The impact of South African supermarkets on agricultural and industrial development in the Southern African Development Community

by

Rosemary Akhungu Emongor

Submitted in partial fulfilment of the
requirements for the degree

Doctor of Philosophy

in the

Department of Agricultural Economics, Extension and Rural Development
Faculty of Natural and Agricultural Sciences
University of Pretoria
Pretoria

June 2008

DECLARATION

I declare that the thesis, which I hereby submit for the degree of Doctor of Philosophy in Agricultural Economics at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

SIGNATURE: ……...…… DATE: …….

ACKNOWLEDGMENTS

Writing a PhD thesis can be conceptualised as a journey. Mine started when Almighty God put a desire in my heart to undertake such a project; for that reason all glory and honour is unto God through his son Jesus Christ. Then the Lord placed key people on my path to help me realise this dream; they are numerous indeed and it is not possible to mention all of them individually by name, but I take this opportunity to offer my gratitude to some key people without whom this project would not have happened. I would like to thank Professor Johann F. Kirsten, my promoter who worked tirelessly with me. First, I would like to thank him for guiding me to identify the research topic and for his assistance in finding the funding for this research project. Secondly, I would like to thank him for his helpful comments throughout the preparation of this thesis. To Prof. Kirsten, a big *dankie*. I would also like to extend a big thank you to our secretary, Zuna Botha, who is an excellent organiser, for making sure that bookings for trips, appointments and other administrative matters in the department went smoothly.

I would like to thank my husband and friend of many years, Prof. V.E. Emongor, for his encouragement, financial and moral support during the period of this study. I appreciate your taking over the role of "mum" to our children so that I could pursue my PhD study at the University of Pretoria. For all the support you gave, I once again say *eyalama noi noi*. I would also like to thank our children Liz, Sam, Gloria and Aki for their patience and willingness to support my work in their own unique way. To our children, a big *asante sana*. I wish also to thank my parents, Magdalene Mutimba and Bartholomew Wanzala, who along life's path have guided and given me inspiration to pursue higher education. To my parents, a big *orio muno muno*.

Next, I would like to thank my colleague and brother in the Lord, Evans Kapekele, for his assistance in data collection in Zambia. To Evans, a big *dzikomu kwa mbili*. I acknowledge and thank the Halueendo family, especially my flat-mate, Lona Halueendo, her sister Kauna, her cousins, Eunice Nashiwaya and Leonard, for assisting in data collection in Namibia. Thanks for making my stay in Namibia an enjoyable one. I would

also like to thank Tom Oyieke of the Ministry of Agriculture in Namibia and Dr. Sartorious von Bach for helping with data collection in Namibia. I also would like to thank Mr. Madisa of the Botswana College of Agriculture who took time off and helped me to access farmers in Botswana. Many thanks to the farmers, processors, community leaders, supermarket managers and procurement officers in Zambia, Namibia and Botswana without whom this study would not have been possible. Thank you for sparing your precious time to participate in this research. I would like to thank my dear friends, George Omondi and Alice Walingo, for dealing with issues at home in Kenya which could have disturbed this project. Thank you for being there for my family and me. I would also wish to thank John Omollo and his family for the hospitality rendered to me when I first arrived in South Africa. God bless you.

I wish to thank the University of Pretoria, the African Economic Research Consortium and the IIED project managed by Professor Andre Louw for financial support. I also thank the Kenya Agricultural Research Institute for granting me a paid study leave to pursue the PhD study. To my fellow PhD candidates in the Department of Agricultural Economics, Extension and Rural Development at the University of Pretoria, thank you for being good comrades and for your lively discussions that helped to liven up our days. I want to thank my external examiners: Professor Tom Reardon of Michigan State University and Dr. Bill Vorley of International Institute for Environment and Development (IIED) for their useful comments which have gone a long way in improving this manuscript.

Finally, I would like to thank my pastors, church elders, the intercessors and members of the Cornerstone Assemblies of God church in Pretoria, Gaborone Assemblies of God, and CHRISCO fellowship in Nairobi for their prayers and spiritual support during this study. Indeed, the list is long but once more I wish to extend my gratitude to all who contributed in one way or another in the completion of this thesis. Once again, God bless you and remember “with God nothing shall be impossible”. To all these wonderful people, I would like to leave you with the words of the psalmist in Psalm 23 which have been a great inspiration during the period of this study:

The Lord is my shepherd; I shall not want.
He makes me to lie down in green pastures: He leads me besides the still waters.
He restores my soul: He leads me in the paths of righteousness for his name's sake.
Yea, though I walk through the valley of the shadow of death, I will fear no evil:
For you are with me; your rod and your staff they comfort me.
You prepare a table before me in the presence of my enemies:
You anoint my head with oil; my cup runs over.
Surely goodness and mercy shall follow me all the days of my life: and I shall dwell in the house of the Lord for ever.

God bless you all.

The impact of South African supermarkets on agricultural and industrial development in the Southern African Development Community

By

Rosemary Akhungu Emongor

Degree: PhD (Agricultural Economics)

Department: Agricultural Economics, Extension and Rural Development

Promoter: Professor Johann F. Kirsten

ABSTRACT

Supermarkets have become important in food retail in both developed and developing countries. Supermarkets in developed countries are expanding to developing countries such as Latin America and Asia resulting in transformation of the agro-food systems. As elsewhere in the world, supermarkets are also expanding rapidly in Africa. The growth and expansion of supermarkets is mainly spearheaded by South African supermarkets and has been facilitated by trade liberalization, increased economic growth, positive political changes, regional integration arrangements, increased urbanisation, increased per capita income and middle class population groups and liberalization of foreign direct investment. The increased foreign direct investment (FDI) by South African supermarkets into SADC and the rest of Africa may be impacting on firms, households and the economy in the host nations in various ways. As much as the FDI by South African firms bring the much-needed capital for development, the impact of South Africa supermarkets in SADC and the rest of Africa is least understood.

The impact of the expansion of South African supermarkets in the retail sector in other African countries has not been elucidated. Therefore, the objective of this study was to determine the impact of supermarkets on agricultural and industrial (mainly the food

processing and manufacturing sector) development in SADC by examining their sourcing and procurement practices. From the identified gaps in literature the study attempts to answer the following questions: what is the extent of growth and expansion of South African supermarkets in case study countries; what are the nature of sourcing and procurement practices and the factors influencing the choice of procurement systems; what are the impacts of these sourcing and procurement practices on farmers and food processors in case-study countries and do farmers gain by participating in the supermarkets FFV supply chain in case-study countries.

A case study of three countries (Botswana, Namibia and Zambia) and two supply chains were studied. The study used qualitative and quantitative methods in collecting data in order to elucidate the impacts of these supermarkets on agricultural and industrial (food processing) development in the case study countries. A survey of South African and local chain supermarkets, local shops, food processors, small-scale farmers supplying fresh fruit and vegetables (FFV) to chain supermarkets and the traditional FFV markets was undertaken in the case-study countries in 2004, 2005 and 2007 using questionnaires and checklists. The survey data were augmented with key informant and focus group discussions and secondary data. The analytical methods used included descriptive analysis, non-parametric statistics and a two-step treatment regression analysis model. The conceptual framework for analysing the sourcing/procurement practices of supermarkets and a model to show how impacts in host countries could occur as a result of sourcing decisions were developed and used in the study.

The results of the survey of products sold in supermarkets and local shops showed that 80% of all processed food products are sourced from South Africa. About 100% of temperate fruit and 70-100% tropical fruit are sourced from South Africa in the case-study countries. About 80% of fresh vegetables are sourced from farmers in Zambia and about 80 % are sourced from South Africa for Botswana and Namibia. The results also revealed that supermarkets used a mixture of procurement systems for FFV and processed food products. These systems included use of specialised sourcing and procurement companies; direct delivery of FFV to individual supermarket stores;

specialised FFV wholesalers; distribution centres; outsourcing. Using the structured questionnaire supermarket managers were asked the criteria used in sourcing the selected products. The results of the parametric analysis of the responses showed that price, volume, quality and trust were the most important attributes considered respectively.

In order to estimate the impact of supermarkets on farmers a household survey was carried out using a structured questionnaire. There were noticeable differences in resources between farmers who supply to the supermarkets and those who supply to the traditional markets. Factors that influence small-scale farmers' participation in the supermarkets supply chain were identified from the results of the estimated probit model. The results of the two-step treatment regression model showed that participation in the supermarkets channel had a positive impact on small-scale farmers' income. Mean comparison of income between the two groups of farmers showed that farmers who supplied fresh vegetables to chain supermarkets had a significantly higher income compared to those who supplied to traditional markets in Zambia. This finding confirms hypothesis 2 of the study. The study did not explore causality due to insufficient data on lagged assets.

Impacts on the food-processing sector were deduced by carrying out a survey of food processing firms in case-study countries. The goal was to determine the type of firms that access supermarkets supply chain for selected products and determine other channels used for marketing of the products. About 75% of firms started their operations in the 1990s. This period also coincided with rapid supermarket expansion in case-study countries. A symbiotic relationship exists between supermarkets and large processing firms in the case-study countries. There was no evidence to show that supermarkets have caused firms to increase in size or that supermarkets prevented entry of agro-processors in the food processing industry. Small-scale processing firms do not access supermarket supply chains in case-study countries and sell their products through the traditional channels such as small shops and wholesales. Various constraints still prohibit small-scale firms from accessing supermarkets such as lack of capital and lack of finances.

From the results of the models and focus group discussions the study concluded that small-scale farmers who meet supermarkets sourcing/procurement requirements were able to access the FFV supply chain of the South African chain supermarkets. Those who did not meet the supermarket requirements who are the majority small-scale farmers and food processors were excluded. Those small-scale farmers who were able to supply to supermarkets earned significantly higher income compared to those who supply to the traditional markets. The study also concluded that membership in a farmers organization does not increase the chances of a farmers accessing and supplying to supermarkets. There is need to re-evaluate the farmer organizations that are being formed to ensure that the organizations assist farmers in accessing supermarkets FFV supply chain and marketing of produce in general. The study also concluded that the traditional markets are still important in case-study countries. These markets need to be improved and developed as small-scale farmers and food processors easily assess them. The study recommended that a holistic analysis of supermarket impacts in the region using general equilibrium type of models is needed, ways to ensure small-scale farmers and processors participation in supermarket FFV supply chain should be determined and more research on the practices of supermarkets as oligopsonists in the region should be carried out.

The study was able to document the extent of growth and expansion of supermarkets in case-study countries and as such contributed to literature by describing the sourcing and procurement practices and factors that influence supermarket sourcing and procurement decisions in case-study countries, the study contributed to literature by identifying the type of small-scale farmers who access chain supermarkets in case-study countries, the study contributed by identifying the factors that influence farmers decisions to supply FFV markets and the study showed that supermarkets involvement in the FFV and dairy supply chains in case-study countries had a positive impact in these sectors.

Key words: supermarkets, supply chain, SADC, sourcing/procurement, impact

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Boxes

ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of variance
CMA	Common monetary area
COMESA	Common Market for Eastern and Southern Africa
DBSA	Development Bank of Southern Africa
DC	Distribution centre
DTI	Department of trade and industry
ESRF	Economic and Social Research Foundation
EU	European Union
IFAD	International Fund for Agricultural Development
FDI	Foreign direct investment
FFV	Fresh fruits and vegetables
GATT	General Agreement on Tariffs and Trade
GDP	Gross domestic product
GNP	Gross national product
G & S	Grades and standards
HACCP	Hazard analysis and critical control point
ICT	Information, communication and technology
ILO	International Labour Organization
IMF	International Monetary Fund
JSE	Johannesburg stock exchange
LSD	Least squares difference
MDG	Millennium development goals
METCASH	Metro cash and carry
METSEF	Metro Cash and Carry and Sefalana
NEPAD	The New Partnership for Africa's Development
OLS	Ordinary least squares
R	rand
RSA	Republic of South Africa
SA	South Africa
SACU	Southern African customs union
SADC	Southern African Development Community
SCM	Supply chain management
UHT	Ultra high temperature
UK	United Kingdom
US	United States
USD	United States dollar
WTO	World Trade Organization
ZATAC	Zambia agribusiness technical assistance centre

CHAPTER 1

INTRODUCTION

1.1 Background

The retail[1] industry worldwide is a dynamic industry. The changes in the retail industry are driven primarily by technology, increased urbanisation, a shift in consumer shopping behaviour and heightened competitive forces. In both developed and developing countries large multinational retailers are expanding (Reardon *et al*., 2002; Ghezan *et al*., 2002). The rapid expansion of these large retailers has led to changes in supply systems, increased integration and concentration in the food retail market resulting in stiff competition to local businesses and producers. Profound changes have occurred in the agrifood systems such as increased agro-industrialisation of agriculture (Boehlje, 1999; Reardon & Barret, 2000). The increasing dominance of multi-national retailers and processors has brought to the fore issues concerning market power in the food industry and concerns of how the activities of these firms impact on suppliers and consumers (Dobson & Waterson, 1997; Dobson *et al.,* 2003; Cooper, 2002; Gohin & Guyomard, 2000). As supermarkets consolidate and increase their market share, they may be large enough to exert market power and may have both negative and positive impacts on the suppliers and consumers of agricultural and manufactured/processed products.

