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## DETERMINANTS OF COMPETITIVENESS IN THE SOUTH AFRICAN AGRO-FOOD AND FIBRE COMPLEX

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*The competitiveness of the South African agro-food and fibre complex depends on a number of factors: technological, socio-political and economic. This paper attempts to identify and analyse such factors by using a framework of analysis proposed by Michael Porter (1990). Appropriate measures to increase competitiveness are proposed. These include improved supply chain management, cost reduction, contractual pricing and the establishment of a clear “agribusiness development policy”.*

## 1. INTRODUCTION

Competitiveness and investment in agribusiness are closely related (Van Rooyen & Esterhuizen, 2000). The competitiveness of the South African agro-food and fibre complex depends on a number of factors: technological, socio-political and economic. One of the most pervasive influences is the external environment, and in particular, the set of policies which operate in the market for agricultural goods. In a recent study conducted by Van Rooyen, Esterhuizen & Doyer (1999) it was found that the South African agro-food and fibre complex is generally marginal as far as international competitiveness is rated. Appropriate adjustments could therefore contribute to changing negative situations into positive status. It will however, be important to identify the particular set of factors, which needs to be adjusted.

In this article, the approach to competitiveness analysis developed by Porter (1990, 1998) will be used to determine and analyse the factors influencing the competitiveness of the agro-food and fibre complex in South Africa. The agro food and fibre complex includes primary production, processing, and manufacturing of agricultural food and fibre products. The methodology of Porter will firstly be summarised. The data used to do the Porter analysis will then be described, followed by the analysis and conclusion.

## 2. METHODOLOGY AND DATA USED

When and why is an industry internationally competitive? How sustainable is the position? In order to find answers to these questions a third question posed by Porter (1990) must first be addressed: "Why does an economy achieve international success in a particular industry?" According to Porter, the answer lies in six broad criteria or attributes that shape the environment in which firms compete and promote the creation of competitive advantage. These are:

- **Factor conditions:** the nation's position in terms of factors of production, natural resources, level of production costs such as the price of labour, diesel, pesticides, machinery etc, knowledge and infrastructure, necessary to compete in a given industry;

- **Demand conditions:** the nature of home demand for the industry's product and service and the ability to record this demand, for example, home demand composition, demand size and internationalisation of domestic demand.
- **Related and supporting industries:** the presence or absence in the nation of supplier industries and related industries that are internationally competitive.
- **Firm strategy, structure, and rivalry:** the conditions in the nation governing how companies are created, organised and managed, and the nature of domestic rivalry.
- **Government attitude and policy:** government plays a vital role. Government can influence each of the above determinants, either positively or negatively, through policy and operational capacity. That is why government as a determinant of competitiveness must be viewed apart from the four determinants;
- **The role of chance:** chance events are occurrences largely beyond the power of firms (and often the national government) to influence. Events such as wars, political decisions by foreign governments, large increases in demand, shifts in world financial markets and exchange rates, discontinuity of technology and input demand can be described as chance events.

This method is based on the perceptions of industry leaders on issues influencing competitiveness. It points out strengths and weaknesses, and critical strategic factors are identified to which firms have to pay special attention in order to develop and sustain a competitive advantage in years to come.

To do the analysis, primary data was obtain through a postal survey at firm level. A questionnaire was developed using Porter's determinants of competitive advantage. Because the population size was unknown it was decided to use a non-probability method and own judgement to determine the sample size. Questionnaires were sent to all the members of the Agricultural

Business Chamber (ABC) and to agribusinesses on an address list obtain from the South African Grain Information Services (Sagis). A total of four hundred (sample sizes) questionnaires were posted and seventy questionnaires returned by all sectors within the food and fibre complex were used in the analysis. This represents a respondent rate of 17.5%.

