DETERMINANTS OF COMPETITIVENESS OF THE SWAZILAND SUGAR INDUSTRY

by

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A Thesis Submitted in Partial Fulfilment of the Requirements for the Degree of

MASTER OF SCIENCE

in

Agricultural and Applied Economics

of the

University of Swaziland

June, 2016

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ABSTRACT

The issue of abolishment of trade agreements preferences pose a great threat to the sugar industry in Swaziland. Several questions arise on the global comparative advantage of the sugar industry considering that it is the centre of the country`s economy. This study aimed at estimating the comparative advantage of Swaziland sugar industry in the global market, factors responsible for this comparative advantage, and the factors affecting the competitiveness of the Swaziland sugar industry. The Relative Trade Advantage, multiple linear regression model and Porter`s 1990 National Diamond concept were used to achieve the set objectives, respectively. The study found that the Swaziland sugar industry had a relatively highly comparative advantage in the global market in terms of producing sugar. Results from the regression model indicated that global sugar market prices, exchange rate and export values had a significant influence on Swaziland`s comparative advantage. The Porter`s (1990) National Diamond model analysis revealed factors that enhance competitiveness of the sugar industry including business approach to human resource, relationship and networking, availability of unskilled labour and production of high quality products. Some factors that have a major constraining effect on the competitiveness were the small local market size, cost of transport, and cost of supply of inputs. Government in consultation with the industry representatives should consider development and implementation of an industry policy strategy for the sugar industry intended to ensure its survival. In order to counteract the effects of global market prices and the exchange rate, exploring of new market opportunities is essential. Other strategies would be to improve efficiencies at both field and factory level.

Keywords: Competitiveness, Trade liberalisation, Comparative Advantage, Relative Trade Advantage and Swaziland

DEDICATION

This work is dedicated to my sweet wife Sincedzile Ndlangamandla and my father, the late Josiah Ndlangamandla. To my loving wife, words cannot express any better my heartfelt appreciation for the love and support she gave me over the years of my graduate study programme. To my father, you asked me in my childhood whether I could go all the way and I said yes, yet you left us before that could happen. To me, the only consolation is that I am well on track.

ACKNOWLEDGEMENT

During the course of the project, a number of people made important contributions through advice and encouragement. My first and foremost thanks go to my respectable and humble supervisors, Dr D. Kibirige and Dr J.I. Rugambisa for their tireless efforts and guidance from the inception of this project up to its completion. Their patience and constructive sources of ideas kept alive my motivation and made the completion of this project possible.

I further convey sincere thanks and acknowledgements to the following individuals: Professor, M.B. Masuku and all my classmates for their constructive ideas, morale and technical support. I am grateful for and acknowledge the support and materials which the Faculty of Agriculture and Consumer Sciences provided us with and the conducive environment extended by its staff.

I also wish to acknowledge my huge indebtness to Mr M. Mdlovu (Extension Officer Ministry of Agriculture and Cooperatives), whose moral and professional support sustained me throughout the course of my academic pursuit. I thank my mother and late father for teaching me self-discipline, love, encouragement and their support since birth. Last but not least, I thank my heavenly father for giving me spiritual strength, courage, guidance and commitment to do this work. He made it possible for things to happen.

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CHAPTER 1

INTRODUCTION

1.1 Background Information

Sugar is produced in more than 100 countries. Global production exceeds 120 million tons a year. The biggest producers globally are Brazil (18.6%), the European Union (13.7%), India and China (Tsengiwe, 2014). Africa accounts for 5.7% of world sugar producers. The largest sugar exporters are Brazil and European Union followed by Australia. South Africa is the only significant African player in the world sugar industry in Africa (Tsengiwe, 2014).

Brazil`s natural resources in sugar cane production and its innovation and effective plans in the energy sector, remain unique and long term economic strength that overrides potential threats from the world sugar markets (Matsebula, 2008). As the world's largest exporter of sugar, Brazil has the dominant role in meeting the growing world demand for sugar, but its world market competitiveness is vulnerable to exchange rate volatility and uncertain developments in the domestic ethanol market (Haley, 2010). Table 1, indicates that Brazil controls 48 % of the world`s sugar market share and Swaziland the least among the countries under study with 1.2%. Australia controls about 5% of the world sugar market while South Africa controls 1.3%.

Table 1

Land harvested, average yields, exports and markets share for the countries under study

Countries	Land harvested (Ha)	Yield (MT/Ha)	Exports (MT)	Market Share (%)
Brazil	9,800,000	106	27,250,000	0.48
Australia	380,000	84	3,108 000	0.05
South Africa	375,000	70.2	721,887	0.013
Swaziland	60,000	105	690,000	0.012

Source: USDA, Economic Research Service (2015)

The Australian sugar industry produces raw and refined sugar from sugar cane. Sugar production is projected to reach 4.8 million tonnes in the 2015/2016 season. Over 70 percent of production is exported as bulk raw sugar thus Australia is one of the four largest raw sugar exporters in the world (Farrel, 2015). The sugar industry in Australia has acquired the strength of being one of the most efficient and quality conscious with good knowledge of international business and is highly merchanised. The industry strongly favours leveraging these strong attributes into diversifying in related and unrelated activities to enhance its economic well-being (Shantanu, 2004).

In Swaziland the sugar industry consists of four components, namely, large millers and estates, large growers, medium size growers and small growers. Swaziland also has three sugar mills, namely, Mhlume, Simunye and Ubombo with a combined annual production capacity in excess of 800,000 tons (Esterhuizen, 2014). The area under cane is approximately 24,600 hectares. Once the sugar is processed the Swaziland Sugar Association (SSA) takes over its marketing (SSA, 2010). The Swaziland sugar industry sells into five main markets namely, the European Union (EU), the United States, the SACU, other COMESA countries, and the world (overseas) market (Westlake, 2004).

Sugar production accounts for almost 60 percent of agricultural output, 35 percent of agricultural wage employment, and contributes about 18 percent to Swaziland's Gross Domestic Product (Esterhuizen, 2014). Matsebula (2008) stated that the sugar industry is the central pillar of the Swaziland economy. The sugar industry is also closely linked to many other sectors in the Swazi economy, from both the input and output side. Accordingly, it plays a crucial strategic and multifunctional role in promoting economic growth and development in the overall Swazi economy.

1.1.1 Competitiveness of the Sugar Industry. Companies compete with each other for access to resources and the acquisition of market shares (Yumkella, 2014). They also adopt competitiveness strategies to increase their profitability and overall performance. When the issue of competition gets related to agricultural products, notably sugar, the meaning is sensitive to the context and the factors affecting competition become intriguing (Shantanu, 2004). Shantanu (2004) further stated that the economic changes in European Union, United States of America and the appearance of new economic powers in

the global sugar market have initiated specific discussion of production structures and the competitiveness of national industries. Intense competition in global and local sugar markets requires firms to improve their competitiveness. This is especially true for smaller countries where competitiveness can allow firms to overcome the limitations of their small home markets in order to achieve their maximum potential.

Competition and customer orientation have increased and firms have an obligation to engage in such an environment. New challenges to industries around the world have been presented by globalisation of economies. The firms not only have to compete on domestic markets, but also on global markets (Esterhuizen, 2006). In order for the sugar industry to survive in the uneven economic environment, it is fundamental that they are competitive. Therefore, identifying the factors that influence competitiveness becomes imperative in order, to appreciate the position the firm is in, in relation to the factors identified and also propose appropriate measures and strategies for increasing competitiveness (Dlamini, 2012).

Competitiveness at the sugar industry level implies the ability to make production at lower costs and higher quality. This is the ability of the industry to achieve the highest level of efficiency to meet challenges posed by foreign rivals (Neslihan, 2012). Harrison and Kennedy (1998) found that firms were more competitive through cost leadership, product differentiation, technology efficiency, input costs, production economics, product quality and enterprise differentiation, advertising, promotion, and external factors.

The Swaziland sugar industry derived its strength from the good climatic conditions, availability of land and efficiency in irrigation system (Esterhuizen, 2010). This is further enhanced by premium markets to which the Swazi sugar is sold. So far, the exposure to the low-paying world market has been minimal, although it is poised to grow due to a reduction in the quota access to preferential markets and increased production of sugar. The industry has further benefited from the regional integration initiatives, particularly within SACU, which has provided a higher price due to protection (National Adaptation Strategy, 2006).

1.2 Problem Statement

The Swaziland sugar industry has been a success story. The success of the industry and the basis for further expansion can be attributed to the preferential markets that have been provided by developed countries particularly in Europe and the USA (Swaziland Sugar Association, 2013). While there have been significant improvements in sugar production in the recent past, there remain significant factors that affect the external environment in which the Swaziland sugar industry operates. Swaziland sugar industry suffers from the decline by 36% in the preference price of raw sugar sold on the EU market (SSA, 2012).

In addition to the decline of the sugar prices in the European Union (EU) market, Swazi sugar industry continues to suffer from global trade liberalisation and complete abolishment of preferential markets access in the EU and United States of America markets (Gass, 2012). Globalisation and abolishment of trade agreement would have serious impact on the country`s economy, incomes and employment (Matsebula, 2008). Another challenge facing the sugar industry in Swaziland according to Gass (2012) is to ensure its growth ability on a sustainable basis.

According to the researcher`s knowledge, there is limited information related to the competitiveness and factors that could contribute to the competitiveness of the Swaziland sugar industry. Therefore, this study aimed at estimating competitiveness of the sugar industry and determinants of its competitiveness.

1.3 Objectives of the study

Using both the Relative Trade Advantage and Porter`s 1990 National Diamond concept, the major objective of the study was to examine the competitiveness of the Swaziland sugar industry in the global market with the aim of establishing the contributing factors to the competitiveness of the sugar industry. This was achieved through the following specific objectives:

1. To determine Swaziland`s comparative advantage in global sugar trade.
2. To estimate factors affecting the Relative Trade Advantage of Swaziland sugar industry.
3. To identify determinants of competitiveness of the sugar industry in Swaziland.

1.4 Research Questions

The research questions were based on the competitiveness of the sugar industry. Through the analyses, the following questions were answered.

1. Does Swaziland have a comparative advantage in world sugar trade?
2. What are the factors that affect the Relative Trade Advantage of the Swaziland sugar industry?
3. What are the determinants of the competitiveness of the sugar industry in Swaziland?

1.5 Hypothesis

In order to focus the analysis, the following hypotheses for this study were formulated:

Ho: Economic conditions, production conditions do not significantly affect the Relative Trade Advantage of Swaziland sugar industry

Ha: Economic conditions and production conditions do significantly affect the Relative Trade Advantage of Swaziland sugar industry

1.6 Significance of the Study

The European Union (EU) Parliament recently voted for the extension of the country's sugar beet production quota to 2017. This means EU producers will continue to sell the stipulated quotas until 2017, after which they will be allowed to compete with other sugar producing countries to sell whatever amount of produce they have. This will mean the EU has more sugar to buy, resulting in lower prices, even for exporters like Swaziland (Gass, 2012).

Swaziland is also part of a global economy and, therefore, will only reap benefits by exploiting comparative advantages that exist within and without the countries. Therefore, a process of re-orienting adaptation strategies to better respond to these new realities is needed. This study will, therefore, provide crucial information which will be useful to the

Swaziland Government and the sugar industry in enhancing their understanding of the competitiveness of the Swaziland sugar industry. This may contribute significantly to the design and formulation of sound trade policies in Swaziland.

1.7 Limitations

The number of economies considered is small, any wider application of this study requires both sufficiently similar products and markets. Also the research is built on a foundation of sources and data that are mainly secondary in nature and difficult to get. However, the researcher used extensively the Food and Agricultural Organisation of the United Nations (FAO) agricultural data on exports since it is one of the best agricultural databases available. Also the researcher only selected small holder sugar farmers found in the Lubombo region due to time constraint.

1.8 Chapter Summary

This chapter provides information about the background information on the global sugar market, the sugar industry of Swaziland and its importance, competitiveness of the sugar industry as well as the challenges facing the sugar industry. It also contains a problem statement and objectives of the study. The objectives include the general objective and the specific objectives. Finally, it contains the research questions, hypotheses and the limitations of the study.

CHAPTER 2

LITERATURE REVIEW

2.1 Theoretical Framework

In order to be able to analyse the workings of the competitiveness of the sugar industry as well as drawing conclusions from this analysis, we needed to build a theoretical framework from which to work. In this chapter the researcher discusses trade theories on competitiveness, factors that contribute to competitiveness and measurement of competitiveness. From the theoretical framework, a conceptual framework was developed.

2.2 Trade Theories on Competitiveness

Cantwell (2005) stated that competitiveness is a concept that is widely used but difficult to definie explicitly. While there is broad consensus about defining competitiveness at the firm level, there is an ongoing debate about the usefulness of this concept when applied to countries. Esterhuizen (2006) define competitiveness as the ability to compete successfully in order to achieve sustainable growth within the global environment, while earning at least the opportunity cost of returns on resources employed.