The transformation occurring in agrofood systems[2] in developing countries is as a result of increased agro-industrialisation, combined with improvement in packaging, communication and transportation technologies (air cargo and internet) and trade liberalisation. Improvements in technology and trade liberalisation have also enabled

[1] *Retailing* is all activities involved in selling products and services to final consumers for personal consumption domestically or internationally.

[2] *Agrofood systems* consist of interdependent sets of enterprises, institutions, activities and relationships which collectively develop and deliver material inputs to the farming sector, produce primary commodities, and subsequently handle, process, transport, market and distribute food and other agro-based products to consumers (Jaffe *et al*., 2003: p3).

supermarkets in developed countries to engage in complex global supply chains leading to increased trade in fresh fruit and vegetables (FFV) from developing countries to developed countries. For example, in the 1990s, there has been an increase in trade of fresh horticultural produce from African countries such as Kenya, Zambia and Zimbabwe to the United Kingdom (Dolan & Humphrey, 2000). Multinational supermarkets in Britain and other European countries have spearheaded this trade. This implies that producers in African countries are intricately linked to food supply chains of developed countries and are affected by issues such as grades and standards that apply to farmers in the developed world.

The growth and expansion of supermarkets in Africa is a recent phenomenon mainly spearheaded by South African supermarkets expanding into other African countries. The rapid expansion of retail supermarket[3] chains has occurred since the mid-1990s with South African supermarkets increasingly becoming involved in food retailing in African countries (Weatherspoon & Reardon, 2003). Through acquisitions of smaller supermarket chains, mergers and franchising, the multinational supermarkets, mainly from South Africa, have been able to expand and increase their market share in other African countries (Games, 2003).

The increased involvement of supermarkets in food retail in Africa and especially in the Southern African Development Community (SADC)[4] has been encouraged by the positive developments enhancing the ability of the region to attract foreign investment. These positive developments include encouraging economic growth, positive political changes (independence of Namibia in 1990, end of civil conflict in Mozambique in 1992 and end of apartheid and international sanctions in South Africa in 1994), and sub-

[3] *Supermarket* is used to denote modern-format retail stores (hypermarkets, supermarkets, department stores and other large format stores) involved in retailing of food and non-food groceries. *Supermarket* is a large service store in branches (chains) or independent with a floor space of 350 to 400m^2 or more and /or with 3-4 or more cash registers. Hypermarkets are larger than supermarkets.

[4] **SADC** is the Southern African Development Community. It consists of 14 countries that came together as an economic block to foster development: Angola, Botswana, the Democratic Republic of Congo (DRC), Lesotho, Malawi, Mauritius, Mozambique, Namibia, the Republic of South Africa, Seychelles, Swaziland, Tanzania, Zambia and Zimbabwe.

regional integration arrangements such as the SADC trade protocol which aims to create a free trade area in the region (University of Cape Town, 2000). Since the advent of democracy in South Africa and the removal of sanctions in 1994, there has been increased trade between South Africa and other African countries. The favourable political situation and the trade potential in other African countries have encouraged South African companies to invest in these countries. For example, one retail chain, namely Shoprite, has made investments in 14 African countries and it is set to invest in more countries in the coming years (Economist, 2004). At the same time, Pick 'n Pay has invested in four SADC countries, Spar in five countries, Massmart in five countries and Woolworths in seven. Increased retailing activities in food and other agricultural products by these supermarket groups are changing food-marketing systems in SADC countries (Muradzikwa, 2002; Daniel *et al.*, 2003; Economist, 2004).

Supermarkets are gradually expanding and are becoming a common feature of the landscape especially in urban and peri-urban areas of South Africa. Whether this trend will be continued in other African countries in the near future will depend on whether the conditions for supermarket growth are attained in the poorer sub-Saharan African countries. In the past, policy-makers and development economists paid little attention to supermarkets because they were assumed to be markets for the rich and middle class. As supermarkets expand and increase their market share in retailing of fresh and processed/manufactured food products and have moved to poorer neighbourhoods and countries, supermarkets have the potential to impact either positively or negatively on the rural and urban populations. This is possible owing to the fact that in sub-Saharan Africa agriculture is the mainstay of the economy. Agriculture provides employment and a livelihood to 50 to 80% of the population, especially in rural areas, and is important for food security and poverty alleviation in African countries.

Part of the development challenges is to commercialise smallholder agriculture in Africa. This commercialisation could be achieved by linking small farmers to agribusiness firms such as agro-processors and supermarkets to improve household income in rural areas and spur economic development in these countries. This might provide a solution to

Africa's problem of a lack of market access. Africa is beset with various kinds of market failures and in some cases missing markets in both inputs and outputs which make it difficult for small-scale farmers, processors and manufacturers to access markets because of high transaction costs (De Janvry *et al*., 1991; Makhura, 2001). Availability and accessibility of markets are prerequisites for agricultural and industrial development. Supermarkets therefore offer an opportunity for farmers and food processors to access markets for their products if, and only if, conditions for accessing markets are made conducive for small-scale farmers and processors.

As the market share of supermarkets in the retail market increases, supermarkets may change their procurement systems from decentralized to centralized systems with increased use of private quality standards (Balsevich *et al.*, 2003; Freidberg, 2003). Supermarkets may also use contracting in buying and procuring food and non-food products from suppliers in an effort to integrate supply chains and reduce transaction costs. By doing this, supermarkets may increase efficiency in their supply chains and thus enable supermarkets to offer products at considerable lower prices giving them a competitive advantage over other smaller traditional retailers of food products. Therefore, the sourcing and procurement policies of supermarkets could have a direct impact on the income of rural households and also the well-being of urban households. The perceived benefits can be realised if supermarkets source/procure from local producers including small-scale farmers and food manufacturers and/or processors. This could greatly improve market access for locally produced agricultural, manufactured and processed products and may have a potential to reduce poverty in the rural areas of Africa.

Food processing is an important sector of many of the SADC economies, particularly in Tanzania (16%), Zimbabwe (12%), Zambia, Malawi, and Mozambique (11%), (Lewis *et al*., 2002). The level and stage of development of the food-processing sector in the SADC varies from country to country. Some countries in the SADC region have a large agricultural potential and are able to produce raw materials for the agrofood industry such as South Africa, Zimbabwe, Zambia and Tanzania. However, this sector has not yet been

fully developed in the majority of these countries except in South Africa and Zimbabwe. In most of these countries, the grain industry and especially the milling industry are reasonably developed. Most of the milling companies are protected by imports bans (Namibia, Zambia) and other non-tariff barriers (Botswana). The canning industry in most countries such as Angola, Mozambique, Zambia, Swaziland, DRC, Tanzania and Botswana are under-developed. Due to lack of processing capacity most of these countries need to import processed food products because they have shortages in their production or they cannot process when they have surplus production.

South Africa has the most developed food-processing/manufacturing sector in the region. In 2003, the manufacturing sector contributed 17.2% to total gross domestic product (GDP). With a turnover in excess of R77 billion, the South African food and beverage industries contributed 21% to the total manufacturing sector GDP and employed 5% of the economically active population (Republic of South Africa, 2006). Small-scale processors (with a turnover of about $0.36 million or less) and large processing firms (with a high turnover of over $10-million per annum) operate alongside each other. The food-manufacturing and food-processing sector has attracted a number of international and local companies (Table 1.1), which use South Africa as a base to reach the domestic South African market as well as other countries in Africa (Republic of South Africa, 2006). Some of these companies have moved into and invested in other SADC countries such as Parmalat (SA), which has invested in Zambia. These large multinational and South African firms operate sophisticated production technologies and logistic systems compared to small manufacturing firms that use basic manufacturing technologies and less sophisticated logistic systems.

Table 1.1: International and local companies operating in the South African agrofood industry

Company	Country	Industries
Unilever	Netherlands	Processed foods
Coca-Cola	USA	Beverages
Parmalat	Italy	Dairy, beverages
Nestlé	Switzerland	Processed foods
Danone	France	Dairy
Kellogg	USA	Cereals, processed foods
HJ Heinz	USA	Processed foods
Pillsbury	USA	Beverages
Virgin Cola	UK	Beverages
Cadbury-Schweppes	UK	Processed foods, beverages
Minute Maid	US	Beverages
McCain Foods	Canada	Processed foods
Dole	USA	Fruit and vegetables
Del Monte	USA	Fruit and vegetables
Catmark	France	Fruit and vegetables
South African Breweries	UK	Beverages
Bulmers	UK	Beverages
Tiger Brands	South Africa	Cereals and beverages, culinary, confectionary and health care products
Premier foods	South Africa	Processed foods
Clover	South Africa	Dairy products
Pioneer foods	South Africa	Cereals, processed foods
Foodcorp	South Africa	Processed foods
Tongaat Hulett Group	South Africa	Sugar
Langeberg Holdings	South Africa	Processed foods
National Brands	South Africa	Processed foods
Illovo Sugar	South Africa	Sugar

Source: Republic of South Africa. Department of Trade and Industry (2004)

The food-processing sector in South Africa consists of 11 downstream sectors, namely meat processing; dairy products; preservation of fruit and vegetables; canning and preserving of fish; vegetable and animal oils and fats; grain mill products; bakery products; sugar milling and refining; cocoa, chocolate and sugar confectionary; other food products; and prepared animal feeds. Meat processing is the single largest food sub-sector, contributing 25% of total processed food output, followed by grain milling and animal feeds sub-sectors, accounting for 13% and 10% of the total processed food output, respectively. The other eight sectors contribute between 4 and 9% of the total processed food output (Imani Development Limited, 2000a). In comparison to its neighbours, the food-processing industry in South Africa is well developed.

The manufacturing sector in Zambia was worth 274-billion kwacha (R386 million) in 2001, contributed about 10.5% to total GDP and employed approximately 90 000 people (Republic of Zambia, 2004a). The food-processing industry is the largest of the manufacturing sub-sectors in Zambia contributing approximately 60% to the manufacturing GDP. It has nearly 300 enterprises employing approximately 18 000 people. The majority of these are in industries such as brewing, soft drinks, malting, sugar refining, grain milling, oil processing, dairy, and meat processing (Giovannucci *et al.*, 2001). About 65% of agro-processing enterprises are engaged in grain milling (Imani Development Limited, 2000b).

Grain milling and dairying are carried out by both small-scale and large-scale firms. The majority of the small-scale processing firms are located in Lusaka province and most had a turnover in the region of US$ 32 000 each in 1998. Most of the products produced by the agro-processing enterprises are sold in the domestic market (Imani Development Limited, 2000b).

The manufacturing industry in Namibia contributed 12.2% to total GDP in 2001 and employed a total of 32 995 people (Republic of Namibia, 2003). The food and beverages sub-sector is the largest sub-sector in manufacturing contributing about 67% to total manufacturing output in Namibia; as well as approximately 8.2% to total manufacturing GDP and employs about 32.6% of all labour in manufacturing. The food and beverages processing sector in Namibia consists of three downstream sectors, namely meat processing contributing about 6.6% to total manufacturing GDP, fish processing contributing 12% to total manufacturing GDP and the manufacture of other foods and beverages contributing 48.6% to total manufacturing GDP in 2001 (Republic of Namibia, 2002).

Investments by Retail Transnational Corporations (TNCs) are on the increase worldwide since the mid-1990s but are poorly researched compared to manufacturing TNCs in the globalization literature (Wigley *et al*., 2005; Senauer & Venturini, 2004). In Africa there has been a rise in the number of South African retail TNCs investing in other African

countries in the same period (Goldstein, 2003; Weatherspoon & Reardon, 2003). A number of studies carried out in Africa that have analysed foreign direct investment (FDI) flows in the continent and SADC, acknowledge that FDI including retail TNCs investments can play an important role in the development process in African countries by providing the much needed capital for economic growth, which may result in income growth and employment, hence improved welfare for the people in these countries (UNCTAD, 1999; Basu & Srinivasan, 2002; DBSA/NEPAD, 2003).