### **3. APPLICATION OF THE PORTER ANALYSIS**

Each of the Porter determinants was analysed separately. The main features are discussed below:

**Production factor conditions:** In Table 1 production factor conditions, as determinants of the competitiveness of the agro-food and fibre complex industry, are rated by firms in this complex, in terms of having an enhancing, constraining or neutral impact on competitiveness. The average score for all the factor conditions is between 1 and 2, which means that, on average, factor conditions in South Africa are a weakness in the agro-food industry's competitiveness. The factor conditions that are constraining competitiveness most are the overall cost of production, the cost and quality of unskilled labour, the cost of skilled labour, administration cost associated with labour matters, quality of infrastructure, cost of capital and the cost of technology.

**Table 1: Production factor conditions as determinants of competitiveness**

| Factor conditions                                    | Rate            |
|------------------------------------------------------|-----------------|
| Cost of production                                   | 1               |
| Labour                                               | (1 – 2)         |
| - Cost of unskilled labour                           | 1               |
| - Quality of unskilled labour                        | 1               |
| - Availability of unskilled labour                   | 2 – 3           |
| - Cost of skilled labour                             | 1               |
| - Quality of skilled labour                          | 1 – 2           |
| - Availability of skilled labour                     | 1 – 2           |
| - Administration cost associated with labour matters | 1               |
| Natural resources                                    | 2               |
| Infrastructure                                       | (1)             |
| - Quality                                            | 1               |
| - Availability                                       | 1 – 2           |
| Location                                             | 1 – 2           |
| Capital                                              | (1)             |
| - Cost                                               | 1               |
| - Availability                                       | 1 – 2           |
| Knowledge                                            | (1 – 2)         |
| - Cost                                               | 1 – 2           |
| - Quality                                            | 2               |
| - Availability                                       | 2               |
| Technology                                           | (1 – 2)         |
| - Cost                                               | 1               |
| - Quality                                            | 2               |
| - Availability                                       | 1 – 2           |
| Average score for factor conditions                  | (1 – 2)         |
| 1 = Constraint                                       | 2 = Neutral     |
| ( ) = Average                                        | 3 = Enhancement |

**Source:** Own database

**Demand conditions:** In Table 2 demand conditions, as determinants of the competitiveness of the South African agro-food and fibre complex are shown. With an average score of 2, demand conditions as a whole have a neutral impact on the competitiveness of the complex, which means that demand conditions as a whole are neither constraining nor enhancing competitiveness. A demand condition with a constraining impact is the local market size, while quality of products has an enhancing impact.

**Table 2: Demand conditions as determinants of competitiveness**

| Demand conditions                   | Rate            |
|-------------------------------------|-----------------|
| Market size                         | 1               |
| Market information                  | (1 – 2)         |
| - Quality                           | 1 – 2           |
| - Availability                      | 1 – 2           |
| - Cost                              | 1 – 2           |
| Quality of products                 | 3               |
| Market growth                       | 1 – 2           |
| Average score for demand conditions | (2)             |
| 1 = Constraint                      | 2 = Neutral     |
| ( ) = Average                       | 3 = Enhancement |

**Source:** Own database

**Related and supporting industries:** In Table 3 related and supporting industries are rated according to perceptions of their impact on competitiveness. Most of the supporting industries are rated by firms as having contributed positively to the competitiveness of the complex in South Africa.

**Table 3: Related and supporting industries as determinants of competitiveness**

| Related and supporting industries                   | Rate            |
|-----------------------------------------------------|-----------------|
| Financial institutions                              | 2 – 3           |
| Research institutions                               | 2 – 3           |
| Transport companies                                 | 2 – 3           |
| Suppliers of packaging material                     | 2 – 3           |
| Electricity supplies                                | 3               |
| Agricultural suppliers                              | (2)             |
| - Competitiveness                                   | 1 – 2           |
| - Sustainability                                    | 1 – 2           |
| - Linkage                                           | 2 – 3           |
| Related industries                                  | 2               |
| Average score for related and supporting industries | (2 – 3)         |
| 1 = Constraint                                      | 2 = Neutral     |
| ( ) = Average                                       | 3 = Enhancement |

**Source:** Own database

**Firm strategy, structure and rivalry:** In Table 4 the impact of firms' strategy, structure and competitive rivalry, as determinants of the competitiveness of

the South African agro-food and fibre complex, are indicated. The adaptability of agribusinesses and the managerial capabilities of agribusinesses are enhancing the competitiveness of the industry in South Africa, while the threat of substitutes constrains it. With an average score of 2 to 3, firm strategy, structure and rivalry as a whole, have a positive impact on competitiveness.