There are many schools of thoughts regarding the competitiveness theory according to Krugman and Obstfeld (2003). The first attempt to explain why countries engage freely in international trade has its origin in 1876 with Adam Smith's theory of absolute advantage. According to this theory, a country can enhance its prosperity if it specialises in producing goods and services in which it has an absolute cost advantage over other countries and imports those goods and services in which it has an absolute cost disadvantage (Krugman & Obstfeld, 2003).

Salvatore (2002) stated that Adam Smith viewed trade as a positive sum game. This was in direct contrast to the viewpoint of the mercantilists of the 16th century that trade is a zero sum game. They believed that if countries wanted to become rich and powerful, they must export more and restrict imports to the minimum. Such a policy would result in an inflow of gold and silver that would make the country wealthy. Because they viewed trade as a

zero sum game, they advocated strict government control and preached economic nationalism (Salvatore, 2002).

The theory of absolute advantage became a paradox according to Krugman (1994) in the sense that a country that had an absolute advantage in all products or services it produces would not import because it could produce more efficiently. However, it is imports rather than exports that matter for a country. Exports are important in order to pay for the imports a county needs. According to Adam Smith`s hypothesis, some countries will be excluded from importing and thus from the gains from trade. This paradox that absolute cost advantage leads to specialisation, but that such specialisation may not necessarily lead to gains from trade, gave rise to Ricardo's theory of comparative advantage (Krugman, 1994).

The Ricardian theory of comparative Advantage is explained by Krugman and Obstfeld (2003) that a country must specialise in those products that it can produce relatively more efficiently than other countries. This implies that despite absolute cost disadvantages in the production of goods and services, a country can still export those goods and services in which its absolute disadvantages are the smallest and import products with the largest absolute disadvantage. It also implies that a country with absolute cost advantages in all its products will specialise and export those products where the absolute advantage is the largest, and will import products with the smallest absolute advantages. Comparative advantage thus also leads to specialisation, but differs from specialisation based on absolute advantage, in that a country will always import, whether or not it is more or less efficient overall in the production of all goods and services relative to other countries (Krugman & Obstfeld 2003).

Salvatore (2002) redefined the theory of comparative advantage by Ricardian in terms of opportunity cost. His definition was that a country will have a comparative advantage in the production of goods and services if such goods and services can be produced at a lower opportunity cost. This implies that a country will have a comparative cost advantage in the production of those goods and services that can be produced at a lower opportunity cost than in other countries. Krugman (1990) argued that although the theory of comparative cost advantage is based on a set of strict assumptions, this does not invalidate the general

acceptance of the theory in explaining gains from trade. This is furthermore underscored by the fact that most of the principles of the World Trade Organisation (WTO) are based on the belief in the validity of the law of comparative advantage according to Root (2001).

Even the relaxation of most of the assumptions does not affect the general validity of the theory in any significant way and enough empirical evidence exists to support the theory of comparative advantage (Brown, 2001). The superiority of the theory of comparative advantage lies in the remarkable amount of useful information that it summarises clearly and concisely. It shows the conditions of production, the autarky point of production and consumption, and the equilibrium relative commodity prices in the absence of trade, the comparative advantage of each nation. It also shows the degree of specialisation in production with trade, the volume of trade, the terms of trade, the gains from trade, and the share of these gains to each of the trading nations (Salvatore, 2002).

It is this power of the theory that provides a convincing explanation why trade is a positive sum game (Krugman, 1998). The theory of comparative advantage does not explain the location of these advantages and it does not explain the direction of trade as observed by Salvatore (2002). Therefore, according to Salvatore (2002) economists thus needed an alternative model of comparative advantage to explain the direction of trade. An important theory to explain the reasons, or causes, of comparative advantage differences between countries is the Heckscher-Ohlin (H-O) theory. According to this theory, countries differ with respect to their factor intensities, namely the labour and capital that are used in the production of goods and services.While there are many different resource explanations of comparative advantage, the H-O theory isolates factor abundance or endowments as the basic determinant of comparative advantage. Although the H-O theory is based on a set of simplifying assumptions, relaxing these assumptions modifies but does not invalidate the theory (Salvatore, 2002).

2.2.1 New trade theory. Krugman (1990) stated that since World War II, a large and growing part of trade has come from massive two-way trade in similar industries that could not be explained by comparative advantage and was principally driven by advantages resulting from economies of scale. This changing pattern of world trade has made the traditional assumption of constant returns to scale unworkable to explain intra-

industry trade. A new approach was needed to explain the advantages of trade due to large-scale production, cumulative experience and transitory advantages resulting from innovation. Furthermore, he observed that to explain economies of scale (internal and external), a new market structure was needed that was altogether different from perfect competition.

Krugman and Helpman (1990) indicated that the breakthrough came during the late 1970s with the introduction of new models of monopolistic competition by industrial recognize theorists that allowed trade theorists to overcome the complexity of modelling oligopolistic rivalry in a general equilibrium framework. The main appeal for using monopolistic competition was to focus on economies of scale as the core in explaining trade rather than on imperfect competition. Furthermore, Krugman (1998) explain the difference between the traditional and the new trade theory (based on monopolistic competition). The difference is that at the level of inter-industry trade, comparative advantage continues to be the dominant explanation of trade flows, whereas at the level of intra-industry trade, economies of scale become the dominant explanation of trade flows in differentiated products.

Yoffie (1995) highlighted that the new trade theory does not explain where the actual location of production will be, as in the case of comparative advantage (H-O model). In the case of comparative advantage, the underlying resource differences between countries determine the location of production, whereas under increasing returns, the answer is more likely to depend on historical accident. Monopolistic competition, however, is not a true reflection of the real world. Many of today's global industries are recognized by oligopolistic competition where economies of scale at the level of the firm are sufficient to limit the number of competitors (Yoffie, 1995).

Porter (1990) however, questioned the ability of traditional trade theory to explain location advantages and therefore proposed a 'new theory' to explain location advantages and thus the competitive advantage of nations. Stone and Ranchhod (2006) cited Porter (1990) clearly disagrees with what he calls "standard economic theory." He even dares to suggest that economists like Adam Smith and David Ricardo who advocated this thinking, are

'plain wrong.'By tradition, a nation's international competitiveness has been explained by international trade theories originating from Smith. However, today's global economy is too complex to be explained by the traditional trade theories. Recently, Porter (1990) of the Harvard Business School introduced a new competitiveness theory, 'the diamond model'. He differentiated his theory from the traditional trade theories by arguing that national prosperity is not inherited, but created by choices. In other words, national wealth is not set by factor endowments, but created by strategic choices. He showed different choices of creating wealth, which had been quite limited in the world of traditional trade theories.

2.3 Conceptual Perspectives of Competitiveness

Although several papers investigate competitiveness empirically or discuss its merit for social welfare such as living standards improvement, there is no agreement on its definition or on exact methods to measure it according to Sharples (1990). The definition may range from the ability to compete, to the capacity of ensuring high firm profitability, or the aptitude to gain market shares. Several schools of thought have proposed their own definitions of competitiveness, such as international and trade economics and the strategic management school (Sharples, 1990).

Esterhuizen (2006) observed that several authors stress that competitiveness does not have a definition in economic theory. Competitiveness can be defined as the ability to face competition and to be successful when facing competition. Also competitiveness would be the ability to sell products that meet demand requirements (price, quality, quantity) and, at the same time, ensure profits over time that enable the firm to thrive (Ahearm, Purchase and Avey, 1990).

Ahearn et al. 1990 stated that competition may be within domestic markets (in which case firms, or sectors, in the same country are compared with each other) or international (in this case, comparisons are made between countries). Competitiveness, according to Ahearn et al. (1990) is, therefore, a relative measure. It is, however, a broad concept and there is no agreement on how to define it, nor how to measure it precisely. There is a profusion of definitions with studies often adopting their own definition and choosing a specific measurement method.

Competitiveness is a multidimensional concept. It can be looked at from three different levels: country, industry, and firm level (Murtha, 1998). The conditions in a country that determine how companies are established, are organized and are managed determine the characteristics of domestic competition. Here, cultural aspects play an important role. In different nations, factors like management structures, working morale, or interactions between companies are shaped differently. This will provide advantages and disadvantages for particular industries (Dagmar, 2001).

Firm-level competitiveness is of great interest among practitioners (Porter, 1998). Nations can compete only if their firms can compete, argues Christensen of Harvard Business School. Porter stated that it is the firms, not nations, which compete in international markets. The environmental factors are more or less uniform for all competing firms. Research shows that 36 per cent of the variance in profitability could be attributed to the firms' characteristics and actions (Porter, 1998).

There is however, more or less a consensus on which measures could be used to assess competitiveness. According to Murtha (1998) measurement can be made according to two disciplines: i) the neoclassical economics which focuses on trade success and which measures competitiveness with the real exchange rate, comparative advantage indices, and export or import indices; and ii) the strategic management school which places emphasis on the firm`s structure and strategy. In the latter, competitiveness is defined as cost leadership and non-price supremacy; with cost competitiveness measured according to various cost indicators, as well as productivity and efficiency (Murtha, 1998).

2.4 Trade Measures of Competitiveness

Esterhuizein (2006) stated that researchers have mainly used two scientific approaches to measure and analyse competitiveness, namely models and indicators. Models are complex and are usually custom-build to answer specific questions. Models require a relatively large investment in data collection and analysis. As a result, they are appropriate primarily for academic research or high-stake investment decisions and policy choices. It is also generally appropriate to employ specialist staff, as new developments in modelling methods are constantly being introduced.

One important aspect of competitiveness is that it is a relative measure. There must always be a comparison with a base value (Frohberg & Hartman, 1997). If, for example, market share is being assessed, it must concern market size. If competitiveness in factor markets is being analysed, the relationship is the value a factor will have in another production process. Measures of competitiveness may also differ with respect to the level of investigation (Frohberg & Hartman, 1997).

Studies can be carried out for various levels of product aggregation across the entire economy, a specific sector, or for a single product (or aggregate of products). Another differentiation of competitiveness exists in the spatial dimension of the analysis. Studies can be carried out for a firm, for an entire country or regions within a country. Since it is a relative measure, the competitiveness of enterprises or regions within a country, or between countries could be compared (Frohberg & Hartman, 1997).

The literature investigating competitiveness, whether at the country, region, sector or enterprise level, proposes many different measures for evaluating it (Esterhuizen, 2006). Trade indicators include Real Exchange Rate (RER), Revealed Comparative Advantage (RCA), Export Market Shares (EMS) and economic performance indicators like costs of production, profitability, productivity and efficiency as well as the Strength, Weakness, Opportunities and Threat (SWOT) as stated by Valentin (2001).

Revealed comparative advantage (RCA) which is sometimes called Ballasa index was first formulated by Balassa (1965) and modified by Vollrath (1991) to the Relative Trade Advantage in order to come up with the RTA indices. The RTA considers both export and import activities. The RTA indicator implicitly weighs the revealed comparative advantage.

The concept of "Revealed Comparative Advantage" by Ballassa is widely used in practice to determine a country's weak and strong sectors. For a particular country, the revealed comparative advantage in a product is defined as the ratio of the share of that product in world trade. If this index takes a value greater than unity, the country is considered to have a revealed comparative advantage in the product while a value below unity indicates a comparative disadvantage.

Vollrath's (1991) modified version of the Revealed Comparative Advantage is called the relative export advantage (RXA) measure, as it is based on exports. It measures normalised export shares, where the normalisation is with respect to the exports of the same industry in the group of reference countries. This method can identify sectors or commodities for which an individual country has a comparative advantage or disadvantage.

Other comparative advantage measures have been proposed. The relative import advantage (RMA) index is similar to the RXA, but relates to imports rather than exports (Vollrath, 1991). Most authors recognize that one indicator is not sufficient to assess the broad issue of competitiveness. Some studies have attempted to create a complex measure of competitiveness using several measures.

2.4.1 Determinants of competitiveness. Porter (1990) was one of the first to underline the importance of firms‟ strategy and structure in developing their competitiveness. The author proposed the so-called "diamond model" according to which nations succeed in industries for which the national diamond is the most favourable Management theory and the international competitiveness of industries (OCED, 2003). Disillusioned by the economic theories of trade, Porter (1990) advanced a new theory to explain national competitive advantage. The main question he attempts to answer is why some countries are more successful in particular industries than others.

Porter (1990) identified four classes of country attributes (which he calls the National Diamond) that provide the underlying conditions or platform for the determination of the national competitive advantage. These are factor conditions, demand conditions, related and support industries, and company strategy, structure and rivalry. He also proposes two other factors, namely government policy and chance (exogenous shocks), that support and complement the system of national competitiveness but do not create lasting competitive advantages

***2.4.1.1 factor conditions*.** Whereas the traditional trade theories define factor conditions as land, labour and capital (including human capital), Porter (1990) distinguishes between the following categories: human resources, physical resources,

knowledge resources, capital resources and infrastructure. Factor conditions are further subdivided into basic and advanced factors that can be either general or specialised. Basic factors such as unskilled labour, raw materials, climatic conditions and water resources are inherited and require little or no new investment to be utilised in the production process. Advanced factors are created and upgraded through reinvestment and innovation to specialised factors, which according to Porter form the basis for the sustainable competitive advantage of a country.

