivity of the industry which was unprepared for such a change.

Although it takes a while for situations to normalise after a change, domestic producers and exporters needed to adjust to the needs of the competitive global fruit market. The emergence of businesses as a result of deregulation of the fruit market resulted in an increased need for additional infrastructure and infrastructural changes [12]. An increase in the need for high quality infrastructure and importance of reliable transport is inseparable from the high stringent demands of the competitive global market. Increased high quality infrastructure and the importance of reliable transport are of great importance since long periods are experienced to get the product from the grower to the plate [12] and delays affect the quality of the fruit [6].

According to Mather and Greenberg [9], deregulation of the fruit industry led to a fragmented citrus commodity chain. The industry experienced a shift in market power from cooperatives and the single desk exporter to large, privately owned citrus enterprises. Fruit buyers in the lucrative UK retail

chains such as Sainsbury's, Tesco and Marks and Spencer did not favour privately owned citrus enterprises as they lacked traceability and provided fruit of an uneven quality. Consequently, suppliers that lacked traceability and had uneven fruit quality were forced to export to wholesale markets in the European continent, especially, Eastern Europe and Russia where prices are lower [9]. Such a shift has a bearing on the revenues [1]. Thus, quantities exported may not be a good indicator of the actual performance of the industry in the international market as the revenues are determined by the prices offered by the markets of choice. The fast global spread of the Good Agricultural Practices (GAP) regulations and their implications may seriously impact on such citrus enterprises, such that they might fail to stand against the pressure.

Small farmers found it difficult to cope with the volatile free market without government support. Small white farmers, with small volumes of poor quality fruit, faced the problem of unsustainable debts and fewer resources. Small black farmers faced challenges of severe credit constraints, failure to meet the stringent export market requirements and are often undercapitalised [9].

The deregulated market provides the opportunity for independent fruit growers to influence the optimisation of the value chain. This is even more important considering that the market has shifted from being producer to demand-driven [12]. Producers are sanctioned to arrange their own marketing and export of fruit at any price, to any market, while complying with the minimum Perishable Products Export Control Board (PPECB) quality standards [6].

Deregulation removed barriers to entry to the industry. Small businesses entered into the industry hoping to benefit from the new opportunity. This led to capacity shortage at major points in the supply chain [12]. For example, the ports throughout SA have struggled with adjusting to the increased demand for capacity and are in the process of developing ways of

meeting the requirements. The erection of additional cold stores and pack houses was embraced by the industry to address the problem of insufficient capacity, since the infrastructure was previously based on the operations of a single channel system. The uncontrolled entry of new players into the industry led to competition. Competition in turn led to price wars, which in turn prompted a reduction in the level of profits [5]. Complexity increased within the industry. The rigidity of the single channel system also led to the importers resorting to other countries for fruit supplies. Markets which were previously considered as exclusively supplied by South Africa are currently immersed with fruit from new supplying countries [12].

New entrants and new brands in the fruit export market were also linked to many inexperienced and/or incompetent service providers [6]. Many businesses operated at a loss, which might have negatively affected the economy. Some inefficiency was a result of the fact that all past experiences and knowledge were accumulated with focus on the improvement of the regulated industry. Effective management became a challenge in the face of the sudden change. An increase in efficiency was needed especially at the ports where shipping lines needed to meet a specific window overseas [12].

The South African citrus industry is faced by multi-faceted challenges ranging from constraints to production to those involving marketing and market access. Although South Africa enjoys a counter-season production system to its major Northern hemisphere rivals especially Europe [2], which is the country's main export market, transport costs are very high, especially rail to ports (primarily Durban). Exporters also incur additional costs at harbours. This is a major challenge especially when exports are destined for the European countries, where South African citrus industry's Northern hemisphere rivals have relatively low transport costs as they are closely situated to the markets concerned.

