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

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ABSTRACT

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

1. INTRODUCTION

The relationship between competitiveness and investment in agribusiness are closely related (Van Rooyen & Esterhuizen, 2000). The competitiveness of the South African agri-food and fibre complex depends upon 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 summarized. 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 that promote the creation of competitive advantage. These are:

- **Factor conditions:** the nation's position in 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 is 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 outside 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.

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 used a non-probability method and own judgement to determine the sample size. Questionnaires was send to all the members of the Agricultural Business Chamber (ABC) and to agribusinesses from an address list obtain from the South African Grain Information Services (Sagis). A total of four hundred (sample sizes) questionnaire was posted and seventy questionnaires returned from all sectors within the food and fibre complex, which represent a respondent rate of 17.5%.

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.

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 determined of the competitiveness of the agro-food and fibre complex industry are rated by firms in this complex, to have either 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 to 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 determinant 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 3 = Enhancement ( ) = Average	

Source: Own database

Demand conditions: In Table 2 the demand conditions as determinant of the competitiveness of the South African agro-food and fibre complex is 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. The demand condition with a constraining impact is the local market size and quality of products has an enhancing impact.

Table 2: Demand conditions as determinant 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 3 = Enhancement ( ) = Average	

Source: Own database

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

Table 3: Related and supporting industries as determinant 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 3 = Enhancement ( ) = Average	

Source: Own database

Firm strategy, structure and rivalry: In Table 4 the impact of firms strategy, structure and competitive rivalry as determinant of the competitiveness of the South African agro-food and fibre complex are indicated. The adaptability of agribusinesses and the managerial capabilities in agribusinesses are enhancing the competitiveness of the industry in South Africa, while the threat of substitutes constraints 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 determinant of competitiveness

Firm strategy, structure and rivalry	Rate
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 3 = Enhancement ( ) = Average	

Source: Own database

Government support: In Table 5 the impact of government through government policy and attitude as determinant of the competitiveness of the agro-food industry is rated according to it constraining, enhancing and neutral effect on competitiveness. With an average score of 1 government and government policy are defiantly 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 3 = Enhancement ( ) = Average	

Source: Own database

Chance factors: In Table 6 the impact of the stability of the environment and also factors that are difficult to be controlled by agribusiness, on the competitiveness of the complex are indicated. Aids, crime and price stability is chance factors which has 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 3 = Enhancement ( ) = Average	

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 supplies 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 industry 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 companies; 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 managerial capabilities and the market power of buyers are very important factors to the competitive success of the agro-food industry.

Other factors that was indicated by the respondents to play a very important role for competitive success in 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 also very important to the respondents.

Table 7: Currently the fifteen most important factors influencing the competitive success of the agro-food industry

Factors	Average	Very important (% of respondents)	Important (% of respondents)	Less important (% of 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		2 = important		3 = very important

5. CONCLUSION: TOWARDS AGRIBUSINESS COMPETITIVENESS

Labour regulations, crime, the quality of physical infrastructure and labour costs are externally manipulated factors over which agribusiness have relative 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. An important firm level strategy will thus focus on the following operational aspects over which a firm have some control:

Management: Management is currently rated as highly competent. 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.

Cost of production: Rationalisation, cost cutting and labour management and cost effectiveness are important factors. The high cost of acquire technology is also concerning. Joint ventures with the R&D and technology industry needs to be prioritised to allow firms to maintain "cutting edge" positions in a competitive world.

Pricing strategies: With supply chain interaction expected to dominate future agribusiness relationships pricing strategies will change in nature. Long-term contractual pricing will replace "spot-market" pricing and day-to-day bargaining, especially in high value product markets.

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

REFERENCES

Balassa, B. 1989. Comparative advantage, trade policy and economic development. London, Harvester/Wheatsheaf.

ISMEA, 1999. The European Agro-Food System and the Challenge of Global Competition. Rome.

Porter, M.E. 1990, 1998. The competitive advantage of nations. Londen, Macmillan.

Soler, L.G. & Tanguty, H. 1998. "Coordination between production and commercial planning: organizational and modeling issues." Int. Trans. Opl Res, 5(3): 171-188.

Van Rooyen, C. J. & Carstens, J. 1996. The role of the agriculture and food sector in the South African economy. Agriculture Research Council Annual Report 1996, ARC, Pretoria.

Van Rooyen, C.J., Esterhuizen, D. & Doyer, O.T. 2000. "How competitive is agribusiness in the South African food commodity chain". In J H Trienekens and P.J.P. Zuurbier eds., Chain management in agribusiness and the food industry. Waginingen Pers, Waginingen, The Netherlands, 2000.

Zuurbier, P. 1999. Supply chain management. Lecture notes, Universities of Pretoria and Stellenbosch. Agricultural Business Chamber (ABC), Pretoria, August 1999.