2.4.1.2 demand conditions. Demand conditions in a country are also perceived by Porter (1990) as a source of competitive advantage for a country. Porter (1990), however, focuses more on demand differences than on similarities to explain the international competitiveness of countries. According to him, it is not only the size of the home demand that matters, but also the sophistication of home country buyers. It is the composition of home demand that shapes how firms perceive, interpret and respond to buyers' needs. This forces home country firms to continually innovate and upgrade their competitive positions to meet the high standards in terms of product quality, features and service demands.

However, Krugman and Obstfeld (2003) reports that there are different demand conditions in countries, leading to different demand structures that can determine location economies of increasing returns, as explained by the new trade theories. Location economies of increasing returns that keep an industry in a specific location, due to a specific set of demand conditions, will be difficult to be competed away by industries in another country. In such cases, comparative advantage is determined by demand conditions rather than differences in factor conditions (Krugman & Obstfeld, 2003).

These demand conditions, as explained by Porter (1990), do influence the underlying resource differences between countries and a country's relative location advantages as explained by the new trade theories. The nature of the differences in sources, driven by demand conditions, could be productivity differences, differences in factor endowments or differences in the scale of production. The differences in sources, irrespective of the causes, thus ultimately lead to gains from trade. In this respect, Porter's demand conditions enhance our general understanding of location differences rather than invalidate the trade theories as discussed by other economists (Siggel, 2006).

2.4.1.3 firm strategy, structure and rivalry. A third determinant of national competitive advantage, according to Porter (1990), is firm strategy, structure and rivalry. The main emphasis here is that the strategies and structures of firms depend heavily on the national environment and that there are systematic differences in the business sectors in different countries that determine the way in which firms compete in each country and ultimately their competitive advantage. Porter (1990) identifies rivalry as the most critical driver of competitive advantage of a country's firms. He believes that domestic rivalry forces firms to be cost competitive, to improve quality and to be innovative.

According to Porter (1990), it is firms that ultimately compete internationally, but it is the international competitiveness of a country that shapes the international competitive advantage of firms. It is this assumption that a country's competitiveness ultimately determines a firm's international competitive advantage that led to the belief that countries, like firms, compete internationally and thus that the international trade engagement of countries is a negative sum game, as it is in the case of firms. This is in sharp contrast to the general understanding in trade theory that trade is a positive sum game irrespective of the nature of the sources from which such gains from trade are derived.

2.4.1.4 related and support industries. This can be defined as the existence or non-existence of internationally competitive supplying industries and supporting industries. One internationally successful industry may lead to advantages in other related or supporting industries. Competitive supplying industries will reinforce innovation and internationalization in industries at later stages in the value system. Besides suppliers, related industries are of importance. These are industries that can use and coordinate particular activities in the value chain together, or that are concerned with complementary products (Dagmar, 2001).

The introduction of related and support industry clusters as a separate determinant of national competitive advantage has been viewed as one of the most important contribution of Porter's Diamond Theory (Teece, 1996). According to Porter (1998), it is the external economies of related and support industry clusters, such as networks of specialised input providers, institutions and the spill-over effects of local rivalry, that become the true

source of competitive advantage. The cluster represents an environment in which learning, innovation and operating productivity can flourish.

He believes that it is these kinds of localised clusters that are a prominent feature of virtually any advanced economy, but are lacking in developing countries, which limits productivity growth in those economies. External economies, resulting from local clusters, are thus among the most important influences on learning and eventually the ultimate source of many of the scarcest resources and capabilities of firms. As a result, it becomes a legitimate international competitive issue from a firm's perspective (Porter, 1998).

Porter (1998) claims that the core challenge of economic development is to build clusters in order to realise external economies and that the cutting-edge public policy issues should be focused on removing obstacles to productivity improvement and innovation in cluster development. This view is supported by the strategic trade policy argument, but offers a potential justification for a neo-mercantilist view of trade (Krugman 1992) and thus a movement away from the free trade argument in economics towards a new form of protectionism.

Although there appears to be a theoretical justification in the economic and business management literature for a kind of new-mercantilism to promote external economies, the critique against such intervention by government is basically the same as the critique against strategic trade policy as discussed in the previous section. More specifically, the budget constraint, the potential role of predatory trade policies and the abuse by special interest groups all still apply. Furthermore, the welfare effects of trade intervention based on external economies are far more ambiguous than the effects of comparative advantage and internal economies of scale, and may lead to a distortion of specialisation patterns for a specific country (Krugman & Obstfeld, 2003).

Porter (1990) implicitly acknowledges this by not including governments as an attribute of the diamond, but rather sees government as an influencing factor through economic policy. Finally, Porter (1990) views all the determinants as constituting an interactive system, and it is this interplay that he believes leads to the competitive advantage of countries. It is his

focus on the diamond as a descriptive interactive system that is easy to comprehend that has perhaps led to general acceptance of his framework in the management literature.

Porter (1990) also added another outside variable to the competitive diamond model called chance conditions. According to Porter (1990) chance conditions may be defined as events described as occurrences that have less to do with circumstances in a nation and that are mainly beyond the influence and power of firms and local government. Some examples include exchange rate, major new technologies and wars. Such events can nullify sources of competitive advantage and create new ones. The ability of an industry to respond will depend upon the status of other parts of the competitive diamond.

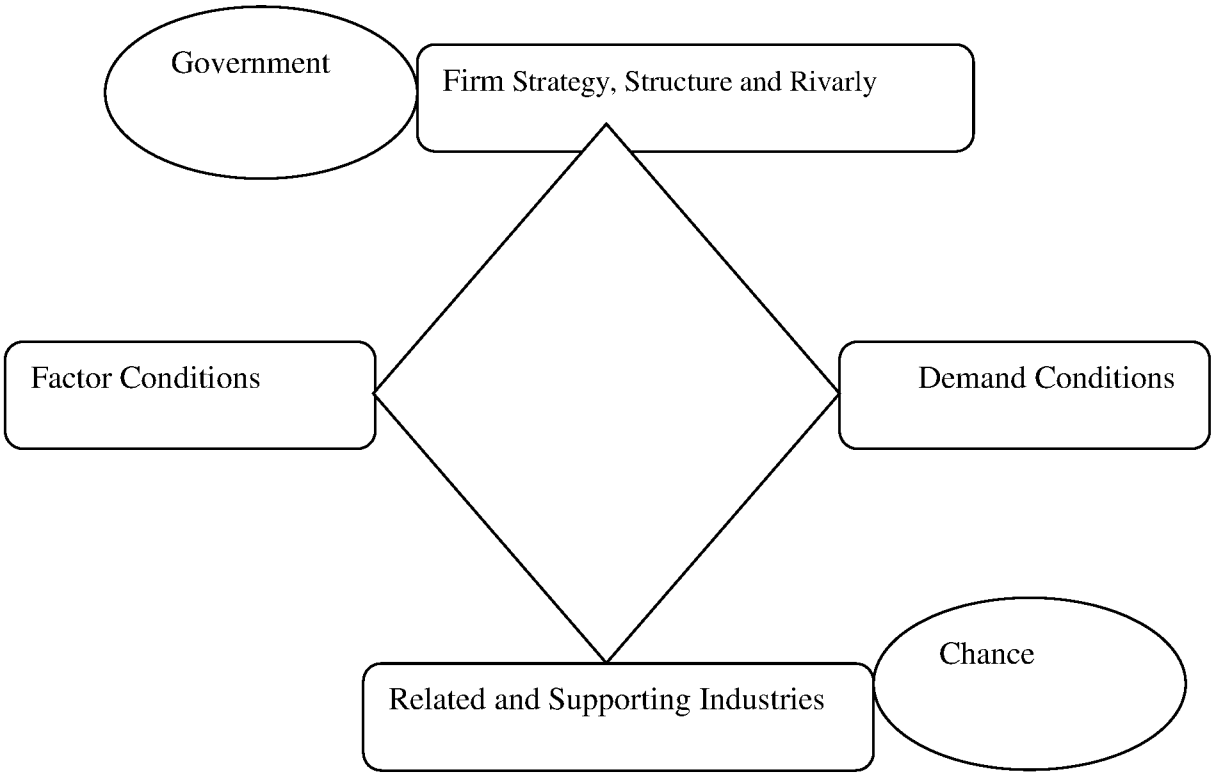

Figure 1. Porter`s Diamond Model

Source: Porter, 1990.

2.5 Previous Studies on Competitiveness

Nxumalo (2012) used both RTA and the Porter Diamond model to measure the competitiveness of the Swazi Can Industry. Nxumalo used the RTA to calculate the competitiveness indices of various canned deciduous fruit products where time series data on Swaziland and global canned deciduous fruit exports were used to calculate the competitiveness indices. The RTA indices for canned pineapple fruits reflected a highly competitive status, with RTAs ranging between 2.39 and 15.79. On the other hand, RTAs for processed fruits reflected a relatively competitive performance, with RTAs ranging between 0.58 and 4.16.

Using Porters National Diamond Model the fruit canning industry was found to have the most competitive advantage (5 -7) on the availability of unskilled labour as well as the strategy to sell environmentally friendly products. The study found that the most constraining (1 -3) determinant was the size of the local market which was too small. Esterhuizen (2006) also used the RTA to calculate the competitiveness indices for Centrifugal, raw sugar and refined sugar in South Africa. Sugar (centrifugal, raw) and refined sugar production in South Africa were found to be internationally highly competitive. The RTA indices for Centrifugal sugar reflected a highly competitive status with RTAs ranging from 7.78 and 9.77. On the other hand, RTAs for refined sugar also reflected a highly competitive status with RTAs ranging between 2.88 and 4.97.

The methodology described by Porter (1990, 1998) was used by Esterhuizen (2006) as bases to determine the constraining and enhancing factors influencing the competitiveness success of agribusinesses in South Africa.The study by Esterhuizen (2006) revealed 3 top constraining (1-3) factors to competitiveness as the cost of crime, trust in the political systems and low level of competency of public sector personnel. However, the top 3 enhancing (5-7) factors to competitive success were intensity of competition in the local market, availability of unskilled labour and production of affordable high quality products.

Bavorora (2003) investigated the international competitiveness of the Czech sugar industry during 1988-99 with the help of RXA, RMA and RTA. Yearly RXAs were consistently

less than 1, indicating the competitive disadvantage of the Czech sector, while RMA and overall RTA showed competitive advantage for the period 1994-98.

An analysis of the sugar industry in Fiji and its global competitiveness by Anderson (2010) using Porters National Diamond found the following results. Both the Factor conditions and Related Industries were found to have a positive impact on the competitiveness of the sugar industry. However, the demand conditions and firm strategy were found to have a negative impact on the competitiveness of the sugar industry.

2.6 Conceptual Framework

Figure 2 shows a framework that could be used in analysing the competitiveness of the Swaziland sugar industry. The framework was selected because it allowed the researcher to firstly, determine the current and past competitiveness status of the Swaziland sugar industry. The RTA method developed by Balassa (1977, 1989) was used. In this method the competitiveness performance was indicated by the export values of sugar.

The second aspect was to identify the factors that contribute to the competitiveness of the Swaziland sugar industry. The aim of this was to determine the key success factors that established a competitive advantage and the constraints that impacted negatively on the competitiveness of the Swaziland sugar industry. The determinants of competitiveness as described by Porter (1990; 1998) were used as a base.

This involves identifying the factors that contribute to the competitiveness of the Swaziland sugar industry and to prove how they relate to the economic performance of the sugar industry in a global economy. The focus of this analysis was at industry level where key stakeholders who were indirectly or directly involved in the sugar industry were requested to participate. The RTA method was used to measure competitiveness status over a specific period. Combining the quantitative with the perceptions of the sugar stakeholders, this provided a different but complementary viewpoint on the issue of competitiveness and this intelligence had been used as basis to make recommendations to decision makers on the future of the Swaziland sugar industry.