In the past, Africa has performed poorly as regards attracting FDI compared to other developing countries in Latin America and Asia due to unfavourable conditions which had a negative impact on FDI such as macroeconomic instability, investment restrictions, corruption and political instability (Asiedu, 2003). Since early 1990s there have been concerted efforts by African governments to attract more FDI. This is because FDI is seen as a beneficial factor that can be an important source of much needed capital, technology and knowledge (Dries & Swinnen, 2004). These efforts have resulted in an increase in the flow of FDI into some Africa countries. Increased FDI into Africa and SADC in particular has been encouraged partly by resource endowments, economic reforms especially trade liberalization.

Many African countries have undertaken economic and policy reform measures such as privatisation, foreign exchange liberalization, tariff reforms, regional integration and liberalization of FDI policies which have encouraged foreign firms including those from South Africa to invest in African countries (Thomas, 2004; Kandiero & Chitiga, 2003). Due to these measures, there has been a general increase in FDI flows to Africa and SADC countries. South Africa has become a major source of FDI to sub-Saharan African countries since mid-1990s and surpassed countries such as the UK, Germany, and other traditional investors in Africa (Thomas, 2004; UNIDO, 2003). South African companies investing in Africa include private firms as well as public companies.

There are various reasons why foreign firms may choose to invest in foreign countries. These reasons include rent seeking, market seeking, efficiency seeking and strategic-

assets (Dunning, 1993 as quoted in Kandiero & Chitiga, 2003). The expansion of South African retail firms has been a search for markets as the retail markets in South Africa are near saturation and also in search of higher margins (Weatherspoon & Reardon, 2003). Increased FDI by South African TNCs into African markets viewed as risky by investors from developed countries may be attributed to South Africa's close geographic and geopolitical links with SADC economies.

Other factors that further explain this trend are the huge trade flows from South Africa to these countries, which has helped to develop local contact networks enabling South African companies to invest. There are also large tourist flows from South Africa to several SADC countries, strong transport-linked interactions with other African harbour towns (Mombasa, Maputo, Luanda), energy and water supply from other African countries to South Africa (Lesotho, Zambia) and strong South African involvement in the construction and professional services spheres of African countries (Thomas, 2004). The increased South African FDI in Africa may further be explained by the preceding linkages, which are catalysts for further investment in the continent by South African firms.

The retail and food sectors have probably seen the most visible investments in the continent by South African business. South African retail operations in Africa include Shoprite, Pep Stores, the JD group (trading under a variety of brands such as Morkels, Price'n Price and Bradlows), Pick'n Pay, Ellerines, Game, Makro, and Metro Cash and Carry. Franchising is increasingly seen as an effective way to empower local businesses and to draw them into the formal economy. In the retail and food sectors, Woolworths, Truworths, Steers, Nando's, Debonairs and St. Elmo's have chains of franchises in African countries (DBSA, 2003). From the preceding, the involvement of South African companies in retail and food sectors in Africa is growing steadily. Apart from FDI being one of the major facilitators of this growth, other factors such as urbanisation, changing consumer preferences, as detailed in section 2.8, are responsible for the spread of supermarkets in Africa.

1.2 The problem statement

As South African supermarkets grow, expand and increase their market share in food retail and industrial goods in SADC countries and Africa as a whole, the increased supermarket foreign direct investment (FDI) into these countries may be impacting on firms, households and the economy as a whole in various ways. While many concur that South African FDI is an important source of capital for development in Africa, the impact of these investments is least understood (DBSA, 2003). Even less understood is the impact of the investment of South African supermarkets in the retail sector and especially how it affects agricultural and industrial development in the SADC and the rest of Africa. Many view these investments as a new form of "colonisation" and in many quarters it has been seen as stifling agricultural and industrial development in the region.

The reasons for these sentiments revolve around the sourcing and procurement practices of these supermarkets. Supermarkets prefer to source/procure their products from large to medium farms and large processing/manufacturing firms in South Africa and other developed countries (Reardon & Berdegué, 2002; Weatherspoon & Reardon, 2003; Timmer, 2004). This implies that small-scale farmers, processors and manufacturers may be potentially excluded from these lucrative urban markets. A study carried out in Zambia (Muradzikwa, 2002) estimated that approximately 60% of all products sold by Shoprite supermarkets in Lusaka were imported from South Africa. This has raised concern among firms and other stakeholders in host nations that production may have declined in the countries where large South African supermarkets have invested.

The potential marginalisation of small-scale farmers, processors and manufacturing firms has been documented in many developing countries, for example in Latin America, south East Asia and Africa (Reardon *et al*., 2003). Various factors combine to make it difficult for small-scale farmers and processors to access and supply to supermarkets. Supermarkets respond to the demand for goods and services by consumers and basically maximise profits in the face of stiff competition from other supermarkets and traditional food retailers. To remain competitive and survive in the market-place, supermarkets set high quality standards for their products and may offer low prices to consumers

compared to other smaller food retailers as supermarkets exploit economies of scale and efficient procurement systems. To reduce transaction costs, supermarkets may integrate their supply chains and centrally procure products (Weatherspoon & Reardon, 2003). Supermarkets also impose stringent private grades and standards in order to comply with consumer demands for consistent high quality products throughout the year. Because of the high cost of transacting with small-scale producers and processors, supermarkets prefer to source from large-scale farmers and processors and therefore further marginalise the small-scale farmers and processors.

To comply with supermarkets' sourcing requirements, small-scale farmers, small processors and manufacturing enterprises in host nations may have to make investments that increase their costs (both production and transaction costs). The high costs make their products more expensive and uncompetitive compared to cheaper products from South Africa and the rest of the world. Fresh fruit and vegetable farmers may need to invest in cold storage and transport facilities in order to deliver produce of high quality on time to supermarkets or central buying centres. Empirical evidence shows that many small producers in Latin America and Africa are not able to meet these conditions and many are struggling to comply with the requirements set by the supermarkets (Reardon *et al.,* 2003). As a result of procurement practices and policies, many small-scale farmers and processors may be potentially excluded from these emerging urban and rural markets unless they can adapt to these changes or they can access other markets. Likewise, as firms (processing and retail firms) amalgamate and become larger and develop global supply chains with increased use of private grades and standards in their procurement systems, small to medium local processing companies may face phenomenal competition from these well-developed multinational companies. This competition may lead to diverse impacts such as local firms adjusting to these requirements and beginning to make high quality products to meet supermarket requirements or closing owing to an inability to compete.

1.3 Gaps in the literature and research questions

1.3.1 Gaps in the literature

There is a growing empirical literature about FDI in Africa, which can be categorised into two groups. The first group covers FDI with a focus on Africa in general and the second group focuses on FDI in some regions in Africa such as the SADC. The studies focusing on FDI in Africa in general have shown that FDI is important to Africa's development process, many of them give details of FDI flows into Africa in the last two decades and the reasons why Africa has lagged behind in attracting FDI compared to other developing regions (Asediu, 2003; Basu & Srinivasan, 2002; UNCTAD, 1999; UNIDO, 2003). Some of these studies have analysed the impact of openness and regional integration on FDI flows in Africa and SADC (Kandiero & Chitiga, 2003; Lewis *et al*., 2002) and some have specifically addressed South African FDI in Africa (Thomas, 2004; DBSA, 2003).

A number of empirical studies have focused on South African FDI in SADC countries. A few of these studies provide an analysis of the South African retail FDI in SADC. One such study is the study by Goldstein (2003) which analyses FDI trends in SADC and the ability of the region to compete in global markets following economic liberalisation and regional integration. The paper discusses South African supermarkets in Zambia basing its analysis on the Weatherspoon and Reardon (2003) paper which was the first paper to analyse the rapid rise of supermarkets in Africa and its implication for agrofood systems and the rural poor in Africa. The Weatherspoon and Reardon (2003) paper was based on "preliminary evidence and emerging examples drawn from the trade press, private research firms and direct interviews with stakeholders and collaborators". No quantitative analysis was done owing to lack of official data (authors acknowledge the data problem). These papers (Weatherspoon & Reardon, 2003; Goldstein, 2003) note that there has been an increase in supermarket involvement in the agrofood system in Africa especially in southern and eastern Africa, which has been accompanied by displacing small businesses, and small-scale farmers and processors. These businesses could not compete with the well-capitalised South African retailers. On the other hand small-scale farmers and food processors could not meet the quality standards of South African supermarkets.

Another study by Muradzikwa (2002) reported that South African retail firms in Zambia were selling goods sourced from South Africa. The major question is why South African retailers choose to source from South Africa and not from local producers. So far there has been no study on the sourcing practices of South African supermarkets in SADC and what these practices actually imply for market access by local producers. There is thus a need for more research to unpack the sourcing and procurement practices of South African supermarkets and the impacts these practices have on local producers (farmers and processors).

Other studies on supermarkets and agrofood systems carried out in other developing countries showed that small-scale farmers and processors face threats of exclusion from supermarket supply chains (Reardon & Berdegué, 2002; Reardon *et al*., 2003; Brown, 2005), whereas some producers benefit from regional and global sourcing networks of TNCs (Goldstein, 2003). For the SADC region, Goldstein (2003) argues that the regional procurement systems of South African supermarkets may stimulate intra-regional trade, which implies that supermarkets may have impact on food security and livelihoods in urban and rural areas (Arda, 2006; Van Roekel *et al*, 2003). Despite these arguments it is evident that no empirical work has been done on sourcing and procurement strategies of transnational retail companies, the restructuring of their procurement systems and their impacts in developing countries (Wigley, 2005; Reardon *et al.*, 2007). This gap in literature is especially true for the SADC region.

Some empirical studies in South America show that some small-scale well-capitalized farmers are able to access and remain part of the supermarkets' supply chain for FFV and dairy either as individuals or in organised groups (Berdegué *et al*. 2005; Hernandez *et al*., 2007). However, in SADC there are no empirical studies estimating the determinants of farmer access to the supermarkets' FFV and dairy supply chains in the region and the impact of producer access to the supermarket on income of producers in the region. It is therefore not clear whether the same argument applies in the southern African region. This study aims to fill this gap in the literature.

Games (2003) examined the experiences of South African firms doing business in Africa. The study examined four sectors (mining, retail and food, telecommunications and banking) in four countries: Morocco (North Africa), Ghana (West Africa), Mozambique (southern Africa) and Uganda (East Africa). The study reported that the retail and food sectors have seen the most visible FDI by South African firms.

In the retail and food sectors, Games (2003) argued that the advent of South African retail firms into Africa may bring both positive and negative effects. On the positive side, South African firms investing in Africa bring much needed capital for development, new technology and may have spillover effects in increasing domestic production as retailers procure from local companies. Among the negative effects that the author mentions are that the well-capitalised South African retailers offer stiff competition to local retailers and producers, and may drive out small-business leading to the closure of these firms and hence concentration of retail food markets. Another negative effect reported was that South African retailers dump substandard goods on host-nation markets. Games (2003) reached these conclusions based on scanty data such as press reports and qualitative interviews. No statistical analysis was offered to back up these findings. The issue is that data is scarce which poses a serious constraint to anyone carrying out such an analysis in the region outside South Africa. The data constraint on FDI and especially supermarkets impacts on producers in Africa as has been reported (Goldstein, 2003; Weatherspoon & Reardon, 2003 and DBSA & NEPAD, 2003).

So far no empirical study has determined the impact of South African supermarkets on the agricultural and industrial (food processing) sectors in the host nations using firm-level data. This study, therefore, addresses this gap by investigating the impact of South African supermarkets by using a case study approach and using both qualitative research methods (semi-structured interviews, focus-group discussions, key informant interviews and secondary data) and quantitative methods (survey of farmers, supermarkets and food processors in selected case study countries). A study on how South African supermarkets are impacting on agriculture and industry should contribute to the current on-going debate about South African FDI in Africa and is needed to inform policy and to help

chart the future development of supermarkets and other related food retail markets, agriculture and industry in the region.

A study by D'Hease and Huylenbroeck (2005) in South Africa showed that rural consumers gained by shopping in chain supermarkets which offered food products (especially processed foods) at low prices compared to the traditional retailers (vendors and small shops). The study recommended that development programmes in the area should aim at linking farmers to the supermarkets procurement systems, as consumers prefer supermarkets as they obtain low prices and variety (D'Hease & Huylenbroeck, 2005). One way the economy may gain from the expansion of supermarkets may be in reduced food prices as supermarkets exploit economies of scale, efficient management and procurement systems. Is this happening in host nations where South African supermarkets are investing? This study attempts to fill this gap by determining whether prices obtained by consumers are actually lower for selected products. As chain supermarkets' sourcing and procurement systems change how these changes affect the various participants including consumers in SADC.