Crime is a major concern in South Africa and may lead to lack of confidence with regard to investments. The murder rate for farmers has been estimated to be 313 in every 100,000 per year [13]. An estimated 11,600 commercial farmers had remained in the South African land down from approximately 85,000 in 1994, while millions of farm workers lost their jobs [14]. However, farm attacks are considered as a manifestation of crimes such as robbery, housebreaking, murder, malicious damage to property. This gives the actual statistics on farm attack unreadily available as the attacks are categorized into common crime found in the society.

Factors such as traceability, the monitoring of social and environmental standards, the transmission of new technology and good agricultural practices, maintenance of the cool chain and the general logistics all tend to favour larger scale agricultural operations. The investment costs associated with high standards of quality certification make it difficult for smallholders to participate in the export market. The capital required for investment in post harvest processing and the cool chain and the need to ensure rapid and reliable export have also favoured large-scale exporters [15].

Value addition in fruit exports involves comparatively little product transformation or processing. It is usually confined to preparation, packing, bar-coding and labelling. Though highly labour intensive, the activities make traceability easier and reduce repacking at destinations [15]. Value addition requires considerable investment in terms of technology, equipment and management systems. This is, however, a potential barrier to entry for smallholders and the not so well capitalized exporter or producers.

Adherence to Maximum Residue Limits (MRLs) of pesticides in food and the possession of a phytosanitary certificate are legal requirements for any exporter especially in the UK supermarkets. Many other compliance requirements, such as traceability,

adherence to good agricultural practice (GAP) and the possession of a hazard analysis and critical control point (HACCP) system are not legally mandated but may be imposed by the buyer. The less demanding (in terms of ethical, social and/or environmental standards) UK and Asian wholesale traders are declining in importance as outlets for exporters [15]. This means that the wholesalers are compelled to impose more stringent requirements if they should remain in business of selling the citrus products.

Public grades and standards are being overtaken by the private grades and standards imposed by the large supermarkets and processors [15]. The affluent consumers in the developed markets have the confidence to demand anything from the market as they are prepared to pay for their demand [16]. Citrus fruit producers and exporters can no less remain competitive in the market than retailers would remain in business without meeting consumer demands and anticipations. Neither could loyalty of the consumers and strong relationships be retained without meeting consumer expectations. Despite the rise in private standards, most changes in consumer preferences have been found to be predictable [16].

The globalisation of both the product and product markets has been the dominant mode to overcome the pressures arising from institutional changes [17]. However, when industries enter a specific institutional environment, they are faced with both formal and informal constraints that force them to respond either passively or actively. Organisations or industries, however, often play an active role by interacting actively with institutions. Although institutions reduce uncertainty through establishing a stable structure to human interaction, efficient markets can only be obtained when it is costless to transact. This is, however, not the case in today's highly competitive global market that is characterised by many standards and restrictions, complex international business environmental elements and technological advances that may not be affordable and accessible to all

players. The objective of the study was, therefore, to establish the formal and informal institutional constraints to the competitiveness of the South African citrus industry in the export markets. More specifically, the aim of the study was to investigate using institutional theory, the kind of difficulties and challenges the South African citrus exporters face in sustaining or maintaining their competitiveness in the international markets. The study also paid more attention to contextual factors which affect entry into the international markets.

## 2. Analytical Framework and Model

The study was based on the investigation of the influence of specific predetermined institutional constraints to the competitiveness of the South African citrus industry. While competitiveness is a function of multiple diverse forces, the influence of institutional environment is very critical. Thus, the research design allowed for an analysis of the implications of institutional constraints for both the competitiveness and market access of the South African citrus industry. Institutional theory is particularly important because it draws attention to non-market constraints and pressures [18]. The study adopted the industry level as the unit of analysis.