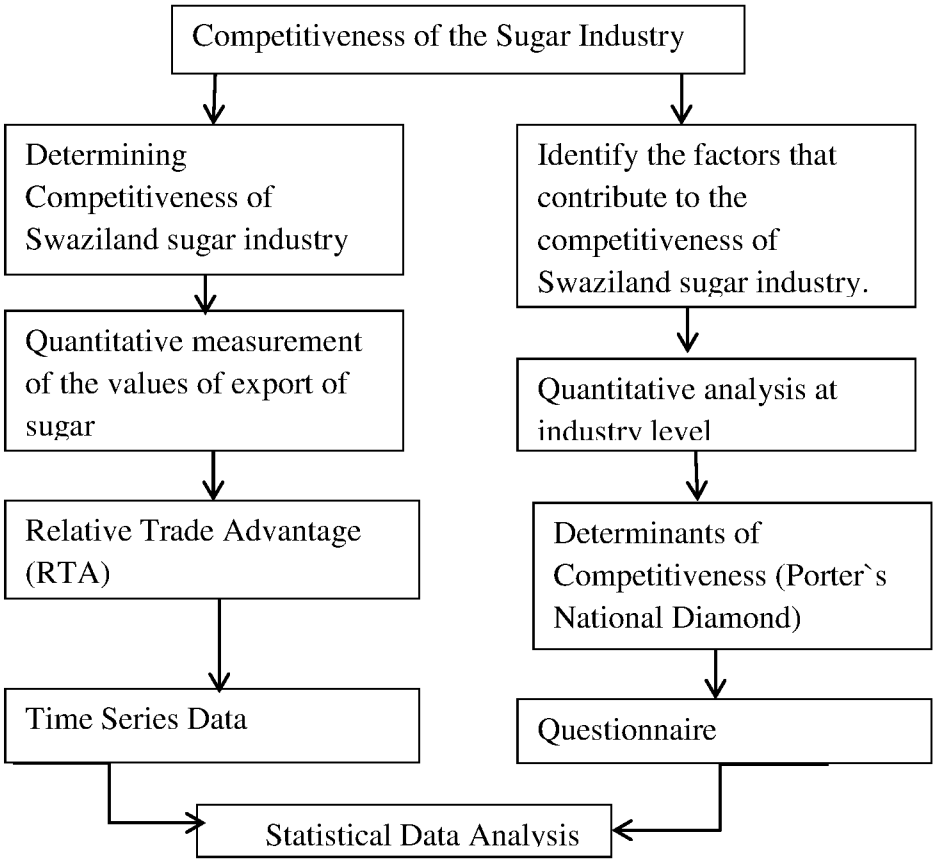

Figure 2. Conceptual Framework

2.7 Chapter Summary

In this chapter the researcher discussed economic theories, trade theories on competitiveness, conceptual perspectives of competitiveness, trade measures of competitiveness, previous studies on competitiveness as well as the conceptual framework.

CHAPTER 3

METHODOLOGY

This chapter describes the design of the study along with the analytical framework, variable measures, data collection procedures and data analysis.

3.1 Research Design

The information collected was quantitative. This quantitative study was undertaken to determine the competitiveness of the Swaziland sugar industry. Analysing a nation's competitiveness require that the underlying factors that influence the competitiveness of individual firms and industries be examined (Porter, 1998). Therefore, a descriptive study using Porter's (1998) theory to determine the factors affecting the competitiveness of the sugar industry of Swaziland was undertaken.

3.2 Analytical Framework

The analysis in this research was based on the Relative Trade Advantage and the National Diamond competitiveness conceptual framework developed in economic theory by Balassa (1977) and Porter (1990) respectively. This framework allowed the analysis of the comparative advantage status of the Swaziland sugar industry as well as identifying the determinants of competitiveness of the industry under study.

3.3 Variable Measures

Using the Relative Trade Advantage (RTA) approach the comparative status of the sugar industry in Swaziland was determined through the time series data on sugar export, export values of other agricultural products except sugar as well as global exports of sugar and other agricultural products. The National Diamond concept framework was used in the determinants of competitiveness success of the sugar industry.

3.4 Data Collection

Data for this study were derived from various sources. Both secondary and primary data were collected. To measure how competitive the Sugar industry in Swaziland is, it was necessary to determine how successful the sector traded its products relative to its competitors, over time in the international market. For this purpose export data were needed to make comparison of the Swaziland Sugar industry performance against other sugar exporting industries. Therefore, data on export values for sugar between 1994 to 2011 were obtained from Food and Agricultural Organisation Statistics (FAOSTAT and Swaziland Sugar Association (SSA) for the purpose of determining the competitiveness of the sugar industry. Also export values of sugar and that of all agricultural products for South Africa, Brazil and Australia were obtained using the same data source.

For the determinants of competitiveness of the sugar industry primary data were obtained through a survey of key stakeholders regarding the competitiveness of the Swaziland sugar industry where purposive sample of key sugar industry stakeholders was selected. The purposive sampling was taken from a population of stakeholders along the sugar industry sector lines in the categories as shown in

Table 2

Respondents on their roles in the sugar industry`s competitiveness

Respondents	Number of Respondents	Percentages
Sugar Producers (Millers)	6	20
Swaziland Sugar Association	3	10
Small - holder sugar farmers	9	30
Labour Union Rep in the sugar industry	3	10
Government	9	30
Total	30	100

A structured questionnaire which was developed using Porter's determinants to competitiveness as a basis was administered. The empirical determination of factors affecting the competitiveness described by Porter (1990, 1998) was to identify the many factors that influence the competitiveness and to show how they relate to each other especially to the performance of the sugar industry in the global economy. The questionnaire was either self-administered or posted.

The questionnaire required the respondents to give their opinion on the extent of the factors contributing to the competitiveness of the Swaziland sugar industry. Most of the questions in the survey required the respondents to check a box according to their opinion. Where:
Crossing 1 means you agree wholeheartedly that the factor constrains competitiveness
Crossing 2 means you agree somewhat that the factor constrains competitiveness
Crossing 3 means your opinion is indifferent between the two answers
Crossing 4 means you agree somewhat that the factor enhances competitiveness
Crossing 5 means you largely agreed that the factor enhances competitiveness.

3.5 Data Analysis

This section presents the models which were used to archieve the specific objectives of the study**.**

Relative Trade Advantage Method (Objective one)

To determine Swaziland`s comparative advantage in the global sugar trade.

As discussed in Chapter two the comparative advantage status of the Swaziland sugar industry was determined by the Relative Comparative Advantage (RCA) model developed by Balassa (1977, 1989) and extended by Volrath (1991) to the Relative Trade Advantage (RTA) method. It was based on the value of exports of sugar and value of exports from other agricultural products.

Microsoft Excel Spreadsheet was used to capture, present and analyse export values for the sugar not only that from Swaziland but also those from its competitors in the global sugar market. The comparative advantage of the Swaziland sugar industry was determined by the Relative Trade Advantage (RTA) method. The Revealed Comparative Advantage is sometimes called the Relative Export Advantage (RXA) as it is based on exports. The RTA indices were based on the export values of sugar and other agricultural products since Swaziland is a major exporter of sugar. Therefore, the RTA indices were calculated as follows.

RTA = RXA, meaning that the Relative Trade Advantage is based on the Relative Export Advantage.

$RXA = [Xiv / \Sigma Xin] / [\Sigma Xmv / \Sigma Xmn]$

Where;

(i and m) = Products

i = Sugar export

m = other agricultural export products except sugar.

(v and n) = countries

v = Swaziland

n = other countries

Xiv = Value of Swaziland exports for sugar (MT)

ΣXin = Total value of exports for sugar from all countries except Swaziland (MT)

ΣXmv = Total value of Swaziland agricultural exports, except for sugar (MT).

ΣXmn = Total Value of global agricultural exports of all other products (MT).

RTA> 1 implies that the industry has a comparative advantage

RTA < 1 implies that the industry has a comparative disadvantage

RTA = 1 implies that the industry has a marginally comparative advantage

Regression Analysis (Objective two)

To estimate factors responsible for Swaziland`s comparative advantage in the global sugar trade.

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Since literature has highlighted that the RTA analysis did not explain how an industry or country acquired its international market share and competitiveness advantage status, the researcher further conducted a regression analysis on the factors that might have influence on the competitive status of the industry together with those which were used to calculate the RTA indices. A regression analysis was used to estimate the relationship between the independent factors (*Xi*) and Relative Trade Advantage (RTA) indices which is the dependent variable. Among these factors were land cultivated, yields, the global sugar prices, exchange rates, value of Swaziland exports for sugar, total value of exports for sugar from all countries except Swaziland, total value of Swaziland agricultural exports excluding sugar, total value of global agricultural exports of all other products.

The least-squares technique was used to estimate the multiple regression coefficients (*bi*) in an equation form:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + u$

Where;

Y = Relative Trade Advantage indices

β_0 = Constant

$\beta_1 \ldots \beta_8$ = Parameters to be estimated

X_1 = land cultivated (ha)

X_2 = yield (t/ha)

X_3= Global Price of sugar (U$/tonne)

X_4= Exchange rate (1US$/ZAR)

X_5 = Value of Swaziland exports for sugar (MT).

X_6 = Total value of exports for sugar from all countries except Swaziland (MT)

X_7 = Total value of Swaziland exports, except for sugar (MT).

X_8 = Total Value of global exports of all other products (MT)

U = Random disturbance term.

The researcher further discuss the explanatory variables and how they can influence the comparative advantage of an industry.

Land under sugar cultivation - This is one factor which is important in the determinants of industry competitiveness. The more land is being cultivated for sugar cane purposes the more the sugar will be produced thus increasing the volume of exports from Swaziland. Therefore, an increase in the number of hectrage of sugar cultivated would have a positive impact on the comparative advantage of Swaziland sugar industry.

Yield per hectare - High sugarcane yield with high sucrose content means more sugar will be produced thus resulting to an increase in exports of sugar. Also high yields show an element of efficiency in production which is key for an industry to remain competitive. Therefore, there is a need for the sugar industry to improve on productivity and efficiency, and thus competitiveness. High yields accompanied by high sucrose content are expected to have a positive influence on the RTA indices of Swaziland sugar industry.

Global Sugar Price - The biggest threat facing the sugar sector relates to a fall in the price obtainable for Swazi sugar in export markets, including the SACU market. The low return to sugar industry will act as a disincentive to improve productivity thus jeopardising the increase in the country`s exports. An increase in the global sugar market prices would increase the volume of exports thus improving the competitiveness of the sugar industry. Therefore, a positive relationship between global price and RTA indices for Swaziland sugar is expected.

Exchange Rates - Real exchange rate shows trend in relative price levels expressed in a common currency. Swaziland's external competitiveness is strongly influenced by its currency peg to the South African Rand. Swaziland has a membership to the Common Monetary Area (CMA) and the Lilangeni is peg to the South African Rand. Therefore, Swaziland uses the South African Rand in the global market. Developments in nominal and real effective exchange rates are widely used indicators of overall competitiveness. The exchange rates affect external competitiveness of an industry. When the exchange rate appreciates, the external competitiveness of an industry will be deteriorated due to reduced revenue thus industries will export less. The exchange rate is expected to have a positive influence on Swaziland comparative advantage indices.

Value of Swaziland Sugar Exports - An increase in the value of exports of sugar by the sugar industries, the more the industry enhances their chances of increasing their competitive advantage in the international market. Therefore, exports are likely to have a positive influence on the country`s sugar industries RTAs.

Global sugar export except Swaziland - More than 100 countries are involve in sugar production. An increase in the value of exports of sugar would create more competition in the sugar market global. Therefore, it is expected that Swaziland`s RTA indices would be negatively influenced by an increase in the value of global sugar exports.

Swaziland Export except sugar - Swaziland also exports other agricultural products in the global markets besides sugar. If the value of exports from other agricultural products increases the RTA indices for the Swaziland sugar industry would be reduced. This is because more resources would then be channelled towards those products whom the country can produce more efficiently than any other country. The reduction in resources channelled towards the sugar industry would compromise the comparative advantage of the sugar industry in the global market thus a decrease in the RTA indices.

Global Export of all other products except sugar - This is the value of exports from all other agricultural products in the world except sugar**.** An increase in the value of exports from all other agricultural products is likely to compromise the RTA indices for the Swazi sugar industry. This increase in the exports would mean that sugar is no longer a major crop in demand in the global market thus there would be a reduction in the sugar exports compromising the RTA indices for the Swaziland sugar industry because of the reduction in exports.

On another note the researcher further conducted a comparison of the mean of the RTA indices from the four countries using a t-test. They were analysed using the Statistical Package of Social Science (SPSS). This was done to further analyse the comparative advantage status of the sugar industry in Swaziland.

Porters National Diamond (Objective three)

To identify factors affecting the competitiveness of the Swaziland Sugar Industry.

In order to meet objective number three, the approach to competitiveness developed by Porter (1990; 1998) was used as base for the determinants of competitiveness of the sugar industry from the executive survey of 2015 of the population of stakeholders along the sugar industry. The questionnaire required the respondents to give their opinion on the extent of the factors contributing to the competitiveness of the Swaziland sugar industry. Most of the questions in the survey required the respondents to check a box according to their opinion, where:
crossing 1 means you agree wholeheartedly that the factor constrains competitiveness,
crossing 2 means you agree somewhat that the factor constrains competitiveness,
crossing 3 means your opinion is indifferent between the two answers,
crossing 4 means you agree somewhat that the factor enhances competitiveness and
crossing 5 means you largely agreed that the factor enhances competitiveness.