1.3.2 Choice of products.

In order to determine the direct impacts of the South African supermarkets on agriculture and manufacturing the study chose a limited number of fresh and processed food products that are normally sold through supermarkets and other traditional channels such as wholesalers, local-spot markets and small shops. The products included in the study are: fresh fruit and vegetables, dairy products, processed grains, processed fruit and vegetables and baked products. Fresh fruit and vegetables and dairy supply chains were chosen because FFV and dairy were the products chosen by the Regoverning Markets Project of which this study was a part in the first phase of that project (http://www.regoverningmarkets.org). The results of the phase 1 of the Regoverning Markets project carried out in Zambia and South Africa showed that FFV and dairy had the potential to increase incomes and reduce poverty if more small-scale farmers could be involved in the production of these products and supply to supermarkets and food processors in the region. This is because FFV and dairy are high value products not

withstanding that these products are being promoted by governments in the region as a means of creating employment and hence reducing poverty. Therefore, due to the perceived potential of these products in improving income and welfare and hence reduction of poverty among producing households in the three countries if their production is increased, this study opted to continue analysing these products (FFV and dairy) and other selected processed foods in the subsequent phases of this study. Processed grains were chosen because these products are important for household food security in urban and rural areas in SADC.

1.3.3 Research questions

From the above identified research gaps, this study attempts to answer the following research questions:

1. What is the extent of growth and expansion of South African supermarkets in case-study countries?
2. What are the nature of sourcing and procurement practices and the factors influencing the choice of supermarket choice of procurement system?
3. What are the impacts of these sourcing and procurement practices on farmers and food processors in case-study countries?
4. Do farmers gain by participating in the supermarkets' FFV supply chain in case-study countries?

1.4 Hypotheses

Two main hypotheses related to the above mentioned research questions are tested:

Hypothesis 1

The factors that determine the sourcing and procurement practices of supermarkets result in supermarkets sourcing from medium and large scale farms and food processors. In the process it is hypothesised that many small-scale farmers are excluded from these potentially lucrative markets.

Hypothesis 2

Intuitively it can be argued that supermarket FDI in SADC countries is bad for development and bad for rural livelihoods. This study however argue that farmers and food processors who are included in the South African supermarket FFV supply chain in Botswana, Zambia and Namibia earn higher incomes/returns compared to those that supply the traditional markets (traditional wholesale, local shops) controlling for specific type and grade of the product.

1.5 Research methodology

In this section a background about the study area and the choice of case study countries as well as the design of the study and the data sources are described in detail.

1.5.1 Study area

The Southern African Development Community (SADC) consists of 14 countries: Angola, Botswana, the Democratic Republic of Congo (DRC), Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, Swaziland, South Africa, Tanzania, Zambia and Zimbabwe as shown in Figure 1.1.

SADC countries have a total population of approximately 200 million people, and cover an area of approximately 9.3 million km^2 (Du Toit, 2000). Three countries (the Democratic Republic of Congo, South Africa and Tanzania) account for almost two-thirds of the total population (64%), while the six smallest members (Seychelles, Swaziland, Mauritius, Botswana, Namibia and Lesotho) comprise only four percent of the total population. This shows a large variation in population within the SADC countries.

Figure 1.1: Map of SADC highlighting the case study countries
Source: Southern African Marketing Co. (Pty) Ltd & SADC Secretariat, 2004

The total SADC gross domestic product (GDP) was approximately US$245-billion in 2003, while average GDP per capita was US$1175 (World Bank, 2006). However, there are wide variations in aggregate and per capita GDP for the 14 countries, implying that these countries are at different stages of development. On the basis of income per capita, eight SADC countries are classified as low-income (LI) economies (Angola, the DRC, Lesotho, Malawi, Mozambique, Tanzania and Zambia), while some countries are classified as upper-middle income (UMI) such as Botswana, Mauritius and Seychelles, whereas some countries are classified as lower-middle income such as South Africa and Namibia (Du Toit, 2000).

Economic structures also differ among the SADC countries; South Africa and Zimbabwe have a well-developed manufacturing sector. The agricultural sector contributes less than 10% to the GDP of Botswana, South Africa, Seychelles, Mauritius and Angola, whereas it contributes 44.2% in the case of Malawi, 39.4% in the case of Mozambique, 50% in the case of the DRC and 46.2% in the case of Tanzania (Table 1.2). South Africa is the dominant economy in the SADC constituting about 20% of the population and about 70% of the aggregate GDP (World Bank, 2006). South Africa, therefore, plays an important role in the region with its geographical location and the size of its economy, particularly in trade and transport. Almost all the landlocked SADC countries depend on South Africa's railways, ports (airports and seaports), highways and other transit facilities to export their products.

Table 1.2: Basic population and economic indicators of SADC economies

Country	Population (millions)[a]	GDP at market prices (current US$, million)	Agriculture% of GDP[b]	GNP per capita at current US dollars	Agriculture labour share[b]	Average annual real GDP growth % p.a.[a]		
						1980-89	1990-94	1995-1999
Angola	12.4	5861	7.8	220	75	2.6	-5.9	6.8
Botswana	1.6	5996	4.2	3240	46	10.6	4.6	4.8
DRC	49.8	7752	50.0	130	62	1.8	-8.6	0.9
Lesotho	2.1	874	11.0	530	40	3.6	4.4	3.9
Malawi	10.8	1820	44.2	190	87	1.7	1.0	7.3
Mauritius	1.2	4233	9.4	3590	17	4.2	5.4	5.2
Mozambique	17.3	4169	39.4	230	83	0.1	2.6	8.7
Namibia	1.7	3075	13.6	1890	49	1.1	4.3	2.8
Seychelles	0.1	545	4.0	6540	11	2.1	4.8	2.4
South Africa	42.1	131127	4.4	3160	13	2.2	0.2	2.3
Swaziland	1.0	1223	12.5	1360	49	6.7	3.8	2.9
Tanzania	32.9	8777	46.2	240	84	3.9	2.7	3.7
Zambia	9.9	3325	18.7	320	75	1.4	0.2	1.3
Zimbabwe	11.9	5716	17.1	520	68	5.1	2.1	3.1
Total	194.7	184494		931	54.2	3.4	1.5	4.0

Souce: [a]Lewis (2001) and [b]IFAD (2001)

1.5.2 Selection of study countries

The study is concerned with the impact of supermarkets on agricultural and industrial development in the SADC region. Botswana, Namibia and Zambia, were chosen as case study countries, because of the presence of South African supermarkets in these countries. Four major supermarket chains, namely Shoprite, Pick 'n Pay, Spar and Woolworths, have invested in the case study countries.

1.5.3 Research design

This study was carried out in two phases. Phase one was an exploratory survey of the three countries, which was undertaken in April 2004 (Namibia), June 2004 (Zambia) and September 2004 (Botswana). The purpose of phase one was to identify supermarkets involved in the selected food supply chains in the case study countries. During this phase secondary data was collected on South African supermarkets as well as vital statistics on the agricultural and processing sectors of SADC countries. Products on supermarket shelves and local shops in South Africa, Botswana, Namibia and Zambia were surveyed to determine their sources of origin (Appendix 3). Qualitative data was collected by means of key informant interviews, focus-group discussions and open-ended interviews using checklists (Appendices 1 and 2). In phase two, surveys of farmers, supermarkets, processors and other stakeholders involved in the supply chain for FFV and dairy was undertaken.

1.5.4 Data and data sources

Both primary and secondary data were used in the study. Data were obtained from supermarkets, processing firms, farms, government ministries and market research companies. Secondary data on the growth and spread of supermarkets, income in agriculture and manufacturing/food processing sectors, and trade statistics in each case study country were obtained from central statistics offices, Food and Agriculture Organization (FAO) databases, market research firms (Planet Retail), supermarkets' annual reports, government ministries and non-governmental organizations (NGOs).

1.5.5 Sampling methods and data collection

1.5.5.1 Supermarkets

The number of South African supermarkets and locations was documented from secondary sources and from a rapid exploratory survey. Supermarkets in Lusaka and Chipata (Zambia), Windhoek (Namibia) and Gaborone and other rural towns (Botswana) were studied. Most of the foreign supermarkets operating in SADC countries (Zambia, Namibia and Botswana) were of South African origin. But other local chain and independent supermarkets are also involved in food retailing and were included in the survey. The South African and local chain supermarkets have several branches, which are managed under one management with headquarters in South Africa or the selected capital city of the case-study country. Interviews with supermarkets' Chief Executive Officers (CEOs) for Shoprite, Pick 'n Pay and Spar were carried out in South Africa for Botswana and Namibia (Appendix 1) and with local General Managers of Shoprite Zambia in Lusaka and Chipata. These key informant interviews of supermarket CEOs yielded information on how the supermarkets in other locations were managed. Supermarket managers or procurement officers were interviewed using a structured questionnaire (Appendix 4). The list of sampled supermarkets and their locations are shown in Appendix 8.

Analysis of procurement systems for the selected products was carried out for Freshmark in Zambia and Namibia for FFV. For selected processed foods (processed grains, processed FFV, dairy and baked products) analyses were done for the all sampled supermarkets in Botswana, Namibia and Zambia.

1.5.5.2 Sampled farmers

In the second phase of the study, impact of supermarkets on farmers was estimated using both qualitative data (Appendix 1 for the list of key informants and focus-groups, and Appendix 2 for checklists) and quantitative data (survey of farmers) was undertaken using structured questionnaires (Appendix 6).

Farmers growing FFV[5] (vegetables) were only sampled in Zambia and Botswana as vegetable production in Namibia is rather limited.

Zambia

For large and medium farms key informant interviews were carried out on three large farms (York farm, Agriflora and Rowan farms). Agriflora and York farm supplied to Freshmark and the export market (European Union) and Rowan farms supplied to Fresh Mark and the local markets. The managers of these large farms were interviewed as key informants (Appendix 1).

The literature provided several arguments that small-scale farmers might face difficulties in accessing supermarket supply chains for FFV and may be under threat of exclusion. To test this hypothesis in Zambia, small-scale farmers were sampled to determine whether they access the supermarket supply chain, under what conditions and to assess the impacts on household income. A list of farmers that supplied Freshmark was obtained from the manager of Freshmark in Zambia. The list contained 22 small-scale farmers. From this list 20 farmers were identified and were interviewed on their farms.

To sample farmers who sold vegetables to the traditional market channel (as a control group), we relied on the extension staff working in the area to randomly select farmers growing these crops in Lusaka and Chipata. A total of 58 out 300 farmers were sampled and interviewed as already explained above using a structured questionnaire (Appendix 6). This purposeful sampling procedure has been applied by D'Hease and Huylenbroeck (2005) in South Africa when no list of farmers could be produced. The information obtained from farmers was triangulated by means of focus-group discussions and key informant interviews in Lusaka and Chipata in order to make deductions on impacts at the community level. The basis of obtaining qualitative data was to extrapolate the

[5] From the exploratory survey results most fresh fruits such as apples, bananas, and other temperate fruits were sourced from South Africa and Zimbabwe. The three case countries did not produce fruit such as apples, bananas in large quantities. Therefore in the second phase the study focused on vegetables that most small scale producers were able to produce.

information obtained on individual firms and examine the impact of Freshmark on other producers in the FFV supply chain.

Botswana

The FFV sector in Botswana is still in its infancy (Republic of Botswana, 2004a). Also Botswana's environmental conditions are not so conducive to rainfed fruit and vegetable production. Production of vegetables was found in places where irrigation was possible and the government through various aid programmes has been making an effort to encourage people to produce horticultural crops. The Ministry of Agriculture provided a list of farmers producing horticultural crops. The farmers were all located in the Gaborone district/region (Table 1.3).

In the five extension regions of Gaborone district, there were 59 farmers, of which 22 were recorded as being out of production, leaving about 37 farmers who were still producing. Of these farmers who are still producing, 17 of them recorded no sales, implying that they could not be regarded as commercial farmers; this left only 20 farmers who are producing vegetables and thus available to be sampled. A stratified random sampling procedure was used to sample the farmers. Farmers were proportionally drawn from regions depending on the number of farmers who were currently producing and supplying vegetables either to supermarkets or through the traditional channel.

Table 1.3: Distribution of farmers and sample size in Botswana

Gaborone district/region	Number producing FFV according to the Ministry of Agriculture list	Number of farmers not producing anymore	Number of farmers recording no sale of FFV	Number sampled from each district/region
Kweneng West	4	3	1	0
Kweneng South	15	0	5	3
Kweneng North	4	3	1	0
Kagtleng	26	8	10	8
South East	10	8	0	2
Total	59	22	17	13

Source: Ministry of Agriculture, 2005

A total of 13 farmers (10 supplied to supermarkets and 3 to traditional markets) were sampled and interviewed using the same structured questionnaire as used for Zambia (Appendix 6). This sample represented about 65% of those farmers who were actually producing vegetables for the market (Table 1.3). The interviews were carried out in English and where necessary translation into Setswana was done by the local enumerator.