The analysis was based on data gathered through the use of a questionnaire that covered 151 citrus producers. Both the qualitative and quantitative approaches to data analysis were used. Qualitative analysis consisted of the respondents scoring the pre-determined challenges of competitiveness and profitability. This entailed indicating those determinants which were on the rise in recent years and presented threats to the profitability of the industry. The nature of the institutional factors or forces is such that they either enhance or impede market access or competitiveness. They thus lend themselves to analysis using a binary model which made the binary logistic regression model a suitable one for purposes of determining the institutional

constraints to the competitiveness of the South African citrus industry in the export market.

The logistic regression model that was used in this study is of the form:

$$\text{Logit } (\gamma) = b_0 + \beta_1 \chi_1 + \beta_2 \chi_2 + \beta_3 \chi_3 + \dots + \beta_n \chi_n$$

where,  $\gamma$  = the dependent variable. This study had two different dependant variables namely: constraints to competitiveness and constraints to market access and entry;  $\chi_n$  = the independent variables (e.g., access to markets, economies of scale, access to extension services);  $b_0$  = constant;  $\beta_n$  = the odds ratio corresponding to a one unit change in the independent variables.

Table 1 provides a description, explanation and expected relationship between the dependent and explanatory variables. The institutional constraints dealt with in this study included issues such as lack of access to finance (ACCFIN), access to markets (MKT), access to proper agricultural inputs (ACCINP), technology (TECH), economies of scale (ECONSC), transactions costs (TRANSC) and access to human capital (HUMCAP). Market size (MKTSIZE) relates to the potential demand size of the fruit.

Lack of market information (MKTINFO) and high uncertainty levels associated with entry into foreign markets wherein local actors are thought to possess more information compared to foreign entrants increases transaction costs [19]. This is usually associated with rapid institutional changes and affects market entry and entry strategies. The rapid institutional changes often create inconsistencies and uncertainties between requirements of organisations at any point of time. The exporters need information concerning customers chiefly in emerging markets, negotiations with inexperienced agents along with unclear regulatory frameworks [19]. Fair competition among companies and industries is only possible where all players have perfect information [20]. Retailers are increasingly controlling and dominating the marketing and international distribution (RETIMPORT) of many

**Table 1** Description of variables used in the model.

Variable	Description of variable	Coding of variable	Variable code	Expected relationship
Access to markets	Binary variable for market access	1 if able to access, otherwise 0	MKT	+
Market size	Size of the export citrus market	1 if large enough, otherwise 0	MKTSIZE	+
Access to finance	Dummy variable for farmer's ability to access finance	1 if access, otherwise 0	ACCF	+
Access to proper agricultural inputs	Farmer's ability to access proper agricultural inputs	1 if access, otherwise 0	ACCINP	+
Technology	Technological developments associated with new production methods and varieties	1 if enhancing, otherwise 0	TECH	+
Economies of scale	Economies of scale large enough to warranty competitiveness	1 if yes, otherwise 0	ECONSC	+
Transport costs	Costs incurred in transporting citrus fruits and products	1 if enhancing, otherwise 0	TRANSC	-
Human capital	Binary variable for the availability of human capital for the farmer	1 if available, or else 0	HUMCAP	+
Access to marketing information	Access to information on markets and consumer demands	1 if farmer has access, or else 0	MKTINFO	-
Retailers in direct importation	Retailer direct involvement in the sourcing of fruit	1 if enhancing, or else 0	RETIMPORT	-
Management of international environment	Challenges of business management in international environment	1 if management is easy, or else 0	INTERMGNT	-
Extension services	Access to extension services	1 if farmer has access, or else 0	ACCEXT	+
Complying with food safety & quality standards	Difficulty in complying with food safety & quality standards	1 if able to comply, or else 0	COMPSTDS	-
Infrastructure	Availability of infrastructure that promotes competitiveness	1 if enhancing, or else 0	INFRAS	+
Regulations on property rights	Government regulations on property rights	1 if enhancing, or else 0	PROPR	+
Quality control measures	Strict quality control measures	1 if affordable, or else 0	QUALCONT	-

agro-food products including fruit. This may lead to the retailers dealing with a slim manageable supply base that they can establish long-term relationships with.