The factors were examined in six broad categories as shown by Table 3, namely factor conditions, demand condition, related and supporting firms, firm strategy, structure and rivalry, role of government and role of chance. The closed ended questions were coded with numbers in the questionnaire for ease of analysis. The data were captured and analysed using the Statistical Package of Social Science (SPSS) version 20 to obtain their means, medians, standard deviations and modes. In the study all factors with a range of means from 1 to 2.99 were considered as constrain to competitiveness and those with a range of mean from 3 to 3.99 were moderate. However, those factors which had a range of mean value between 4 to 5.99 were considered as enhancing factors to the competitiveness of the sugar industry in Swaziland. The results were presented in tableau format.
Sixty three factors were investigated and they are shown in Table 3. The factors investigated based on the determinants of competitive advantage as describe by Porter (1990, 1998), were classified as follows;

Factor conditions - this is the nation`s position in factors of production. Factor conditions are further subdivided into basic and advanced factors that can be either general or specialised.

Demand conditions- this is the nation`s home demand for the industry`s products. According to Porter (1990), it is not only the size of the home demand that matters, but also the sophistication of home country buyers. It is the composition of home demand that shapes how firms perceive, interpret and respond to buyers' needs.

Related and Supporting Firms - the presence or absence in the nation of supplier industries and related industries that are internationally competitive. These are industries that can use and coordinate particular activities in the value chain together, or that are concerned with complementary products.

Firm Strategy, Structure and Rivalry Conditions - this characteristic ascribes to the national – level circumstances that differentiate the creation, organisation and the management of firms and the nature of national level competition. Intense and positive rivalry between firms in a country shape firms for global competition and assists to constraint and establish a business climate attractive for foreign and domestic investment.

Government - the role of government is seen by Porter (1998) as influencing the four attributes above.

Chance Condition - Porter (1990) also added another outside variable to the competitive diamond model called chance conditions. Chance conditions may be defined as events described as occurrences that have less to do with circumstances in a nation and that are mainly beyond the influence and power of firms and local government.

Table 3

Porter`s determinants of competitiveness

Factor	Constrain		Intermediate	Enhance	
	1	2	3	4	5
Factor Conditions					
- Availability of unskilled labour					
- Quality of unskilled labour					
- Cost of unskilled labour					
- Availability of skilled labour					
- Quality of skilled labour					
- Cost of skilled labour					
- Availability of professional labour					
- Quality of professional labour					
- Cost of professional labour					
- Cost of Administration					
- Development of infrastructure					
- Quality of technology					
- Cost of technology					
- Availability of Water					
- Cost of water					
Demand Conditions					
- Sophistication of local buyers					
- Adoption of the product by local buyers					
- Internalization of local buyers					
- Local buyers concern on ethics					
- buyers concern on environmental friendly product					
- Local market size					
- Growth of local Market					
Related and Supporting firms					
- Availability of credit or finance					
- The cost of financing the business					
- The cost of transport					
- The cost of supplies of inputs					
- role of financial institutions					
- Quality of scientific research institution					
- Availability of Transport companies					
- Local supplies availability					
- Local supplies efficiency					

Table 3 (continued)

Porter`s determinants of competitiveness

Factor	Constrain		Intermediate	Enhance	
	1	2	3	4	5
Related and supporting industry					
- Local supplies sustainability					
- Reliability of electricity					
- Telecommunication and internet service					
- Availability of specialised information technology					
- Business approach to human resource					
- Compensation of management					
Firm Strategy, Structure and Rivarly					
-Competition intensity					
- Source of competition					
- Entry of competitors					
- Spending on research and development					
- Relationship and networking					
- Source of comparative advantage					
- Environmentally friendly product					
- Production process					
- Business approach to human resource					
- Compensation of management					
Government conditions					
- Public sector personnel competence					
- Public sector personnel effectiveness					
- The tax system					
- The regulation administration					
- Regulations on international trade					
- Swaziland trade policy					
- Labour policy					
Chance conditions					
- Prevalence of crime					
- Cost on HIV/AIDS					
- Exchange rates					
- Global political development					
- Local political environment					

3.6 Chapter Summary

This chapter presented the research methodology used in the study. This covers the quantitative research designs, analytical framework, data collection and their sources as well as data analysis.

CHAPTER 4

RESULTS AND DISCUSSION

This chapter presents results, findings as well as discussions. The data were collected and then processed in response to the problems posed in chapter one of the study.

4.1 Comparative Advantage of the Swaziland Sugar Industry

To determine comparative advantage of the Swaziland sugar industry it was important to examine how the industry traded relative to its competitors over time. The RTA method developed by Balassa (1977; 1989) as presented in Chapter three, was used to estimate the RTA indices where export data for the period between 1994 and 2011, obtained from FAOSTAT were used to calculate the RTAs indices for the Swaziland sugar industry.

Calculations of the RTA indices on the comparative advantage of the Swaziland sugar industry and some of its competitors was also done using the export values of sugar from the same source which is FAOSTAT. Table 4 presents the comparative advantage in RTAs for Swaziland and other major sugar exporting countries. The comparison is made between Swaziland versus Australia, Brazil and South Africa. These countries are rated amongst the top exporters of sugar in the world (SSA, 2013).

When the RTA > 1, it means the industry had a comparative advantage while RTA < 1, means the industry had a comparative disadvantage. However, when the RTA = 1, the industry is said to have a marginally comparative advantage. From Table 4 it is reflected that out of the four countries, Swaziland's RTA indices reflect a highly comparative advantage status than the others with RTA indices ranging from 2.8 and 46 except in 2008 when it was not competitive. The high RTA indices can be attributed to an increase in the value of exports of sugar from Swaziland compared to other agricultural exports in Swaziland. In 2003 South Africa had a highly comparative advantage with her RTA indices reaching 46.3. In 2004 Australia also had a highly comparative advantage with her RTA indices reaching 53.3. However, in 2011 Brazil`s RTA indice was 6.2 and reflected a relative high comparative advantage than the others.

Table 4

Comparative Advantage of the sugar industry

Year	Swaziland RTA	Australia RTA	Brazil RTA	South Africa RTA
1994	13.7	0.5	5.3	6.0
1995	6.6	4.7	1.1	0.5
1996	14.6	1.6	7.4	3.1
1997	22.0	1.1	3.7	2.8
1998	9.30	0.6	3.9	1.1
1999	21.1	2.2	5.1	4.1
2000	46.0	1.2	7.2	5.3
2001	34.9	14.3	2.9	1.3
2002	16.5	1.2	4.3	3.5
2003	38.5	30.2	16.3	46.3
2004	26.7	53.3	35.4	18.1
2005	6.1	1.9	1.8	2.9
2006	8.5	1.3	1.6	4.8
2007	14.0	0.03	2.3	0.8
2008	0.8	0.4	3.6	0.1
2009	28.0	9.8	0.6	1.7
2010	34.5	0.9	10.6	1.2
2011	2.8	0.9	6.2	0.5

Source: Own calculation based on data from FAOSTAT 1994 – 2011

Note: comparative advantage (RTA > 1), comparative disadvantage (RTA < 1), marginal comparative advantage (RTA = 1)

Figure 3 also presents the comparative advantage in RTAs for Swaziland and other major sugar exporting countries. From this figure it is clear that between 1994 and 2002, the sugar industry in Swaziland had a highly comparative advantage compared to her major competitors which are Brazil, Australia and South Africa. However, in 2003 the South African sugar industry had a highly competitive advantage compared to the others. In the year 2004 the Australian sugar industry also had a highly comparative advantage compared to the others. Then between 2006 and 2010 the Swaziland sugar industry shows a highly comparative advantage status than her competitors.

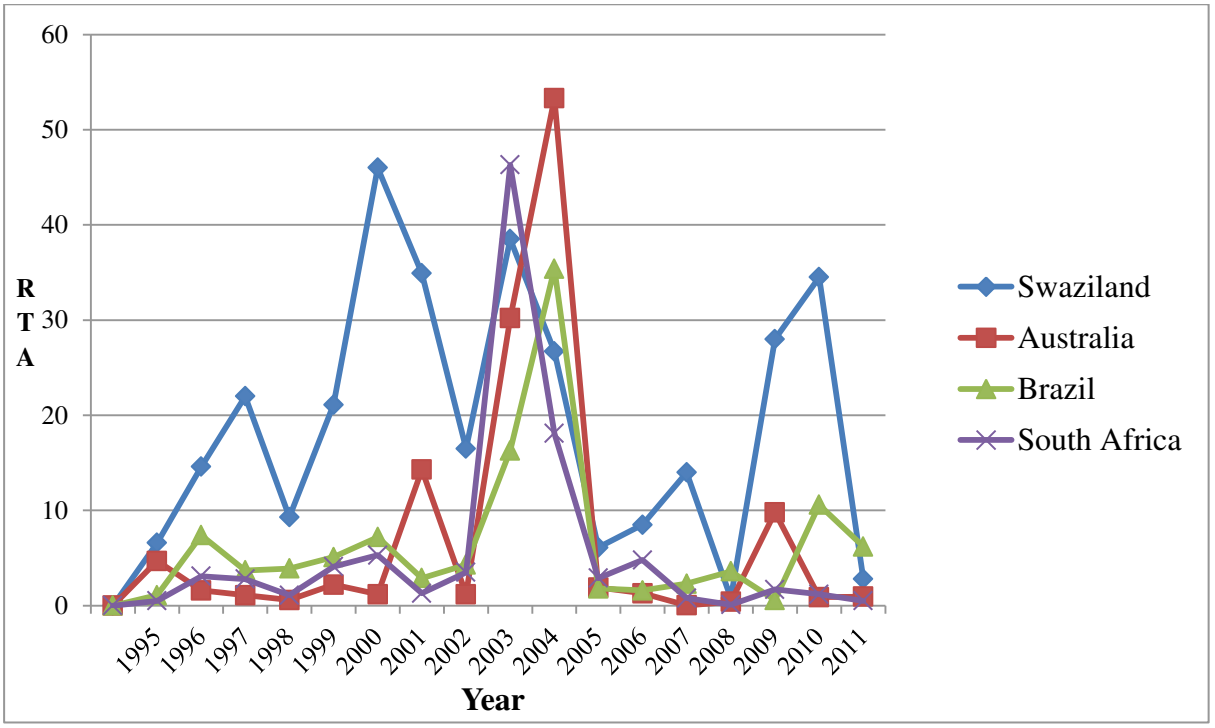

Figure 3. Comparative Advantage of the sugar industry among countries

4.2 An Analysis of the Factors that Influence the Sugar Industry`s Relative Trade Advantage.

Since RTA analysis did not explain clearly how a country or industry acquired its international market share and competitive advantage status, the researcher further conducted a regression analysis of factors which might influence the comparative advantage of the sugar industry in the international markets. A regression analysis was used to estimate the relationship between the independent factors (*Xi*) and Relative Trade Advantage (RTA) indices.

The factors which were analysed using SPSS Version include land cultivated (ha), yield (t/ha), the global sugar prices (US$), exchange rates, value of Swaziland exports for sugar (MT), total value of exports for sugar from all countries except Swaziland (MT), total value of Swaziland agricultural exports except for sugar (MT), total value of global agricultural exports of all other products (MT).

Table 5 shows the results from the multiple regression model. The model fit value was found to be 2.731 and significant at (P<0.1). Also about 70% variation in the RTAs is explained by these factors. The results indicate that only three factors positively affect the comparative advantage of the sugar industry and they are significant at (P<0.05), (P<0.1), respectively, namely the global price for sugar, exchange rate and the value of Swaziland exports.

The coefficient of global sugar price was -0.148. This means that an increase by one unit in the global price would result to 0.148 decrease in the comparative advantage of the sugar industry in Swaziland. This means that when the global price of sugar increases more sugar industries will come in to benefit from the high price thus creating more competition among the sugar industry exporters. The presence of more competitors in the international sugar market would result to the reduction of the comparative advantage of the sugar industry. The negative sign shows that Swaziland competitiveness advantage will be reduced at global market.

Another factor which had a positive significant (P<0.05) influence on the comparative advantage of the sugar industry was the exchange rate. The coefficient was 3.807. It shows that a unit increase in the exchange rate would increase the competitive advantage of the sugar industry by 3.807. In the case of Swaziland, profit margins of the sugar exporters are likely to increase due to increase in the value of exports. This will benefit greatly the sugar industry since it would be able to reinvest part of the revenues in technology to improve efficiency and also increase more land under cultivation with improved irrigation facilities.

The last factor which also had a positive significant (P<0.1) influence on the sugar industry`s comparative advantage was the value of exports. A unit increase in the value of export would result to 2.74×10^{-5} increase in the competitive advantage of the sugar industry. The more the sugar industry exports, the more it enhances its chances of being competitive in the global markets.

Table 5

Determinants of the Swaziland comparative advantage in the global sugar trade.