A total of 30 farmers supplying supermarkets or procurement agents in Zambia and Botswana, and 61 farmers supplying traditional FFV markets in Botswana and Zambia were sampled and interviewed. Data were collected on the characteristics of the farms such as land size, household age and gender, household size, education level of household head, assets of the household; inputs and costs, products supplied to the market (quantities and prices), changes in income of households and labour use, etc.

1.5.5.3 Sampled food processors

Sampling was done based on the various processed food categories: dairy processing, grain processing (milling), FFV processing and bakery and confectioneries.

Dairy processors

Zambia

There were 19 dairy processors in the dairy processors directory (2003) provided by the Ministry of Agriculture and Cooperatives. The list contained both small-scale, medium-scale and large-scale dairy processors in Zambia. Dairy processors were distributed as follows: 9 based in Lusaka Province, representing approximately 50% of the dairy processors, 4 were based at Chipata in Eastern Province, representing approximately 20% of the dairy processors which implied that these two regions had approximately 70% of all dairy processors in Zambia. The remaining 30% were distributed in the remaining regions of the country. Both medium and large-scale processors were chosen from the two regions based on the information obtained from key informants and the register of processors. Two dairy processors were selected from Lusaka (1 large and 1 small-scale) and two from Chipata (1 large and 1 small-scale). Key informants and one focus-group discussion was carried out with Buteko cooperative which is both a dairy cooperative and

outgrower scheme for Agriflora. Two dairy farmers and other stakeholders in the dairy sector were interviewed to assess the impacts of supermarkets on the dairy sector in Zambia. This data was augmented with secondary data from the Zambia dairy sector study (Valeta, 2004).

Botswana

It was established with the Ministry of Agriculture that there are 3 main dairy processors in Botswana: Clover (Botswana) Ltd, Parmalat (Botswana) Ltd and Sally Dairy Ltd. All three companies were visited and their managers interviewed. Five dairy farmers were also interviewed as key informants (Appendix 1) in order to analyse the impacts of supermarkets on the dairy sector in Botswana.

Namibia

There was only one dairy processor in Namibia namely Namibia Dairies. Information about the dairy industry was obtained from key informants and secondary data.

Grain processors

Zambia

We relied on key informants to draw up a list of grain millers in Lusaka and Chipata. Three firms (1 large scale, 1 medium and 1 small-scale) were selected in Lusaka and one medium scale in Chipata, the only one in the area (others were just hammer mills where people took their own grain for milling for home consumption) were interviewed using a structured questionnaire (Appendix 5).

Botswana

In Botswana there are two types of millers; large-scale millers such as Bolux Milling Company whose products were found in all chain supermarkets and small-scale millers. According to a key informant in the Ministry of Agriculture, large millers are responsible for importing grains (maize and wheat) for milling. Smaller millers are responsible for milling millets and sorghum (traditional grains). The organization and policies governing milling in Botswana were obtained from key informants.

Namibia

There is only one milling company in Namibia (Namib Mills). The general manager was interviewed as a key informant.

Data were collected using a structured questionnaire (Appendix 5). Food processing firms involved in the processing of dairy products (three in Botswana, four in Zambia), milling (four in Zambia and one in Namibia) processing of vegetables (one in Zambia, two in Namibia) and baked products and confectioneries (one in Namibia and two in Zambia) were sampled and interviewed. Questions were structured to determine the ability of these firms to access the market (traditional and supermarket), constraints to accessing supermarkets and the impact of supermarket growth on these firms.

1.5.6 Analytical methods

Various analytical tools were used to determine the impact of supermarkets on agriculture and the processing/manufacturing industry in Botswana, Namibia and Zambia:

- A descriptive analysis of the sourcing/procurement practices of the South African supermarkets in the framework of supply chains in the case-study countries was carried out.
- Non-parametric statistics were used to analyse the determinants of supermarket criteria in sourcing and procurement of fresh fruit and vegetables and processed foods in Botswana, Namibia and Zambia. This was carried out using SAS software.
- Two-step treatment effects regression analysis was carried out to determine the factors that influence farmer participation in the supermarket FFV supply chain and the impact of this participation on farmer income.

1.6 Organisation of the thesis

The thesis is organized in eight chapters. Chapter 2 presents a literature review on supermarket involvement in retailing food and agro-industrial products in developing countries. Chapter 3 presents the conceptual and theoretical framework for analysing the impact of South African supermarkets on agriculture and manufacturing in SADC countries. Chapter 4 presents the supermarkets' sourcing and procurement practices in

SADC countries. Chapter 5 presents a profile of farmers supplying FFV to supermarkets and traditional market channels in Botswana and Zambia. Chapter 6 presents the analysis of the determinants and impact of farmers' participation in the supermarkets FFV supply chain in SADC. Chapter 7 provides a discussion of the impact of supermarkets on agriculture, manufacturing/food processing in SADC. Chapter 8 gives the summary, conclusions and recommendations of the study.

CHAPTER 2

THE GROWTH AND EXPANSION OF SUPERMARKETS AND THEIR IMPACT ON THE FOOD SUPPLY SYSTEMS IN DEVELOPING COUNTRIES

2.1 Introduction

There has been a rapid rise in the number of supermarkets in developing countries including some countries in Africa in the past 10 years (Weatherspoon & Reardon, 2003; Brown, 2005). Multinational chain supermarkets have expanded and have increasingly become involved in food retailing which may have led to changes in the way food is produced and marketed in both developed and developing countries. The growth and expansion of multinational supermarkets in the food-retail sector is a global phenomenon that is transforming agrofood systems in many developing countries.

This chapter provides a review of literature on the growth and expansion of supermarkets and related issues resulting from the increased supermarket involvement in retailing food in developing countries, Africa and SADC countries.

2.2 An overview of supermarket expansion in developing countries

There is a growing interest in what is happening in the agrofood systems of developing countries as the way food is marketed is changing. Across most countries in the developing world (South America, Central America, Asia and Africa) various authors report increased involvement of multinational chain supermarkets in food retail (Reardon & Berdegué, 2002; Shepherd, 2005). These studies highlight pertinent issues such as how supermarket-retailing activities affect the poor and whether the poor farmers are left out of these emerging markets (Reardon & Berdegué, 2002).

Subsequent empirical studies in various countries of Latin America support the findings of Reardon and Berdegué (2002). For example, in Argentina, supermarkets and fast-food sectors grew rapidly in the 1990s (Gutman, 2002; Ghezan *et al*., 2002). The resulting reconfiguration and consolidation of food retailing in Argentina during the 1990s profoundly changed the marketing of food and agricultural products. The changes

in the agrofood systems were also influenced by globalisation and trade liberalisation. These changes enabled foreign multinational retail companies such as Disco (Velox group of Uruguay), Carrefour (France) and Royal Ahold (Netherlands) to invest in the food-retail sector in Argentina in the period 1996 to 2001 (Ghezan *et al*., 2002). The expansion of the multinational retailers resulted in the closure of some small businesses and domestic independent supermarket stores that could not compete.

Recent studies carried out in south-east Asia[6] showed that supermarkets are growing rapidly and are becoming important and dominant in the food-retail sector across the region. The growth of supermarkets in south-east Asia showed a similar pattern as those of Latin America (Reardon *et al*., 2003). The take-off stage of supermarkets in south-east Asia occurred about five to seven years after Latin America, but the supermarkets in this region are registering even faster growth than in Latin America.

China has also witnessed a phenomenal growth of supermarkets in the 1990s. Supermarkets started from the coastal Guangdong province in 1990, and the number of store units of the various supermarket chains increased dramatically especially from 1998 to 2002, with an annual growth of 20-30% (Xiang *et al.*, 2004). There were 2 500 supermarkets in 1995 and these have expanded to 53 100 in 2002 (Xiang *et al*., 2004). Supermarket total sales that were only 0.18% of the total retail sales in China, had increased to 11.2% by 2002 (Xiang *et al*., 2004).

The rapid growth of supermarkets in China has been facilitated by changes in government policies such as change from centralised to market economy and promotion of increased sale of fresh produce and other processed food products through the supermarkets in the last five years. Trade liberalisation coupled with increased liberalization of FDI policies has enabled large multinational supermarkets such as Wal-Mart, Carrefour and other multinational supermarkets to invest in the Chinese retail sector since 1995 (Xiang *et al*., 2004).

[6] South-east Asia comprises 10 countries: Malaysia, Thailand, Philippines, Indonesia, Vietnam, Cambodia, Lao Peoples Democratic Republic , Myanmar, Brunei and Singapore.

The entrance of these large firms resulted in the closure of smaller domestic supermarkets that could not compete with the multinational retailers. In the early 1990s, supermarkets first developed in south and east coastal China, in large cities such as Guangdong, Shenzhang, and Shanghai; and major northern cities such as Beijing, Tianjin and Dalian (in the second half of the 1990s); then in inland cities, such as Wuhan (in the late 1990s and 2000s), and finally in the western region and small cities in the past one to two years. In China, large storage facilities and bulk merchandising gave supermarkets an advantage over small shops in selling processed, packaged, and bulk foods, such as edible oils, grains, noodles and condiments (Xiang *et al*., 2004).

2.2.1 Evolution of food retail markets in developing countries

In the 1960s and 1970s, food marketing in developing countries was done through traditional distribution channels mainly through spot markets and other informal markets (Figure 2.1). These markets approach the perfectly competitive model, and forces of supply and demand determined the price. Farmers were price takers, and barriers to entry and transaction costs were low. Small-scale producers could easily access the traditional food markets. The supply chain did not contain much processing or packaging especially in the case of fresh fruit and vegetables. These products were perishable and hence needed to be used within a few days after harvesting if processing and preserving facilities did not exist. The risk of spoilage was high, and therefore marketing of these products at the nearest markets was the norm. These markets were characterised by volatility in that, during periods of excess, production prices received by farmers dropped and vice versa. In the traditional markets, issues of quality, grades and standards were not very important and in most cases no grades and standards were imposed. In the 1960s and 1970s, food marketing was characterised by farmers producing bulky primary commodities with little or no product differentiation and brands.

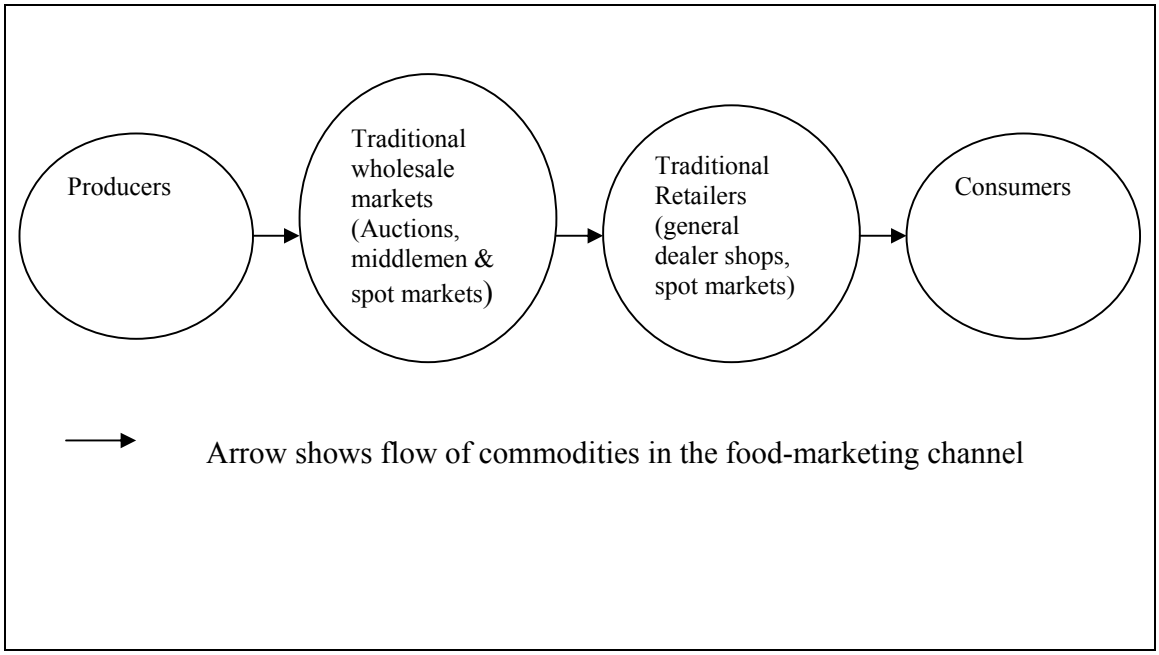

Figure 2.1: Early food-marketing channels in developing countries in the 1960s and 1970s

Food markets in developing countries are evolving since more food is being sold through large-format stores (Ghezan *et al*., 2002). A good description of the changes in the agrofood system in developing countries is provided by Gutman (2002) as he explained the changes in Argentina. These changes are a result of globalisation, trade liberalisation, changes in technology and changes in consumer tastes and preferences. At present agrofood systems in most countries are characterised by more complex local and global supply chains involving producers, processors and large retailers (Figure 2.2). These complex supply systems are co-ordinated via complex exchange processes such as contracting, increased use of private grades and standards and corporate networks (Barrientos *et al*., 2005). The supply chain includes food manufacturing/processing of fresh agricultural products into more non-perishable products such as long-life milk and canned fruit and vegetables. Supermarkets have distribution centres where value-adding processes such as sorting, grading, washing, cutting, cooling, packaging, brand naming, storage, freezing and transportation are carried out in order to improve and preserve high quality food which may be consumed later than when it was produced or it can be transported to consumption centres far from where it was produced.