Lack of economies of scale (ECONSC) limits capacity building options such as restricted access to information and financial support services. Limited investments with regards to technology, development and training are thus attributed to the higher costs of these important services, in turn impacting negatively on productivity and competitiveness. Fair access to markets (MKT) is likely to become tenser for the smallholder and emerging farmers translating into increased poverty. Lack of access to credit and financial services (ACCFIN) is mainly due to generic conditions a borrower has to fulfil or incapability to contract a loan with a high interest rate. These act negatively towards the ability of these producers to finance their production activities and consequently

lead to failure to improve quality. Access to financial resources is essential to limit risks and decrease the producers' vulnerability to external factors negatively affecting quality. Thus, the exclusion of the smallholders from accessing finance can be a constraint to their opportunity and ability to improve on the quality of their products. Access to agricultural extension services (ACCEXT) and any other forms of technical support are very essential for the production of high quality fruit that can meet the consumer demand.

Government regulations regarding property rights (PROPR) affect confidence and ability of the farmers to invest in the farm land. Strict quality control measures (QUALCONT) especially by third parties attract additional costs which in turn negatively impact on the competitiveness and profit margins of the industry. The management of an international (INTERMGNT) business has challenges associated

with the complexity of the business environment within which the industry has to operate. The complexity of the international business environment is better illustrated by issues related to the rejection of fruit based on poor quality which often affect the producer who practically has little influence on the product beyond the farm-gate.

Difficulties in complying with food safety and fruit quality standards (COMPSTDS) attract costs which may further marginalize weaker economic players including small enterprises and farmers. The stringent food safety standards prevent producers, especially the smallholders, from building capabilities essential to improve not only the quality of their products, but also their participation in global value chains and export markets.

### 3. Results and Discussion

The results begin with the presentation of the factors affecting the profitability of the citrus industry that are relatively on the rise. The logistic regression results of the constraints to competitiveness of the industry as well as the institutional constraints to market entry are then presented.

#### 3.1 Market Side Challenges to Profitability

Many factors have been found to impede the competitiveness of the South African citrus in the export markets, in turn negatively impacting on gains. Fig. 1 illustrates some of the major challenges working against the profitability and competitiveness of the citrus business in the export market. While there are numerous and diverse types of challenges negatively impacting on the profitability of the industry's citrus products, fluctuations in exchange rates, high private food safety standards, lack of standards harmonisation, high transaction costs and oversupply in the export markets were deemed to be on the rise.

Production costs have been on the rise and these are exacerbated by the additional requirements associated with food safety and traceability, adding to the cost of

administration load. The costs are also raised by the lack of harmonisation of the global good agricultural practices (GAP) and food safety standards. In spite of rendering, the smaller farming units more unsustainable, price competitiveness becomes very difficult for the industry especially for processed citrus products [21]. The profitability of the citrus industry is also compromised by legislative requirements such as environmental, labour laws and skills development requirements.