Item	Coefficient	Std.Error	T- value	Sig.
Intercept	11.66	34.653	0.336	0.744
Land cultivated (ha)	-2.89E-05	0.000	-1.315	0.221
Yield (tonne/ha)	0.188	0.297	0.633	0.542
Global sugar prices (U$)	-0.148	0.05	-2.944	0.016**
Exchange rate (U$/ZAR)	3.807	1.626	2.342	0.044**
Swaziland sugar export (MT)	2.74E-05	0.000	2.18	0.057*
Global sugar export except Swaziland (MT)	-1.43E-07	0.000	-1.583	0.148
Swaziland Export except sugar (MT)	-4.08E-05	0.000	-1.065	0.315
Global exports of all other products (MT)	4.15E-09	0.000	1.233	0.249

$R = 0.842$, $R^2 = 0.708$, Adjusted R square = 0.449, SE = 9.78155, F = 2.71

4.2.1 Comparison of the RTA means. The mean for Swaziland was found to be higher than those of its competitors and significant at ($P<0.001$) for all countries under study. The mean value for Swaziland was 19.1444 while those from Australia was 7.01. Brazil`s mean value was 6.6278 while those for South Africa was the lowest at 5.7833. This means that the Sugar industry in Swaziland was highly competitive than its competitors. The results are shown in Table 6 below.

Table 6

Comparison of Mean value for RTAs from the different countries under Study

Countries	N	Mean	Std. Dev	Std. Error Mean	T - value	Sig.
Swaziland	18	19.1444	13.1787	3.10625	2.704	0.011
Australia	18	7.01	13.742	3.23901	2.704	0.011
Brazil	18	6.6278	8.12069	1.91407	3.431	0.002
South Africa	18	5.7833	10.8998	2.5691	3.315	0.002

4.3 Application of Porter's analysis of Competitiveness Determinants in the Sugar Industry in Swaziland

The methodology described by Porter (1990, 1998) was used as a base for the determinants of competitiveness for the Sugar industry in Swaziland. This method is based on the perceptions of industry leaders regarding issues influencing competitiveness. It points out strengths and weaknesses, as well as identifies critical strategic factors that firms need to pay special attention to in order to develop and sustain a competitive advantage in the years to come. The importance of nations has increased in the current situation in the world with growing global competitiveness and to be able to answer the research question it was essential to evaluate Swaziland`s position on the international as well as on the national market.

In Table 7 to Table 12, the trends in the determinants of competitiveness of the sugar industry in Swaziland are indicated. The trends in each of the determinants will be discussed individually. The data obtained through the executive survey were analysed using the SPSS Version 20 to obtain their mean, median, standard deviation and mode of each of the sixty three factors investigated. In the study the determinants of competition were rated to have either constraints (1- 2.99), moderate (3 – 3.99) or enhancing (4 -5.99) impact on competitiveness of the sugar industry in Swaziland. The factors were ranked using their median values.

4.3.1 Factor conditions. Factor conditions are the nation position in factors of production. In Table 7 factor conditions as determinants of competitiveness of the sugar industry are illustrated. With an overall mean of 2.82, factor conditions as a whole have negative impact on the competitiveness of the sugar industry since it falls within the mean range (1 – 2.99). Factor conditions that only enhance the competitive of the sugar industry is the availability of unskilled labour which falls within the mean range (4 – 5.99).

Upgrading of the skills is an important aspect of the efficiency in the Industry. This is important since there is shortage of professional labour in the country. There is a need to put a lot of emphasis on educational resources today, since the competence of workforce is essential in order to get required performance out of the machines. Also the growers'

education needs to be improved so that the whole industry's level of skills is strengthened due to the fact that factors such as skilled human resource, is necessary to support a nation's competitive advantage.

Since industries benefits from constructive support forms from the government like investments in educational institutions, the government of Swaziland working hand in hand with the higher learning institutions should support the industry with relevant education. This arrangement will make sure that the sugar companies would reduce costs of getting expert from outside the country. During the study, the researcher also discovered that only Illovo Sugar Company that did not incur much costs on getting experts outside the country. This was because they have a sister company in South Africa thus the exchange of professional labour becomes so easy.

Table 7

Factor Conditions as Determinants of Competitiveness

Factor Conditions	Mean	Median	Standard Deviation	Mode
Unskilled labour				
- Availability	4.40	5	1.07	5
- Quality	2.00	2	0.69	2
- Cost	2.60	2	1.19	2
Skilled labour				
- Availability	3.30	4	0.80	4
- Quality	3.23	3	0.68	3
- Cost	2.60	2	0.96	2
Professional labour				
- Availability	1.93	2	1.05	2
- Quality	3.43	4	0.86	4
- Cost	2.10	2	1.32	1
Administration cost	3.20	3	0.83	3
Cost of infrastructure	2.50	2	1.07	2
Quality of technology	3.53	4	0.82	4
Cost of technology	2.50	2	1.17	2
Availability of water	2.10	2	0.62	2
Cost of water	2.23	2	0.89	2
Overall Mean	2.82			

Source: Own Calculations

4.3.2 Demand conditions. In Table 8 demand conditions as determinants of competitiveness of the sugar industry are also illustrated. With an overall mean of 1.96, demand conditions as a whole have a negative (1- 2.99) impact on the competitiveness of the sugar industry. Only the change in consumers trends (4.1) have a positive impact on competitiveness of the sugar industry since it falls within the mean range of (4 – 5.99). Most respondents are of the opinion that the home demand does not really influence the Sugar industry in Swaziland, due to the fact that the locals more or less take what they get. Also the local market size is too small for the industry to grow. This can be seen as a disadvantage since the composition and character of home demand has significant impact on how companies interpret and act on buyer needs and that demanding buyers pressure the industry to innovate faster, resulting in a competitive advantage for the nation.

Table 8

Demand Conditions as Determinants of Competitiveness

Demand Conditions	Mean	Median	Standard Deviation	Mode
Local buyers				
- Sophistication	1.90	2	0.55	2
- adoption of product	1.60	2	0.62	1
- Internalization	1.83	2	0.59	2
- Concern on ethics	1.83	2	0.64	2
- Concern on environmentally friendly product	2.00	2	0.52	2
Local market				
- size	1.10	1	0.30	1
- growth	1.30	1	0.79	1
Consumers trends	4.10	4	1.17	5
Overall Mean	1.96			

Source: Own Calculations

4.3.3 Related and supporting industry conditions. This feature signifies the presence or absence, at a country and industry level, of industrial supplies and other support industries that are internationally competitive. Swaziland`s production inputs are both domestic and international, but mostly are international according to the respondents.

Given that the suppliers of the production inputs largely import them from outside the country, it has a negative impact on the sugar industry since the prices become so high.

In Table 9 the impact of related and supporting industry conditions as determinants of competitiveness of the sugar industry in Swaziland are illustrated. Since they had an overall mean of 2.93, as a whole they had a negative (1- 2.99) impact on the competitiveness of the sugar industry. According to the information obtained from the respondents the cost of financing the business (1.43), cost of transport (1.50), costs of the farm inputs (1.60), local supplies efficiency (2.60) and local supplies sustainability (2.20) are threatening the competitiveness of the sugar industry. However, when end-users and suppliers are located close to each other, they have the benefit of quick and constant flow of information with the short communication lines and a continuous exchange of ideas and innovation which are advantages that the industry benefits from.

However, related and supporting industries conditions factors that enhance (4- 5.99) competitiveness of the sugar industry were the availability of credit (4.40), availability of local supplies of inputs (4.00) and availability of communication and internet services (4.30). Availability of finance is very important since the lack of financing by commercial banks and other organisation translates to inadequate working capital at the firm level where the producers are unable to finance farm operations by cash. In the case of Swaziland sugar industry access to credit would enable the producers to purchase the yield enhancing inputs thereby raising their productivity and competitiveness. According to Awour (2001) lack of the working capital limits the industry`s ability to purchase the productivity enhancing inputs.

In order for the sugar industry to remain competitive beyond 2017, the sugar industry should concentrate on management training, bring in technological advancement and invest in related and support industries. The country also heavily relies on import of electricity from Eskom in South Africa which is an expensive exercise to the Swaziland Electricity Company as well as increasing the costs of electricity to the sugar cane producers.

Table 9

Related and supporting industry conditions as determinants of competitiveness

Related and Supporting industry Conditions	Mean	Median	Standard deviation	Mode
Availability of credit	4.40	5	1.03	5
Cost of financing business	1.43	1	0.68	1
Cost of transport	1.50	1	0.57	1
Cost of supplies inputs	1.60	1	0.90	1
Financial institutions	3.90	4	0.94	4
Scientific research institutions	3.50	4	0.82	4
Transport companies	2.00	1	1.29	1
Local suppliers				
- Availability	4.00	4	0.69	4
- Efficiency	2.60	3	0.73	3
- Sustainability	2.20	2	0.70	2
Electricity supplies	2.03	2	1.03	2
Telecommunication and internet services	4.30	5	1.17	5
Specialised information technology	3.50	4	0.82	4
Quality and trustworth	2.63	2	0.81	2
Training and skills development	3.70	4	0.53	4
Regulation standards	3.60	4	0.86	4
Overall Mean	2.93			

Source: Own Calculations

4.3.4 Firm strategy, structure and rivalry conditions. This characteristic ascribes to the national – level circumstances that differentiate the creation, organisation and the management of firms and the nature of national level competition. Intense and positive rivalry between firms in a country shape firms for global competition and assists to constraint and establish a business climate attractive for foreign and domestic investment.

In Table 10 the impact of firm strategy, structure of the sugar industry and competitive rivalry as determinants of competitiveness of the sugar industry are indicated. With an overall mean of 4.22, firm strategy conditions as a whole have a positive (4-5.99) impact on competitiveness of the sugar industry. The factors that have the major positive impact

on the sugar industry under firm strategy and structure conditions were the high competition intensity among the sugar producers, spending on research and development, networking, production of high quality product and environmentally friendly product as well as the high technology used in the production of sugar. The production of high quality products enable the customers to get a greater value in its attributes thus increasing its demand. Therefore, the sugar industry should continue to do a better job than its competitors when it comes to satisfying and identifying the needs of its customers.

Other factors with a positive impact on the competitiveness of the sugar is the business approach towards human resource and the compensation of management. The sugar industry offer competitive remuneration to its workers in an attempt to attract and retain skilled and professional workers. The entry of competitors (3.8) is the only variable with a moderate (3) impact on the competitiveness of the sugar industry while others have enhancing (4 – 5.99) impact on competitiveness of the sugar industry.

Table 10

Firm strategy, structure and rivalry conditions as determinants of competitiveness

Firm Strategy, Structure Conditions	Mean	Median	Standard deviation	Mode
Competition Intensity	4.10	4	0.52	4
Source of competition	4.20	4	0.81	4
Entry of competitors	3.80	4	0.71	4
Spending on research and development	4.00	4	0.72	4
Relationship and networking	4.70	5	0.55	5
Source of comparative advantage	4.30	4	0.80	4
Environmentally friendly product	4.27	4	0.69	4
Production processes	4.03	4	0.61	4
Business approach to human resource	4.50	5	0.63	5
Compensation of management	4.30	5	1.02	5
Overall Mean	4.22			

Source: Own Calculation

4.3.5 Government support conditions. Table 11 presents how government impacts on the competitiveness of the Swaziland sugar industry through government policies and attitude by public servants. With an overall mean of 2.73, government support

conditions were found to be constraining (1-2.99) the competitive advantage of the Swaziland sugar industry. The competence of government personnel and effectiveness in terms of service delivery were found to have the most constraining effect, with a mean 2.03 and 1.6, respectively. Swaziland's investment climate has been negatively affected by failure from government to create a conducive environment for industries to remain competitive. This is through the high costs of utilities and transportation, and a relatively burdensome regulatory environment. The absence of trade policy and the little or no enforced regulation standards as well as the tax system hinders business competitiveness. All the above factors together with poor service delivery from government personnel has been found to outweigh the benefits of relatively little government intervention.To play the thriving supportive role for national competitiveness, the Government should encourage change, promote domestic rivalry and stimulate innovation (Porter 1990). Therefore the Government can and should influence the national competition and open up for some rivalry among the growers and millers, because that would benefit the whole industry.

Table 11

Government support conditions as determinants of competitiveness

Government Support Conditions	Mean	Median	Standard deviation	Mode
Public sector personnel				
- Competence	2.03	2	0.96	2
- Effectiveness	1.60	1	0.77	1
Tax system	2.80	3	0.90	3
Regulation administration	3.00	3	0.76	3
Regulation on environmental standards	3.83	4	0.53	4
Regulation on international trade	2.10	2	0.84	2
Trade policy	3.40	3	1.03	3
Labour policy	3.10	3	1.05	2
Overall Mean	2.73			

Source: Own Calculations

4.5.6 Chance conditions. Chance events are happenings that have little or no bearing with circumstances in an industry and are generally beyond the power of firms and the national governments to influence such occurrences. Table 12 shows the chance events and some of the factors that are difficult to be controlled by the Swaziland sugar industry.