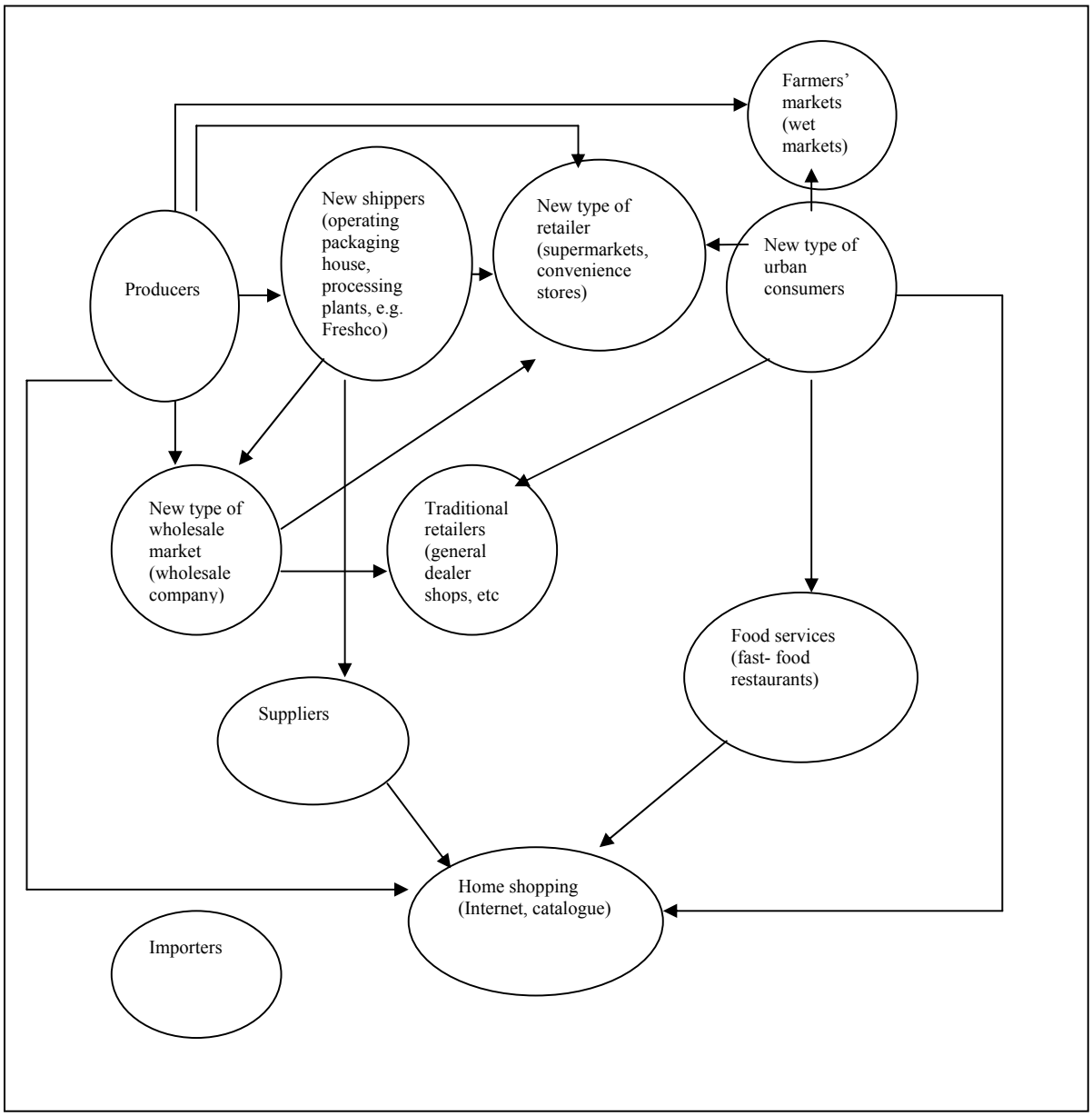

Figure 2.2: The agricultural supply chain in developing countries since the mid 1990s

Source: Adapted from Choe (2002)

Formal food retail sector

The food retail systems consist of the formal and the informal sectors. In the formal sector most food retailers are large and are able to source directly from farmers and food manufacturers and processors.

Box 1: Specialised FFV companies and wholesalers

In the SADC region South African chain supermarkets use specialised companies and wholesalers to source FFV for their stores.

Freshmark: is the FFV sourcing division of Shoprite supermarkets. It operates in South Africa and some African countries where Shoprite has invested.

Freshmark South Africa

- Sources and procures fruit using 9 distribution centres in the main cities of South Africa
- Buys fresh produce directly from farmers in South Africa and supplies to Shoprite stores
- 120 refrigerated trucks deliver produce to 440 Shoprite/checkers supermarkets and hyper stores
- Imports fruit to ensure diversity and availability of fruit throughout the year
- Small-scale farmers near the distribution centres participate in the FFV supply chain of Freshmark
- Use private grades and standards in ensuring food quality and safety.

Freshmark Zambia

- Sources FFV for shoprite stores in Zambia using 1 distribution centre located in Lusaka mainly for Shoprite stores in Zambia.
- Buys fresh produce from both small-scale (10%) and large scale (90%) farmers in Zambia.
- Use verbal contracts, grades and standards to maintain food quality.
- Imports fruit from South Africa to Freshmark Zambia.
- Use refrigerated trucks to supply FFV stores in Zambia.
- 95% procured FFV supplied to Shoprite stores in Zambia and 5% to other buyers such as hotels and small-scale traders.

Freshmark Namibia

- Sources FFV for shoprite stores in Namibia using 1 distribution centre located in Windhoek mainly for Shoprite stores in Zambia
- Buys FFV from large scale farmers
- Imports fruit and vegetables from South Africa for Shoprite Namibia
- 95% procured FFV supplied to Shoprite/ Checkers stores in Namibia and 5% to other buyers such as small-scale traders.

Freshco: Is a fresh fruit and vegetable sourcing company specialised to supply fruit and vegetables to export markets but also supplies to chain supermarkets. It operates in South Africa and recently in Namibia.

- Sources FFV directly from local farmers using state of the art distribution centres and supplies to the export markets such EU. Maintain international food quality standards in order to access export markets and use contracts with farmers.
- Supplies to chain supermarkets in South Africa such as Pick ’n Pay
- Has a depot in Namibia. Imports from South Africa and supplies to Pick ’n Pay stores in Namibia
- Started sourcing locally to meet government regulations but only from large scale producers

The FFV sourcing companies and specialised wholesalers are a mark of the expanding supermarket sector, a trend which is common to most countries. As a mark of centralization supermarkets begin to use distribution centres and specialised and dedicated suppliers such as Hortifruit in Central America. Freshmark differs from other specialised wholesalers such as Hortifruit in that it sources mainly from South Africa or from the country of FDI for one supermarket chain that is Shoprite whereas Hortifruit sources from neighbouring countries and supplies to different supermarket customers. Evidence of Freshmark sourcing from other African countries and transporting to South Africa are minimal. On the other hand Freshco is an FFV exporting company which may also supply to domestic supermarkets.

Specialised wholesalers in Namibia and Botswana take over the sourcing and procurement function for FFV and procure for the supermarket that they have contracted with. These mainly source FFV from the traditional markets such Johannesburg Fresh Produce market and from large-scale local farmers to their refrigerated warehouses. They then supply to the supermarket as and when produce is required.

At present, the supply chains of supermarkets and other large-format retail stores might exclude the traditional wholesale markets (Weatherspoon& Reardon, 2003) and small-scale farmers as supermarkets use preferred suppliers like Freshco supplying a number of supermarkets such as Pick 'n Pay, and Freshmark supplying Shoprite. This is partly the result of major retailers consolidating and integrating their supply chains to reduce costs and offer high quality cheaper food to consumers in urban areas.

In these evolving food systems, there is elaborate use of technology in the exchange process. There is increased use of efficient logistics, transport and information technology (use of e-commerce) in sourcing/procurement of food by supermarkets. Technological innovation in information technology is very important in transacting business by these multinational firms. Most of them have embraced supply chain management to improve efficiency in food-supply chains. These changes in the food-retail sector are a formidable challenge to small-scale farmers and processors because substantial investments are required to be able to participate in these transforming supply chains.

Due to improvements in logistics, transport and information technology, food imports especially in dry and processed food categories play an important role in food chains of some countries. Importation of food products across borders is important in the majority of SADC countries. Cross-border commodity supply chains are developing between South Africa and most SADC countries, offering consumers a wider choice of both fresh and processed agricultural products. In some countries, imports occupy a very important role in the supply chain, as the production capacity has not been achieved because of various constraints including harsh environmental conditions (Botswana and Namibia). For example, Botswana produces about 20% of its fresh fruit and vegetables requirements, the balance is imported from South Africa (over 70%), other countries in the SADC and the rest of the world (Republic of Botswana, 1997).

Given the scope of this study it is not possible to determine whether the increased food imports into host nations will suppress the growth of domestic food processing

companies or whether domestic firms will improve quality and food standards as they observe imported goods on supermarket shelves and cooperate with supermarkets to produce these goods to meet the demand of the chain supermarkets. A more detailed study may be required to unpack the indirect impact of processed food imports on domestic producers of staples/commodities and the rural and urban poor.

Informal food retail sector

The informal sector is important and growing in most developing countries in Latin America, Africa and Asia. It is a source of employment and income for a large number of people. It is comprised of street traders (vendors and hawkers), traders on traditional markets among others. There is a growth in the numbers of people working in the informal economy, either self-employed in unregistered enterprises or as wage workers in unprotected jobs (Devenish & Skinner, 2004).

The informal sector activities are spread out in a number of industries. For example a breakdown of the informal sector in South Africa shows that approximately 47% of these activities are in trade, 13.6% are in construction, 10.4 % in manufacturing, 9.3% in community services, 8.2% in private households, 6.3% in transport and 3.9% in provision of services (Devenish and Skinner, 2004). Trade is among the most prominent activity in the informal sector and street trading is one of the biggest sectors of the informal economy in South Africa (ILO, 2003). For many women, street trading is an important source of feeding themselves and their families (ILO, 2003). There were approximately half a million street traders in South Africa in 2000. More than 70% of street traders were involved in selling food in cities and towns of South Africa. Street vending has been on the increase since the end of apartheid in1994 because the new government does not prevent street trading in the same way as the apartheid government and the lack of jobs in the formal sector has forced many people to try and earn a living through street trading. Street trading is regulated through by-laws in cities and towns in Africa.

Despite the demonstrated importance of the informal sector in employment and income generation in most African countries, the value of their contribution to GDP is unknown

in most countries. This is because there are no records kept of these activities. Even on designate markets where urban authorities collect revenue from traders (such as Soweto market in Zambia, Race course market in Ghana) no records are kept of trade volumes and quantities. This makes it difficult to estimate the actual value of informal trade in food and other commodities. This state of affairs is further aggravated by the fact that most statistical services in Africa exclude informal activities from national accounts estimations.

Cross-border informal trade

In Southern Africa, trade liberalization and regional integration has lead to opening up of borders, which has resulted in increased informal cross-border trade. The goods traded in the informal cross-border trade are purchased from formal wholesale and retail shops (Peberdy, 2002). According to Perdedy (2002), there has been an increase in cross-border trade between South Africa and SADC countries. Goods that traders move from South Africa to their countries include: Fresh fruit and vegetables, processed FFV, manufactured goods such as mattresses, stereos, duvets, household goods. Goods moved from SADC to South Africa by these traders include: fish and shell fish, handicrafts, curios, crotchet work, traditional dresses, coal, vegetables, processed foods (rice, oil, sugar, tinned foods), meat, chicken, eggs and milk (Peberdy, 2002). The trade is informal as it involves small entrepreneurs, traders do not access preferential tariff agreements; traders may buy or more often sell in the informal sector markets and traders do not always pass through formal import and export channels and may be involved in smuggling part or all of their goods (Peberdy, 2002).