**Table 4: Firm strategy, structure and rivalry as determinants of competitiveness**

| <b>Firm strategy, structure and rivalry</b>            | <b>Rate</b>     |
|--------------------------------------------------------|-----------------|
| Adaptability                                           | 3               |
| Culture                                                | 2 – 3           |
| Structure                                              | 2 – 3           |
| Flexibility                                            | 2 – 3           |
| Pricing strategy                                       | 2 – 3           |
| Managerial capabilities                                | 3               |
| Market power of suppliers                              | 1 – 2           |
| Market power of buyers                                 | 1 – 2           |
| Threat of substitutes                                  | 1               |
| Threat of new entrants                                 | 1 – 2           |
| Average score for firm strategy, structure and rivalry | (2 – 3)         |
| 1 = Constraint                                         | 2 = Neutral     |
| ( ) = Average                                          | 3 = Enhancement |

**Source:** Own database

**Government support:** In Table 5 the impact of government through government policy and attitude, as determinants of the competitiveness of the agro-food industry, is rated according to its constraining, enhancing or neutral effect on competitiveness. With an average score of 1, government and government policy are definitely constraining the competitiveness of the agro-food industry in South Africa.

**Table 5: Government support as determinant of the competitiveness of the South African agro-food industry**

| Government                   | Rate            |
|------------------------------|-----------------|
| Indirect support             | 1               |
| Trade policy                 | 1 – 2           |
| Land reform policy           | 1               |
| Labour policy                | 1               |
| Fiscal policy                | 2               |
| Average score for government | (1)             |
| 1 = Constraint               | 2 = Neutral     |
| ( ) = Average                | 3 = Enhancement |

**Source:** Own database

**Chance factors:** In Table 6 the impact of the stability of the environment and also factors that are difficult for agribusiness to control, on the competitiveness of the complex, is indicated. Aids, crime and price stability are chance factors which have a constraining impact on competitiveness in the agro-food and fibre complex.

**Table 6: Chance as determinant of competitiveness**

| Chance                   | Rate            |
|--------------------------|-----------------|
| Economic stability       | 1 – 2           |
| Aids                     | 1               |
| Political stability      | 2               |
| Price stability          | 1               |
| Crime                    | 1               |
| Average score for chance | (1)             |
| 1 = Constraint           | 2 = Neutral     |
| ( ) = Average            | 3 = Enhancement |

**Source:** Own database

From the tables it is clear that the critical key success factors to the competitiveness of the agro-food industry are the quality of the products, electricity supply and the adaptability and managerial capabilities of agribusinesses.

All the participants in the agro-food and fibre complex have to pay special attention to these critical success factors in order to develop and sustain competitive advantage as successfully as possible in the years to come.

#### **4. DETERMINANTS OF COMPETITIVENESS FOR SOUTH AFRICAN AGRIBUSINESS**

In Table 7 the fifteen most important factors influencing the competitive success of the agro-food and fibre complex are indicated. The respondents indicated that the quality of their products (ie value for money) is currently the most important driver influencing the competitive success of their firms; 84.38% of the respondents indicated that the labour policy is a very important factor; 83.08% of respondents indicated that crime is a very important factor influencing the agro-food industries' competitiveness.

Respectively 76.19% and 78.13% of the respondents indicated that managerial capabilities and the market power of buyers are very important factors in the competitive success of the agro-food industry.

Other factors indicated by the respondents as playing a very important role in the competitive success of the agro-food industry are the cost and availability of capital, the cost of skilled labour, the cost of production, economic stability, the quality of physical infrastructure and the pricing strategy of agribusinesses. The competitiveness and sustainability of agricultural suppliers are considered to be very important to the respondents.