With an overall mean of 2.03, this implies that chance conditions had a negative (1 – 2.99) impact on the competitiveness of the sugar industry. The prevalence of crime increases costs of business operation. The uncertainty of the exchange rate of the South African Rand against the US dollar and the continuous political instability in the international communities undermines competitiveness.

Table 12

Chance conditions as determinants of competitiveness

Chance Conditions	Mean	Median	Standard Dev.	Mode
Prevalence of crime	2.33	2	0.66	2
HIV and AIDS	1.80	2	0.61	2
Exchange Rates	1.60	1	0.89	1
Global political development	2.23	2	0.50	3
Local political environment	2.20	2	0.41	2
Overall mean	2.03			

Own Calculations

4.4 Analysis of the Factors that Enhance the Competitiveness of the Sugar Industry in Swaziland

Table 13 shows fourteen out of sixty three factors investigated as major factors that enhance (4 – 5.99) the competitiveness of the Swaziland sugar industry. These factors have been ranked using their median values starting with factors found to have a major positive impact on the competitiveness of the sugar industry.

From the 2015 executive survey, it was clear that the critical key success factors to the competitiveness of the sugar industry in Swaziland were the compensation of management, business approach to human resource, relationship and networking, telecommunication and internet service, availability of credit and availability of unskilled labour. All the above factors had a median value of 5. In order to ensure that the sugar industry remains competitive in the market and is able to attract and retain employees it provide competitive remuneration. Making relationship and networking had a positive impact on the competitiveness of the sugar industry. Since the local market size is too

small, regional and international trade agreements provide opportunities for market. The continued growth of the sugar industry exports is dependent on Swaziland participation in the preferential markets, the future of which cannot be guaranteed.

Other factors with a median value of 4 which enhance the competitiveness of the sugar industry were the application of efficient technology, production of environmentally friendly product, production of high quality product spending on research and development, high competition among local firms, competition intensity among the local firms, local supplies availability and consumer trends.

The above results concur with literature. Productivity and efficiency are often cited as high indicators or measures of competitiveness, and considered as the most reliable indicator for competitiveness over the long term (European Commission, 2008). Technology progress results in an upward shift of the production frontier.

When it comes to quality, a product is said to have superior quality if the customer gets a greater value in its attributes than in rival products. Innovation provides the company with uniqueness, something that makes the company able to differentiate itself from its rivals. Finally, to achieve better customer responsiveness a company has to do a better job than its competitors when it comes to identifying and satisfying the needs of its customers (Hill, Avey and Heybroek, 2007). The sugar industry in Swaziland is committed to provide high quality products through its Quality Management Systems (QMS).

Table 13

Factors Enhancing Competitiveness of the Sugar Industry in Swaziland.

Factor Conditions	Mean	Median	Standard Deviation
Compensation of management	4.30	5	1.02
Business approach to human resource	4.50	5	0.63
Relationship and networking	4.70	5	0.55
Telecommunication and internet services	4.30	5	1.17
Availability of credit	4.40	5	1.03
Unskilled labour availability	4.40	5	1.07
Production processes	4.03	4	0.61
Environmentally friendly product	4.27	4	0.69
High quality product	4.30	4	0.80
Spending on research and development	4.00	4	0.72
Local firm competition	4.20	4	0.81
Competition intensity	4.10	4	0.52
Local supplies availability	4.00	4	0.69
Consumers trends	4.10	4	1.17
Enhancements = (4 – 5.99)			

Source: Own Calculations from the survey data of 2015

4.5 Factors Constraining the Competitiveness of the Swaziland Sugar Industry

In Table 14 thirty one factors out of sixty three factors investigated were found as the major factors that constrain (1- 2.99) the competitiveness of the Swaziland sugar industry. These factors have been ranked using their median values starting with factors found to be the major constraints. With median value of 1, the local market size was found to have the most constraining effect on the competitiveness of the Swaziland sugar industry. This is not good for the sugar industry. This is because the role of the domestic market is to create the demand for the product with stringent standards and drive specific performance characteristic that will be valued by international market. This will increase the value of products for domestic consumption and push local firm competitiveness not only towards more efficient production but also towards the desires and expectation of demanding international markets. The issue of small size of the market also slows down investment in new technology by the industries. Swaziland is a small country with just over a million

people. Such a small population necessitates an outbound marketing strategy for its products.

Other factors with a median value of 1 were also found to have a constraining effect on the competitiveness of the sugar industry and these were: cost of financing business, cost of transport, cost of supplying inputs, public sector effectiveness on service delivery and exchange rates. The sugar cane growing sector remains vulnerable to increases in fertilisers, chemicals and haulage costs. Also as half of the sugar sales are destined for the EU and other markets outside the Common Monetary Area, the contracts entered into are denominated in foreign currency. Currencies used are either the Euro or US Dollar. Significant currency fluctuations of the South African Rand have a huge impact on revenues.

With median value of 2, unskilled labour quality, cost, skilled labour cost, and professional labour availability, professional labour cost, cost of infrastructure, cost of technology, availability of water, cost of water, local buyers sophistication, local buyers slow adoption of product, internalisation, local consumers concern on ethics, concern on environmentally friendly product and local supplies sustainability were among other factors found to constraint the competitiveness of the sugar industry. The sugar industry in an attempt to attract and retain appropriately skilled employees at all levels provides high remuneration so as to positively influence performance. This is more especially on professional labour. However, there is shortage of professional labour in the country thus the sugar millers are forced to source them outside the country which is an expensive exercise.

From the results one could tell that the major challenge facing the sugar industry and threat to its competitiveness are the increased costs of production. The utilities and transportation costs as well as costs of farm inputs constitute a significant threat to the competitiveness of the sugar industry. The results also highlighted the importance of access to credit for both development and operations of the sugarcane farming businesses. Also public and private expenditures in extension service, research and development would enable the creation of new technologies that may improve the industry`s productivity and lower their costs of production

Table 14

Factors that Constrain the Competitiveness of the Sugar Industry in Swaziland

Factor Conditions	Mean	Median	Standard Deviation
Local market size	1.10	1	0.30
Growth of local market	1.30	1	0.79
Cost of financing business	1.43	1	0.68
Cost of transport	1.50	1	0.57
Cost of supply of inputs	1.60	1	0.90
Availability of transport companies	2.00	1	1.29
Public sector personnel effectiveness on service delivery	1.60	1	0.77
Exchange rates	1.60	1	0.89
Unskilled labour quality	2.00	2	0.69
Unskilled labour cost	1.60	2	1.19
Skilled labour cost	2.60	2	0.96
Professional labour availability	1.93	2	1.05
Professional labour cost	2.10	2	1.32
Cost of infrastructure	2.50	2	1.07
Cost of technology	2.50	2	1.17
Availability of water	2.10	2	0.62
Cost of water	2.23	2	0.89
Local buyers sophistication	1.90	2	0.55
Local buyers adoption of product	1.60	2	0.62
- Internalization	1.83	2	0.59
Local consumers concern on ethics	1.83	2	0.64
Concern on environmentally friendly product	2.00	2	0.52
Local supplies sustainability	2.20	2	0.70
Electricity supplies	2.03	2	1.03
Quality and trustworthy	2.63	2	0.81
Public sector personnel competence	2.03	2	0.96
Regulation on international trade	2.10	2	0.84
Prevalence of crime	2.33	2	0.66
HIV and AIDS	1.80	2	0.61
Global political development	2.23	2	0.50
Local political environment	2.20	2	0.41

Source: Own Calculations from the survey data of 2015.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The issue of trade liberalisation and the abolishment of trade agreements preferences pose a great threat to the sugar industry in Swaziland. This is because it is exposed to more competition from other industries globally which then affect the volume of export as well as the price.

The continuous sugar sector reforms by the European Union and the United States of America, require an assessment of Swaziland sugar industry competitiveness. Several questions arise on the competitiveness of the sugar industry considering that it is the center of the country`s economy with a large proportion of people who depend on it for income and employment.

Using both the Relative Trade Advantage and Porter`s 1990 National Diamond concept, the major objective of the study was to examine the competitiveness of the sugar industry in the global market with the aim of establishing the contributing factors to the competitiveness of the sugar industry. This was achieved through the following specific objectives:

1. To determine Swaziland`s comparative advantage in global sugar trade.
2. To estimate factors affecting the Relative Trade Advantage of Swaziland sugar industry.
3. To identify the determinants of the competitiveness of the sugar industry in Swaziland.

The significance of the study is that the European Union (EU) Parliament recently voted for the extension of the country's sugar beet production quota to 2017. This means EU producers will continue to sell the stipulated quotas until 2017, after which they will be allowed to compete with other sugar producing countries to sell whatever amount of

produce they have. This will mean the EU will have more sugar to buy, resulting in lower prices, even for exporters like Swaziland (Gass, 2012).
Swaziland is also part of a global economy and therefore will only reap benefits by exploiting comparative advantages that exists within the countries. Therefore a process of re-orienting adaptation strategies to better respond to these new realities is needed.

This study therefore provides crucial information which will be useful to the Swaziland Government and the sugar industry in enhancing their understanding of the competitiveness of the Swaziland sugar industry. This will contribute significantly to the design and formulation of sound trade policies in Swaziland.

This study also interrogated literature on the subject of competitiveness. This included trade theories on competitiveness, factors that contribute on competitiveness, measurement of competitiveness as well as empirical studies undertaken by different researchers. As a result a conceptual framework for the analysis of the sugar industry was developed.

This study was quantitative in nature. It was undertaken to determine the competitiveness of the Swaziland sugar industry. The analysis in this research were based on the Relative Trade Advantage by Ballassa (1977) and modified by Vollrath (1991) and the National Diamond competitiveness conceptual framework developed in economic theory by Porter (1990). This framework by Porter (1990) allowed the analysis of competitive determinants in the sugar industry in Swaziland. The RTA method was used to determine the comparative advantage status of the sugar industry where the RTA indices were used for the analysis. Secondary data from FAOSTAT on the values of sugar export from 1994 to 2011 was used for the analysis. Also primary data from the perception survey of key stakeholders in the sugar industry was used for the determinants of competitiveness of the sugar industry.

5.2 Conclusions

The principal findings of this study were as follows:

1. The Swaziland sugar industry has a higher comparative advantage in the global market compared to the other countries. However, its comparative advantage heavily relies on preferential market access.

2. Also global market price, exchange rate and the value of sugar exports were found to have a significant influence on the Relative Trade Advantage indices of the sugar industry internationally. Under the global sugar price the comparative advantage of the sugar industry in Swaziland was found to be decreasing. Based on these findings, the null hypothesis that economic conditions, production condition do not significantly affect the Relative Trade Advantage of Swaziland sugar industry, was rejected.

3. Based on Porter`s (1990) model results, the determinants of competitiveness which had a positive impact on the competitiveness of the sugar industry locally were compensation of management, business approach to human resource, relationship and networking, telecommunication and internet service, availability of credit and availability of unskilled labour. Other factors which enhance the competitiveness of the sugar industry local were the application of efficient technology, production of environmentally friendly product, production of high quality product spending on research and development, high competition among local firms, competition intensity among the local firms, local supplies availability and consumer trends.

4. Some factors were found to have a major constraining effect on the competitiveness of the Swaziland sugar industry. They included small local market size, slow growth of local market, cost of financing business, costs of transport, cost of supplies of inputs, public sector personnel effectiveness on service delivery and exchange rates.

5.3 Recommendations for Action

In order to improve competitiveness of the sugar industry in Swaziland, the following measures need to be adopted and implemented. This is according to the findings of the study and the observations made during the study.

1. Development of an Industry Policy Strategy. Since the Swaziland sugar industry is export oriented, it is likely to be affected by international shocks. Government in consultation with the industry representatives should consider development and

implementation of an industry policy strategy for the sugar industry intended to ensure its survival while local and international market access improvements are being developed.

2. Increase in Productivity and Efficiency. Efficiency, quality, innovation and customer responsiveness are four factors that influence a company's ability to build and sustain a competitive advantage. Efforts by the Swaziland sugar industry should be continuously exerted to improve operational efficiencies at both field and factory levels. This entails ongoing training and upgrading of labour skills, installation of better equipment and generally adopting new technologies as well as new techniques.

3. Exploiting New Market Opportunities. The sugar industry is faced with two challenges in terms of market. The local market size being too small and the future loss of preferential market access, there is a need for the sugar industry to exploit new market opportunities. This can be through strengthening Regional trade agreements to increase market for our sugar. Access to other market like COMESA will allow for flexibility in the event the EU market does not yield value in the Swaziland sugar industry.