2.2.2 Evolution of supermarkets' procurement and inventory-control practices

Procurement of merchandise by supermarkets have been revolutionised in developed countries. As supermarkets from developed countries move and invest in developing countries they import these practices into developing countries. Therefore, in this section a description of the evolution of procurement and inventory control of supermarkets in

developed countries is described with the assumption that it can be applied to large chain South African and domestic supermarkets investing in Africa.

Procurement and resale of inventory are important to all merchandise retailers such as supermarkets. The ability of supermarkets to co-ordinate inventory procurement with their vendors can bring an insurmountable competitive advantage (Levy & Grewal, 2000). Most supermarkets' supply-chain systems have been changed to improve procurement, inventory management and replenishment practices (Figure 2.3).

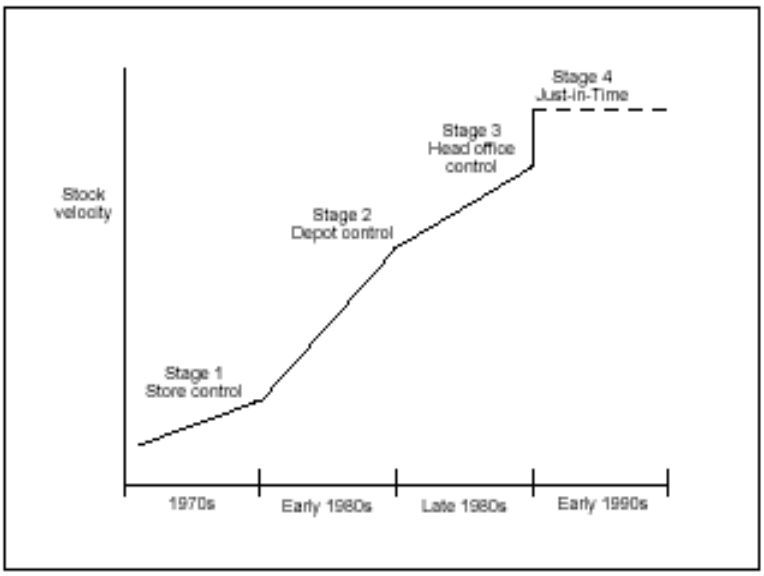

Figure 2.3: Evolution of supermarket procurement and inventory-control systems in developed/developing countries

Source: Whiteoak (1994)

Supermarkets' procurement has evolved from store control in the 1970s to just-in-time (JIT) replenishment in the early 21st century. These developments have taken place in stages (Figure 2.3). Stage 1 of the retail (supermarket) evolution was characterised by direct delivery from suppliers to stores, with store inventory levels controlled by the branch manager. Usually, one order was placed each week on a week's delivery lead-time, with up to five weeks' stock held in store. In stage 2, which occurred in the early 1980s, retailers (supermarkets) established regional distribution centres (RDCs). During

this period, there was a gradual transfer of stock and stock control from individual stores to RDCs. Stock levels were significantly reduced by this consolidation. Stage 3 of the development of the supermarket supply chain occurred in the late 1980s and early 1990s and was characterised by the control of replenishment being transferred from RDCs to head offices, with further improvements in order to review frequency and lead times (Whiteoak, 1994). Currently, the retail supply-chain management (SCM) in most developed countries is in stage 4, where supermarkets are moving towards just-in-time (JIT) replenishment of inventory. This period features a centralisation of warehousing, inventories and inventory control coupled with a trend towards JIT replenishment methods (Whiteoak, 1994). This period is also characterised by increased use of information and communication technology (ICT), efficient response to customer demands and reduction in inventory levels held at individual stores. This consolidation of activities in the supermarket supply chain may make it more difficult for small-scale and medium enterprises to do business with supermarkets, as these changes may create barriers to entry for small-scale suppliers.

These changes that characterise supermarkets in developed countries are also common to the major South African supermarkets such as Shoprite, Pick 'n Pay, Spar and Woolworths. For example, Shoprite in its 2006 annual report states that the company had improved its supply-chain management infrastructure and have integrated their 763 stores in 16 countries electronically into a central database and replenishment system. Now the company is able to provide 15 000 product lines in its supermarkets, some in remote locations outside the South African borders. This system is backed by a sophisticated information technology (IT) system, transportation and logistics system (400 trucks and trailers, half of them refrigerated) enabling Shoprite to further refine inventory management, improve product availability and increase frequency in replenishment through a centralised distribution. This improvement in supply-chain management has meant a reduction in the inventory that is kept at individual stores. This implies Shoprite is moving towards JIT replenishment systems. Other major multinational supermarkets (Spar, Pick 'n Pay, Woolworths) have also developed sophisticated SCM systems of the calibre of Shoprite and other modern supermarkets. By improving on logistics, transport

systems and IT technology, most of these supermarkets operate regional DCs making it possible for just-in-time deliveries of products to their stores.

2.3 Supermarket involvement in food retailing in Africa

In the last five years, most studies examining supermarket phenomena in Africa have focused on the impact of foreign supermarkets on the export of high value products from Africa to supermarkets in Europe (Barret *et al.*, 1999; Dolan & Humphrey, 2000; Pimbert *et al*, 2001). Horticultural-produce trade from African countries such as Kenya and Zimbabwe has drawn a lot of interest especially related to their impact on small-scale farmers. Issues of fair trade have occupied a lot of attention because of the increased volume of this trade and more so the complex channels that have emerged to meet the needs of consumers in developed countries such as the UK and the European Union. Supermarkets that desire to meet the all-year-round supply of fresh fruit and vegetables consumption requirements of their customers in these countries have spearheaded this trade (Freidberg, 2003).

Due to the increased trade in fresh fruit and vegetables from Kenya to the UK, supermarkets in the UK were having a profound impact on Kenyan producers through the importation of fresh fruit, vegetables and flowers (Dolan & Humphrey, 2000). Using a highly sophisticated system of procurement, the UK supermarkets ensure a continuous supply of fresh fruit and vegetables from Kenya to UK supermarkets. Procurement is done through importers who buy from wholesale markets and also directly from farmers (large producers). Though supermarkets in the UK do not own factors of production (land and labour), in Kenya they dictate what is to be produced. The study by Dolan and Humphrey (2000) showed how the globalisation of the food sector can result in sourcing of agricultural products from very remote places with desirable or adverse effects on small producers.

One of the pioneering studies to review supermarkets and their involvement in food retail within Africa was carried out by Weatherspoon and Reardon (2003). This study was based on a review of literature and qualitative interviews of some supermarkets'

directors (Pick 'n Pay and Shoprite). According to Weatherspoon and Reardon (2003), there has been a rapid rise of supermarkets in Africa with resultant implications for agrofood systems and the rural poor. The study covered South Africa and Kenya where supermarkets are fairly well developed. There are about 1 700 supermarkets with a total market share of 55% of the food retail market in South Africa. Supermarkets in South Africa have been growing very fast and consolidating through mergers and buying out of smaller independent retailers. The authors showed that the four larger supermarkets in South Africa have moved from the major cities to rural towns and poorer neighbourhoods and into other countries of Africa, mainly in SADC.

In the same paper, Weatherspoon and Reardon posit that supermarkets offer a challenge as well as an opportunity to local producers. This is an opportunity because there is scope to increase household income for rural households if these households are able to produce and supply to supermarkets; and a challenge to small farmers and processors that need to overcome many transaction barriers in order to supply to the supermarkets. The study concluded that for the poor to be involved and benefit, it will require reformulation of development policy and programmes that are specifically designed to encourage small-scale producers to supply to the supermarket market. This calls for redefining public sector roles and its involvement in the food-supply chains. The assumption made is that the involvement of small-scale farmers and processors in the supply chain of supermarkets will automatically benefit them. On the other hand, it may be possible that the high standards of quality and other contracting practices that mark supermarket-procurement systems imposed on them may make them worse off. To unpack some of these issues it will be necessary to analyse the supermarket supply chains to understand who is gaining and who is loosing in the dynamic and changing systems. A more in-depth study that quantifies impact on small-scale farmers and processors is necessary to be able to determine how farmers and agrofood systems are actually affected by supermarkets' activities in the region.

Subsequent studies on this topic have followed since the Weatherspoon and Reardon paper. These include among others the Regoverning Markets Project (Regoverning

Markets Project, 2004), a collaborative research initiative undertaken to analyse the growing concentration in the processing and retail sectors of national and regional agrofood systems in developing countries. The study focused on how markets are restructuring as a result of globalisation and market liberalisation. Phase 1 of the study was carried out in 2004 in five regions[7], covering 17 countries. For Africa, two regions were covered; southern Africa (Zambia and South Africa) and eastern Africa covering Kenya and Uganda. The study used rapid appraisal and survey methods. Data was collected using qualitative survey methods such as key-informant interviews, focus-groups and semi-structured interviews. Stakeholders in the food chain of selected products were interviewed. The east African study showed that supermarkets were increasingly becoming involved in food marketing but these markets served upper and middle-income groups (Nyoro *et al*., 2004).

Various reports from the five regions concluded that supermarkets have become important in food retailing to varying degrees. The involvement of supermarkets had resulted in changes in agrofood systems. The changes resulting from this restructuring had made it difficult for small-scale farmers and processors to access the vertically integrated and concentrated markets. Most of these reports highlighted the need for governments to be involved in the emerging markets as facilitators. Proactive policy changes were also required to facilitate the participation of small-scale producers and processors to secure the livelihoods of small-scale farmers and rural communities in developing countries. In order to put supermarkets' impact on small-scale farmers and processors in the SADC in perspective, a description of the food-retail sectors in South Africa and the SADC, the changes taking place in the agrofood systems as well as the major South African supermarkets involved in food retail are discussed below.

[7] These studies focus on how agrofood systems are changing in the advent of supermarkets' rapid expansion into food retailing in these regions and how to secure markets for small producers. The study covers five regions (eastern Africa and southern Africa, Latin America, China, south Asia and south east Asia and central and eastern Europe). For more detail, visit the Regoverning Markets website (http:// www. Regoverningmarkets.org).

2.4 Growth and expansion of supermarkets in South Africa

OK Bazaars introduced the concept of supermarkets in South Africa in 1948 (Strydom, 1989). This implies that supermarkets have been in existence in South Africa for some 60 years and are, therefore, not a new phenomenon in South Africa. From 1948 onwards, OK Bazaars continued to grow and by 1986 there were 205 stores with a turnover of R 2 billion (US$285.7million). These consisted of 164 department stores and supermarkets, 26 furniture stores, seven Hyperamas, six House-and-Home stores and two filling stations. Other supermarkets started later such as Checkers supermarkets in 1956, Spar South Africa in 1960, Pick 'n Pay in 1967 and Shoprite in 1979.

The growth and expansion of supermarkets in South Africa has been gradual but the pace of expansion of chain supermarkets in South Africa increased in the mid-1990s (Weatherspoon & Reardon, 2003). Most supermarkets have expanded their market share through buying other supermarkets, franchising and forming partnerships with other supermarket chains both in South Africa and other African countries (for example, Shoprite acquired Checkers in 1993) and OK Bazaars in 1997.

Currently, South Africa has the highest concentration of supermarkets in Africa. South Africa's well-developed, oligopolistic retail market (dominated by a few large companies), meets the domestic demand for food, beverages and groceries (Economist Intelligence Unit, 2004). South African supermarket retailers often trade under a variety of names, which obscures the concentration within the sector. This is most obvious in food retailing where there are four main companies (Pick 'n Pay Group, Shoprite Holdings Ltd, Woolworths and Spar) that trade under about ten different store names. Shoprite, for example, operates stores such as Shoprite supermarkets, Checkers, Usave, Sentra, 8 Till Late and Checkers Hyper.

The market share and retail sales of the four major supermarkets in South Africa involved in food retail are shown in Table 2.1. In 1993, Shoprite had the biggest total retail-market share of 43.4% which in 2007 has been reduced to 27.8%. A possible reason for the decline in Shoprite's market share in the South African market may be the firm's

aggressive expansion into other African countries as well as other countries in the world. Among those that have gained in the market share is Pick 'n Pay, which is now the leading supermarket chain in South Africa. Spar has also grown steadily from a market share of 18.3% in 1993 to 26.9% in 2007. Woolworths has also registered some growth in its market share from 4.2 % in 1993 to 9.2 % in 2007. In terms of retail sales, all four major supermarkets have posted impressive growth since 1993. The market shares of the other supermarkets or independent retailers have dropped from 11.6% in 1993 to 3.2% in 2007 (Table 2.1). This may be a result of the closure of small independent retail supermarkets and retail shops that could not compete against the larger chain supermarkets. The top four supermarket chains in South Africa had a market share of over 70% of the formal food and groceries retail market in 2007.