#### 3.2 Results of the Logistic Regression

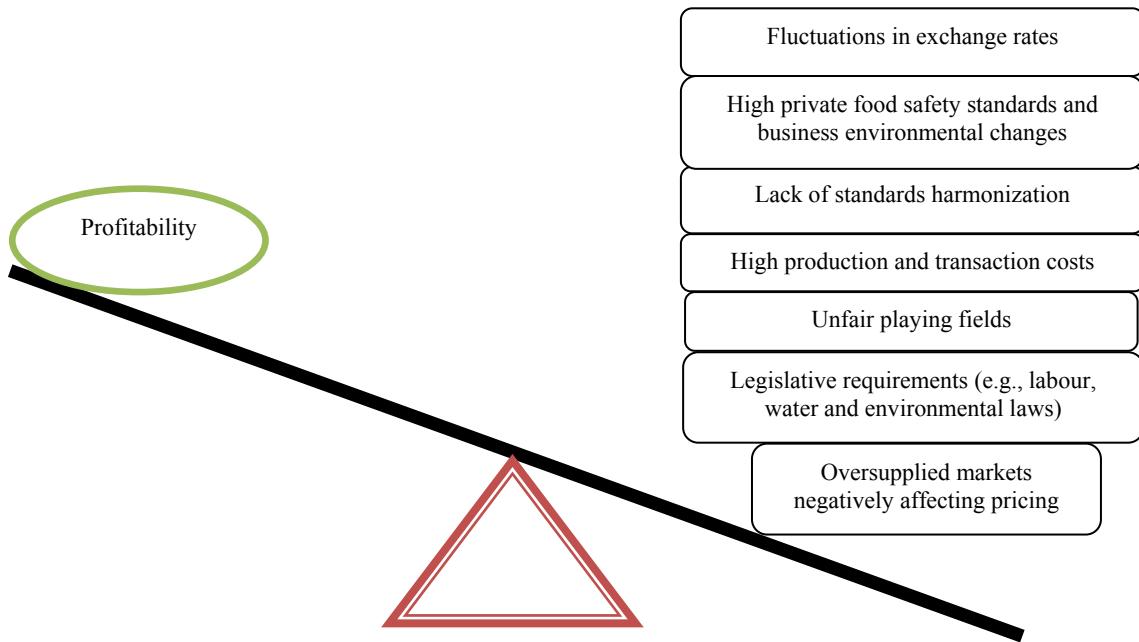
The binary logistic regression was used to determine the impact of institutional constraints on the competitiveness of the citrus industry. The response variables were constraints to export competitiveness and constraints to market access. The predictor variables included access to markets, access to finance, technology and economies of scale among others. The results of the regression analysis are presented in the subsequent sections.

##### 3.2.1 Implications of Institutional Constraints on Competitiveness of the Industry

There was a significant relationship between competitiveness of the industry and strict quality control measures ( $P < 0.0001$ ), retailer direct involvement in export of fruit ( $P < 0.0001$ ), access to markets ( $P = 0.0222$ ), access to market information ( $P < 0.0001$ ), compliance with private and quality standards ( $P < 0.0001$ ), as well as the challenges of managing the business in an international environment ( $P < 0.0001$ ) (Table 2).

##### 3.2.2 Implications of Institutional Constraints to Market Access

Table 3 shows the institutional constraints influencing export market access by the South African citrus industry. Constraints to market access are indicated by variables whose  $P$ -value  $< \alpha$ -level ( $\alpha = 0.05$ ). Thus, lack of access to finance ( $P < 0.0001$ ), lack of proper infrastructure ( $P = 0.0005$ ), economies of scale ( $P = 0.0026$ ) and challenges of transport costs



**Fig. 1** Factors affecting the profitability of the citrus enterprises.

**Table 2** Determinants of competitiveness in export markets.

Variable	Parameter estimate	Standard error	F value	Significance
INTERCEPT	-13,009	10,501	81.34	<0.0001
QUALCONT	-69,627	1,611.6	84.34	<0.0001***
RETIMPORT	130.89	22.364	34.25	<0.0001***
MKSIZE	-586.9	317.87	-1.85	0.0699*
TECH	36.572	10.061	13.21	0.0006***
MKT	0.6190	0.2707	5.23	0.0222*
ACCINP	28.576	8.5010	11.30	0.0014***
ECONSC	14,648	1614.5	82.31	<0.0001***
PROPR	-11.38	6.530	3.04	0.0869*
TRANSC	25,649	6,449.9	3.98	0.0002***
MKTINFO	-13,007	1,946.1	44.67	<0.0001***
COMPSTD5	59,628	10,567	31.84	<0.0001***
ACCFIN	201,382	64,717	9.68	0.0029**
HUMCAP	-10.91	6.3524	2.95	0.0915*
INTERMNGT	-69,676	10,072	47.85	<0.0001***

*N* = 151: \*stands for 10% level of significance; \*\*stands for 5% level of significance; \*\*\*stands for 1% level of significance, respectively.