4. **Reduction in production costs, transport Costs and financing cost.** There is still work to be done to get the unit cost of production even lower. There have to be smarter ways of running sugar factories to ensure that sugar is produced at a lower cost. Hauling of cane and transportation of sugar are two significant components of the cost of sugar which had a negative impact on the competitiveness of the industry. For instance, if the distance between the millers and the location of sugarcane production transport is big, the costs of transportation become high. Therefore, sugarcane growers should respond to sugarcane transportation costs by delivering sugarcane to the nearby factory. Also government should consider investing in railway network which could provide transport at the lower costs for the producers.

Also another problematic issue in hauling export sugar is the access to and the efficiency of the terminal facilities at the port of Maputo. A programme for the upgrading of the Maputo port terminal is required. This could be through a joint venture by the Swazi government and the Mozambican government. There is also aneed to maintain a strong relationship with transport providers. Since the cost of financing the sugar industry are so

high there is need for the government of Swaziland to establish an agricultural Bank which could help to finance such industries like the sugar industries at subsidise costs.

5. Diversification or Value Addition. Given the industry`s exposure to the EU and US market, there is a need for possible strategy to keep it competitive into the future. The industry need to invest on producing ethanol from sugarcane or from molasses. This is a possible strategy to keep it competitive into the future – especially considering the recent EU sugar sector reforms, which will result in the abolishment of preferential market access for Swazi sugar exports destined to the EU market. The Swaziland sugar industry should do whatever it can in order to increase their export not only in terms of sugar but in other products as well.

Raw sugar is a primary commodity. If exported as is, there is a loss of potential domestic income and employment. This potential loss can be minimised via more value-added activities that use sugar as one of the major inputs. Furthermore, value-added products have relatively high-income elasticities of demand. This means that as a country moves into a higher stage of development (reflected especially in higher per capita incomes), there will be an increase in the domestic demand for the value added products. Thus, there will be a self-reinforcing effect resulting in a spiral of higher sugar production and higher value addition on the sugar.

6. Strategic Partnership. The sugar industry remains vulnerable to increases in costs of farm inputs, therefore there is a need for the sugar industry to collaborate with one another or with the inputs suppliers. This will allow them to support each other in various options. For example buying in bulk from the suppliers will not only reduce price but will also reduce transport costs.

7. Internship and Graduate Programme. The industry is faced with the scarcity of professional labour and the high costs of labour. As a mitigating strategy the industry should consider introducing an internship programme as well as offering bursaries to students who are pursuing careers in the same field. This initiative will reduce also the costs of attracting foreign professional labour.

8. Improve Labour Productivity - To sustain competitive advantage, the sugar sector in Swaziland must achieve more sophisticated competitiveness over time, through providing higher-quality products and services or producing more efficiently. This translates directly into productivity growth. Productivity defines competitiveness for a particular sector, industry or firm. Productivity, rightly understood, encompasses both the value that an industry's products command in the marketplace and the efficiency with which they are produced. Improving labor productivity of the sugar sector and making it more price-competitive would be critical to ensure that Swaziland is able to increase its current level of exports should sugar prices fall.

5.4 Recommendations for Further Research

1. For further research, it is recommended that a comprehensive industry analysis on the competitiveness of the Swaziland sugar industry be developed taking into account the entire value chain.

2. The issue of trade liberalisation of markets and loss of preferential market access poses a major challenge, in terms of competitiveness, not only in the sugar industry but to other agricultural industries which are having preferential market access. It is therefore imperative to analyse the competitiveness of the other industries like the textile which had also benefited a lot from preferential access market in the US through AGOA.

3. Another research should be undertaken to find out which alternative sources of livelihood could be developed in order to supplement the sugar industry in Swaziland

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APPENDIX A

Survey Questionnaire on the competitiveness of the Swaziland Sugar Industry, March, 2015

Dear Sir/Madam

You are kindly requested to assist by completing the attached questionnaire. This survey is part of a research that is presently undertaken to determine the factors influencing the competitiveness of the Swaziland sugar industry in foreign markets. The research is aimed at generating important new intelligence to inform government as well as other key industry players on policies and strategies that must be developed to properly respond to identified challenges and opportunities.

Your organisation has been selected to provide vital information in order to assess competitiveness conditions of the sugar industry of Swaziland. This survey provides information that is not available from other published sources. Your expert opinion is therefore essential in bringing light to competitiveness issues that are essential for the country and the sector in which your organisation operates.

The questionnaire has been scientifically designed according to Porter's method (The competitive advantage of Nations, 1990, 1998) and will ensure that an accurate picture of the current state of affairs is reflected in terms of factors influencing the competitiveness of the sugar industry.

The questionnaire will take less than 25 minutes to complete. Most questions in this survey request you to tick a box (using an X) according to your opinion. The questions are of the following format, an example provided below

Competition is:

Very limited	1	2	3	4	5	Very intense

Where:

Crossing 1 means you agree wholeheartedly with the left hand side

Crossing 2 means you agree somewhat with the left hand side

Crossing 3 means your opinion is indifferent between the two answers

Crossing 4 means you agree somewhat with the right hand side

Crossing 5 means you largely agreed with the right hand side

Note: Please kindly make a cross on only one number per question.

Please receive our assurance that all responses will be treated with high confidentiality. Information obtained from this survey will only be used as a group not on an individual basis. Please kindly complete the questionnaire as soon as possible, once completed please kindly contact Knowledge Ndlangamandla at +268 78250271 in order to come and collect it.

You are kindly requested to be objective and thoughtful when answering your questions. We thank you in advance for your time and hope you will assist in answering the questions.

Kind Regards,

Knowledge Ndlangamandla

APPENDIX B

Survey Questionnaire on the Competitiveness of the Swaziland Sugar Industry

1. What is your organization's role of activity?

A. Millers

B. Small holder sugar Farmer

C. Government /Regulator

D. Swaziland Sugar Association

E. Labour representative in the sugar industry

Factor Condition

1.Unskilled labour (manual labor, drivers, cleaners) is

Difficult obtain | 1 | 2 | 3 | 4 | 5 | easy to obtain

2.Unskilled labour is

Not of very high quality | 1 | 2 | 3 | 4 | 5 | used productively

3.The cost of unskilled is

affordable | 1 | 2 | 3 | 4 | 5 | Too expensive

4. Skilled labour in Swaziland

Difficult to obtain | 1 | 2 | 3 | 4 | 5 | easy to obtain

5. Skilled labour (officers, machine operators) in Swaziland is

Not of a very high quality | 1 | 2 | 3 | 4 | 5 | used productively

6. The cot skilled labour is

Too expensive | 1 | 2 | 3 | 4 | 5 | affordable

7. Professional labour in Swaziland

Difficult to obtain | 1 | 2 | 3 | 4 | 5 | easy to obtain

8. Professional labour in Swaziland is

Not of a very high quality | 1 | 2 | 3 | 4 | 5 | used productively

9. Professional labour in Swaziland is

Too expensive | 1 | 2 | 3 | 4 | 5 | affordable

10. The administration cost

Extremely high | 1 | 2 | 3 | 4 | 5 | affordable

11. The state of infrastructure in (roads, communication, water, electricity) Swaziland

Poorly developed and inefficient | 1 | 2 | 3 | 4 | 5 | best in the world

12. The cost of the infrastructure

Extremely high | 1 | 2 | 3 | 4 | 5 | affordable

13. Quality of technology in Swaziland

Difficult to obtain | 1 | 2 | 3 | 4 | 5 | easy to obtain

14. The cost of technology

Extremely high affordable

1	2	3	4	5

15. Availability of water in Swaziland

Not available readily available

1	2	3	4	5

16. The cost of water

Extremely high affordable

1	2	3	4	5

Demand Conditions

17. Local buyers are

Unsophisticated knowledgeable and innovative

1	2	3	4	5

18. Adoption of the product by local buyers

Slow to adopt adopt easy

1	2	3	4	5

19. Internalization of local buyers

Behind the rest In par with the rest of the world

1	2	3	4	5

20. Local buyers concern on ethics

Not concern of ethics and product very concern

1	2	3	4	5

21. Local buyers concern on environmentally friendly product

Not at all very important

1	2	3	4	5

22. Local market size

Too small | 1 | 2 | 3 | 4 | 5 | large

23. The growth of the market is

Slow for investment in new technology fast

| 1 | 2 | 3 | 4 | 5 |

24. Consumers Trends

Threat to business | | 2 | 3 | 4 | 5 | opportunity for growth

Related and Supporting industry Conditions

25. Availability of credit or finance in Swaziland

Difficult to obtain easy to obtain

| 1 | 2 | 3 | 4 | 5 |

26. The cost of financing the business

Extremely high | 1 | 2 | 3 | 4 | 5 | affordable

27. The cost of transport

Extremely high | 1 | 2 | 3 | 4 | 5 | affordable

28. The cost of supplies of inputs

Extremely high affordable

| 1 | 2 | 3 | 4 | 5 |

29. The financial institutions are

Constraint business competitiveness enhance competitiveness

| 1 | 2 | 3 | 4 | 5 |

30. Scientific research institution

Non- existent best

1	2	3	4	5

31. Transport companies are

Constraining business competitiveness | 1 | 2 | 3 | 4 | 5 | enhancing

32. Local suppliers availability

Mostly non existing | 1 | 2 | 3 | 4 | 5 | numerous

33. Local supplies efficiency

Inefficiency efficient

1	2	3	4	5

34. Local supplies sustainability

Bigger problem no problem

1	2	3	4	5

35. Electricity Supplies

Insufficient and unreliable | 1 | 2 | 3 | 4 | 5 | very sufficient

36. Telecommunication and internet services are

Constraint business enhance business

1	2	3	4	5

37. Specialised information technology

Not Available | 1 | 2 | 3 | 4 | 5 | available

38. Quality and trustworth

Non existent at its best

1	2	3	4	5

39. Training and skills development are

Inaccessible and irrelevant very accessible and relevant

1	2	3	4	5

40. Regulation standards (quality of product, safety) are

Lax or non enforced existent

1	2	3	4	5

Firm Strategy, Structure and Rivarly Conditions

41. Competition intensity

Very limited very intensive

1	2	3	4	5

42. The source of competition

Imports local firms/local subsidiaries

1	2	3	4	5

43. Entry of competitors

Never occurs in local market is convenient

1	2	3	4	5

44. Spending on research and development

Does not spend spend heavily

1	2	3	4	5

45. Relationship and networking

Constraint your ability to compete enhance your ability to compete

1	2	3	4	5

46. Source of comparative advantage

Low cost of wages and resources affordable high quality product

1	2	3	4	5

47. Environmentally friend product

Not very important most important

1	2	3	4	5

48. Production processes

Use obsolete technology apply the best and efficient technology

1	2	3	4	5

49. Business approach to human resource

Invest little to assist staff invest heavily on training and retaining staff

1	2	3	4	5

50. Compensation of management

Base extensively on salaries base on incentives like bonuses

1	2	3	4	5

Government Support Conditions

51. Public sector personnel competence

Lower than the private sector

1	2	3	4	5

higher than private sector

52. Public sector personnel effectiveness

Constraint service delivery

1	2	3	4	5

enabling service delivery

53. The tax system in Swaziland

Hinders business investment and risk taking promote investment

1	2	3	4	5

54.The regulation administration

Burden some not a burden

1	2	3	4	5

55. Regulation on environmental standards

Not enforced

1	2	3	4	5

enforced

56. The regulations on international trade

Enable international trade restricts

1	2	3	4	5

57. Swaziland trade policy

Constraint business ability to compete enhance ability to compete

1	2	3	4	5

58. The labour policy in Swaziland

Constraint and inhibit employment create a good working place

1	2	3	4	5

Chance Conditions

59. The prevalence of crime

Impose significant cost on business

1	2	3	4	5

does not

60. HIV and AIDS impose

Significant cost on business

1	2	3	4	5

does not

61. The exchange rate is

Constraint your business

1	2	3	4	5

enhance business

62. Global political development are

Constraint business enhance business

1	2	3	4	5

63. Local political environment

Undermine your competitiveness enhance competitiveness

1	2	3	4	5

64. Any strategy or recommendations that could enhance the competitiveness of the sugar industry?

……

……

……

APPENDIX C

Competitiveness of the Swaziland Sugar industry Raw and Refined sugar production

Year	RTA Raw Sugar	RTA Refined Sugar
1994	54.00	1.20
1995	0.74	1.40
1996	27.00	0.90
1997	3.70	0.21
1998	9.90	1.50
1999	34.80	3.40
2000	8.60	2.50
2001	26.50	1.70
2002	25.40	2.10
2003	17.50	31.00
2004	9.90	32.60
2005	6.50	8.30
2006	42.00	8.70
2007	46.80	5.40
2008	15.80	5.60
2009	41.60	21.00
2010	57.80	16.20
2011	51.10	8.70

Source: Own calculation based on data from FAOSTAT 1994 - 2011

Note: Comparative advantage (RTA > 1), marginal comparative advantage (RTA = 1), comparative disadvantage (RTA < 1)