**Table 7: The fifteen most important factors currently influencing the competitive success of the agro-food and fibre complex**

| Factors                                           | Ave  | Very important (% respondents) | Important (% respondents) | Less important (% respondents) |
|---------------------------------------------------|------|--------------------------------|---------------------------|--------------------------------|
| 1) Quality of products                            | 2.83 | 86.15                          | 10.77                     | 3.08                           |
| 2) Labour policy                                  | 2.81 | 84.38                          | 12.50                     | 3.13                           |
| 3) Crime                                          | 2.78 | 83.08                          | 12.31                     | 4.62                           |
| 4) Managerial capabilities                        | 2.75 | 76.19                          | 22.22                     | 1.59                           |
| 5) Market power of buyers                         | 2.73 | 78.13                          | 17.19                     | 4.69                           |
| 6) Local market growth                            | 2.72 | 75.38                          | 21.54                     | 3.08                           |
| 7) Cost of capital                                | 2.70 | 78.13                          | 14.06                     | 7.81                           |
| 8) Local economic stability                       | 2.69 | 72.31                          | 24.62                     | 3.08                           |
| 9) Cost of production                             | 2.65 | 71.43                          | 22.22                     | 6.35                           |
| 10) Availability of capital                       | 2.65 | 69.23                          | 26.15                     | 4.62                           |
| 11) The competitiveness of agricultural suppliers | 2.65 | 66.13                          | 32.26                     | 1.61                           |
| 12) Quality of physical infrastructure            | 2.62 | 66.15                          | 29.23                     | 4.62                           |
| 13) Sustainability of agricultural suppliers      | 2.61 | 63.93                          | 32.79                     | 3.28                           |
| 14) Pricing strategy of companies                 | 2.60 | 65.08                          | 30.16                     | 4.76                           |
| 15) The cost of skilled labour                    | 2.59 | 64.06                          | 31.25                     | 4.69                           |
| 1 = less important<br>= very important            |      | 2 = important                  |                           | 3                              |

**Source:** Own database

## 5. CONCLUSION: TOWARDS AGRIBUSINESS COMPETITIVENESS

Labour regulations, crime, the quality of physical infrastructure and labour costs are externally manipulated factors over which agribusiness have relatively little control. Product quality, cost of production and managerial capacity and labour skills, however, are factors over which firms have a large degree of control. This division provides the basis for a two pronged approach to render agribusiness in South Africa more competitiveness.

Firstly, a firm level strategy will focus on the following operational aspects over which a firm has some control:

Supply Chain Management: Management is currently rated as highly competent by the firms in the agro-business and fibre complex. However,

from the analysis it is also clear that firms are concerned about the relative market power of buyers and suppliers (Table 7) and the competitiveness of suppliers. An important strategy to deal with this matter will be the introduction of “supply chain” structures so that the relationship between buyers and sellers, within the value added chain, can be managed in a more productive and trustful manner (Zuurbier, 1999). The recent interest in supply chain management in South Africa indicates that managers are alert to this particular challenge. This factor, however, will require more attention (Van Rooyen, *et al* , 2000)

**Cost of production:** Rationalisation, cost cutting and labour management and cost effectiveness are important factors. The high cost of acquiring technology is cause for concern. Joint ventures with the R&D and the technology industry need to be prioritised to allow firms to maintain “cutting edge” positions in a competitive world.

**Pricing strategies:** With supply chain interactions expected to dominate future agribusiness relationships (Zuurbier, 1999) the nature of pricing strategies will change. Long-term contractual pricing will replace “spot-market” pricing and day-to-day bargaining, especially in high value product markets.

**Macro issues:** The management of external or macro factors such as quality of infrastructure and technology, economic and labour policy, availability of capital, development of more “even” economic playing fields in the global environment, aids, etc will continue to be important. For this purpose, the agro-food complex should push for an “Agribusiness Development Policy”. Currently business development in the agro-food and fibre complex falls between agriculture, trade and industry policy. No clear agribusiness policy focus exists. A more focussed approach to policy development and implementation is likely to provide a more favourable environment for firms in the agro-food and fibre complex to perform more competitively.

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