( $P = 0.413$ ) have a negative influence on the competitiveness of the citrus industry.

#### 4. Conclusions and Recommendations

This paper examined several institutional constraints influencing the competitiveness of the

**Table 3** Parameter estimates of the logistic regression for market access.

Variable	Parameter estimate	Standard error	Wald chi-square	Significance
INTERCEPT	-3.0209	0.0501	21.43	<0.0001
ACCFIN	-1.6093	0.3464	21.5838	<0.0001***
TECH	0.947	0.361	6.870	0.009***
ACCINP	0.7691	0.2775	7.6805	0.0056* **
ECONSC	0.8473	0.2817	9.0457	0.0026***
ACCEXT	-0.463	0.252	3.373	0.056*
INFRAS	1.2424	0.3545	12.2812	0.0005***
MKTINFO	-0.0667	0.2583	0.0666	0.7964
TRANSC	-0.5465	0.2679	4.1617	0.0413*
HUMCAP	0.0099	0.3642	0.000	0.978
PROPR	0.15585	0.31864	0.48912	0.626
MKSIZE	0.55672	0.35689	1.5599	0.122

*N* = 151: \*stands for 10% level of significance; \*\*stands for 5% level of significance; \*\*\*stands for 1% level of significance, respectively.

South African citrus industry in the export market. Factors affecting access to and entry in export markets were also evaluated. The significant association between market access and institutional costs such as transaction costs, access to finance, infrastructure, technology and economies of scale support literature which reiterates that access to markets is impeded by

high transaction costs and poor domestic infrastructure.

High transaction costs, compliance with high quality and food safety private standards, quality control measures, retailers directly involved in exportation of citrus fruit and access to export markets were significantly associated with the industry's ability to compete. High transaction costs imply that exporting citrus producers are at risk of not gaining much from the returns per rand invested in the production and export of their produce. Today's global fruit export market that is characterized by non-price competition is not favourable for producers who are faced with higher transaction costs among which are transport to markets and production costs.

Market entry and competitiveness therein require investments in infrastructure, access to market information and efficient communication and transport networks. Investments in such institutions will inevitably reduce transaction costs for both producers and exporting companies through ensuring proper fruit quality control and efficient conveyance of fruit to the destination markets.

Support services by state and private institutions can create several favourable possibilities to the improvement of compliance with quality and food safety standards. Availability of information can be ensured by such support institutions where the impartation of information can otherwise not be gained without such intervention. The government needs to make investments in infrastructure such as roads, pack houses and cold storage facilities for the purposes of promoting high quality produce that will fetch high returns from both the local and international markets.

The industry needs to engage in aggressive engagement involvement and partnership in retailer procurement activities. This will avail opportunities to promote their products as well as strengthening established relationships with the importing retailers.

Though the adversaries of export promotion attribute the competitive position and export

performance of industries to the private market forces rather than government promotion, it is evident that competing with heavily subsidized farmers in developed countries creates an uneven field for the exporters from the less supported producers in developing nations. The government is a medium and challenger in creating favourable conditions in the home diamond and encouraging higher competitive levels of performance. The engagement of any foreseeable transaction cost minimization may be worthy considering for long-term strategies in cost competitiveness in the export markets. Specifically, the government needs to help ease transaction costs incurred that have a negative bearing on the net earnings. Investments in infrastructure, communication and marketing information need to be increased to aid easy market entry and competitiveness of the industry.

Government export promotion is an essential ingredient for the construction of the knowledge and experience needed by the industry for a successful international market involvement. Government export promotion and the performance of its industries in the export markets are directly related.

## Acknowledgments

The authors are grateful for the support of the Govan Mbeki Research and Development Centre (GMRDC).

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