Table 2.1: Market share (%) and retail sales of various South African supermarkets

Supermarket chain	**1993**		**2003**		**2007**	
	Market share (%)	Retail sales (US$ million)	Market share (%)	Retail sales (US$ million)	Market share (%)	Retail sales (US$ million)
SPAR	18.3	750.7	26.1	2 758.9	26.9	3 129.0
P 'n P	22.5	917.6	35.4	3742	33.0	5619.6
Shoprite/Checkers	43.4	1 780.4	29.4	3 107.8	27.8	5564.3
Woolworths	4.2	172.3	6.9	729.4	9.2	2663.1
Others	11.6	475.9	2.2	232.5	3.2	427.7
Total	100	4 102.3	100	10 570.3	100	17 403.7

Source: Supermarkets Annual Reports (2007) and Planet Retail (2006).

According to survey results of this study, all supermarket managers interviewed reported that they faced competition from other chain supermarkets. This implies that supermarkets in South Africa and other SADC countries do compete against each other. Although the shops compete against each other, they do so from respective market niches. Woolworths, for example, tends to focus on the high-income market, whereas Shoprite focuses on the low to middle-income end of the market. Pick 'n Pay and Spar tend to focus on the middle to upper income market segments, Spar being more associated with smaller stores whereas Pick 'n Pay has larger supermarkets and hypermarkets.

These large sophisticated retailers are mostly located in shopping complexes (malls) and usually form the anchor tenant in these complexes located in the suburbs and outskirts of most cities. The major retailers are now slowly entering the "townships"[8], and this is likely to be an important growth area in coming years, which will probably put many smaller retailers in these areas out of business. Shoprite, Pick 'n Pay, Metro and Spar are also expanding enthusiastically into countries surrounding South Africa. These all have opened stores in Botswana, Namibia, Zimbabwe, Malawi, Mozambique, Zambia and other southern and eastern African countries. With their strong operational experience, financial strength and concepts adaptable to local demands, South African retailers are well placed to explore and conquer these embryonic markets (Planet Retail, 2004).

2.5 Growth and expansion of South African supermarkets in SADC countries

The major multiple chain supermarkets in South Africa have invested in other SADC countries and Africa (Table 2.2). The highest numbers of supermarket stores are found in South Africa, whereas in other SADC countries, the largest numbers of supermarkets are found in Zimbabwe, followed by Botswana, Namibia and Zambia.

Shoprite is the most expansive retailer, having entered four new countries over the past three years, with its operations now spanning a total of 16 African countries. By comparison, Pick 'n Pay operates stores in six other African countries. Due to the relative youth of the network, sales from foreign operations are still small, accounting for 8% of Shoprite sales and slightly less than 8% of Pick 'n Pay. In most countries, Shoprite has established its supermarkets in cities and adopted them to the local clientele. Recently, it has created the Usave chain, a limited assortment format (with 600 lines) inspired by European discount concepts. This format has been chosen as a major vehicle for expansion into southern African countries.

[8] Black neighbourhoods established under South Africa's past racist policies of separate group areas.

Table 2.2: Type and number of South African supermarkets in SADC (2007)

Country	Shoprite	Pick 'n Pay	Spar (multinational)	Woolworths (RSA)	Total number of stores	% of stores
South Africa	718	552	675	320	2265	85.4
Angola	8	0	0	0	8	0.3
Botswana	10	19	26	11	66	2.5
DRC	0	0	0	0	0	0
Lesotho	7	0	0	2	9	0.3
Mauritius	1	0	11	1	13	0.5
Malawi	5	0	0	0	5	0.2
Mozambique	5	0	0	0	5	0.2
Namibia	65	15	19	4	103	3.9
Seychelles	0	0	0	0	0	0
Swaziland	7	6	7	3	23	0.9
Tanzania	5	0	0	1	6	0.2
Zambia	18	0	2	1	21	0.8
Zimbabwe	1	56	70	2	129	4.9
Total	850	648	810	345	2653	100

Source: Adapted from various supermarkets' annual reports (2007).

Metro Cash and Carry South Africa (MetCash) is an important cross-border player with its network of "cash and carry" stores, supermarkets and neighbourhood stores. Since 1999, it has opened over 250 stores and now operates or services over 950 stores in nine African countries (excluding South Africa). Its "cash & carry" stores are an important vehicle for the development of modern retail formats in developing countries as they provide products for many independent supermarkets, local shops and informal retailers. Shoprite and Metro have ventured further-a-field than Spar. The Spar chain is mainly active in countries bordering South Africa, that is, in Namibia, Botswana, Zimbabwe and Swaziland but in December 2003 it opened a store in Lusaka, Zambia and has opened a second store in Lusaka in 2005. Massmart is South Africa's sixth largest retail company; however, it is ranked third when including its wholesale and distribution and buying alliance operations of general consumer goods. Its retail business consists of discount stores and wholesale outlets. Massmart is planning to expand further across the rest of Africa. It is currently engaged in seven southern African countries with its wholesale operations.

The share of food in total retail sales is high for most supermarkets in Botswana, Namibia and Zambia (Table 2.3). The proportion of food sales to total sales is about 90% for Spar

and Pick 'n Pay and varies between 62 to 90% for Shoprite in Zambia, Botswana and Namibia (Table 2.3).

Table 2.3 Share of food in total retail sales 2007

Country	Supermarket											
	Shoprite*			Pick 'n Pay			Spar			Woolworths		
	Gross sales (million euro)	% Food sales	% Non-food sales	Gross sales (million euro)	% Food sales	% Non-food sales	Gross sales (million euro)	% Food sales	% Non-food sales	Gross sales (million euro)	% Food sales	% Non-food sales
Botswana	24	62.2	37.8	39	90	10	34	82.8	17.2	41	10	90
Namibia	131	72.8	27.2	28	90	10	18	90	10	9	neg	100
Zambia	23	90	10	0	0	0	-	-	-	N/A	N/A	100

*Source: Planet Retail (2004) & supermarkets annual reports 2007; * Shoprite Brand; - Unavailable, neg=negligible, N/A=no food sales, *Supermarkets are in various brands such as Checkers and Shoprite brands. The data in Table 2.4 pertains to the Shoprite brand.*

Owing to these findings one can deduce that supermarkets might have an impact on the food systems in these countries even though supermarkets mainly cater for high to middle-income segments of the population in Zambia and almost all segments of the population in Botswana and Namibia. The food handled includes both fresh and processed foods in all categories (meat, milk, fresh fruit and vegetables, processed fruit and vegetables and milled grain products). In Botswana, Namibia and Zambia, there are both multinational, local chain and independent supermarkets involved in food retailing. Below is a description of the type and number of stores in each case study country.

2.5.1 Zambia

In Zambia there are both multinational, local supermarket chains and independent supermarkets involved in food retailing. Supermarkets in Zambia consist of the South African chain stores (Shoprite and Spar) and local supermarket chains (Melissa) and smaller independent supermarkets such as cash and carry stores (Table 2.4). The multinational supermarkets are found in major towns such as Lusaka and major provincial towns.

Table 2.4: Supermarkets (selling food products) in Zambia

Supermarket name	Number of stores	Urban (Lusaka)	Rural towns	Origin
Shoprite	18**	4	14	South Africa
Melissa	3	3	0	Zambian
Spar*	2	2	0	Franchise
Independent supermarkets	Several	Several	Several	Zambia

*Source: survey results. * Commenced operations in December 2003 ** Shoprite owns 18 supermarkets and one wholesale shop (Megasave)*

Supermarkets in Lusaka and its suburbs include chain stores such as Shoprite, Melissa and much smaller independent supermarkets such as Kabwata Cash and Carry (Table 2.4). Spar Zambia is a franchise that started operations in December 2003. It is still a fairly small operation but has plans to increase the number of stores to ten in the next two years. From the information supplied through interviews, Shoprite on Cairo Road in Lusaka caters mainly for customers on foot (mainly urban working people and also poorer customers), whereas Shoprite, Manda Hill targets the upper-middle class and the elite. It has ample parking available for motor vehicles. The Manda Hill centre opened on 28 October 1999 and with an area of 22 260 m^2 is the largest shopping centre of its kind in Zambia. The centre is visited by an average of 400 000 shoppers monthly. Apart from Shoprite, other well-known South African stores such as Game, Woolworths and Pep Stores are also found in Zambia.

Shoprite is the largest supermarket retailer in Zambia. The first store was opened in Lusaka in 1995. It owns 18 stores, each with floor space of about 2 000m^2 and total retail sales of about US$ 30 million (Table 2.5). Shoprite (Zambia) is a subsidiary of Shoprite, South Africa and the stores are built on a similar concept to those in South Africa. The stores are large supermarkets with fresh food counters and an in-store bakery. The bakeries operated by Shoprite supermarkets seemed to be very popular since one finds long queues of people waiting to buy bread. It was evident that small traders also buy their bread stocks here for resale in the “Ntembas” (kiosks) in estates in Lusaka city.

This is because the price of bread is much lower compared to other shops in the same area.

Table 2.5: Shoprite supermarkets in Zambia

Name	Number of stores			Retail sales (US$ million)		Sales area (sq.m.)	
	2002	2003	2007	2002	2003	2002	2003
Shoprite	18	18	18	32	30	36 000	36 000
Hungry Lion	7	7	7	2	2	700	700
Total	25	25	25	34	32	36 700	36 700

Source: Shoprite annual report (2007) Planet Retail (2004)

Even though food retail accounts for between 60 to 90% of the sales in supermarket stores such as Shoprite (Table 2.3), supermarkets are not yet very important in the marketing of fresh agricultural products in Zambia compared to other local markets. Key informants estimated that for crops such as tomatoes and potatoes, over 75% are still marketed through other market channels (farm gate, street vendors, traditional wholesale markets and other local markets). This finding concurs with Haantuba (2003) who found that the traditional market outlets were very important and the most significant channel responsible for commercialisation in Zambia. According to the Haantuba study, about 10 to 25% farm produce is sold directly by farmers through the traditional market channels, and middlemen through the same markets handled 75% of farm produce. The only major setback in these markets is that grades and standards are hardly used and these markets are prone to price fluctuations as a result of fresh produce flooding the market. This is because the horticultural produce produced under rainfed conditions matures at the same time. There is need to improve these markets as most of the produce (75%) is sold through these markets.

2.5.2 Namibia

Supermarkets in Namibia include the large supermarket chains from South Africa (Shoprite, Pick 'n Pay, Spar, Woolworths) and locally owned chain supermarkets (Woermann Brock), and independent supermarkets such as Eloolo Value Supermarket and Lucky Stores, among others (Table 2.6). The supermarkets are spread out in Windhoek and its suburbs, in other urban areas and in rural towns (Table 2.6). Traditional wholesale markets for fresh fruit and vegetables such as the Johannesburg fresh-produce market (RSA) or Soweto (in Zambia) are not present in Namibia. Some

large-scale farmers who produce horticultural products such as onions and tomatoes under rainfed conditions or limited irrigation prefer to transport their produce to the Johannesburg or Cape Town fresh-produce wholesale markets in South Africa some 1300 km away. These farmers prefer these markets because the markets are easily accessible and farmers can sell large amounts of produce at once reducing transaction and transportation costs.

Multi-chain stores operate branches in other towns such as Walvis Bay, Katima Mulilo, Gobabis and Oshakati in the northern region. Supermarkets that are involved in selling fresh and processed food products includes Shoprite, Pick 'n Pay, Spar and other local supermarket chains such as Woermann Brock, independent stores in residential neighbourhood areas and convenience stores located in filling stations.

The location of the stores whether in the city centre or poorer areas such as Katutura determines the size of the stores and product lines to be found in the stores. Shoprite is the largest retailer in Namibia followed by Spar when evaluated in terms of the number of stores and sales area (Table 2.7).

Table 2.6: Supermarkets (selling food products) in Windhoek, Namibia

Supermarket Name	Number of stores	Urban (Windhoek)	Other urban and/ Rural towns	Origin
Spar	23	5	18	South Africa
Shoprite (formats) Sentra OK Foods and Grocer Checkers Shoprite supermarkets Others	 10 12 3 8 15	 1 2 3 4 -	 9 10 0 4 -	South Africa
Pick 'n Pay	9	4	5	South Africa
Woolworths	5	1	4	South Africa
Woerman & Brock	15	11	4	Namibia
Fruit and Veg City	3	2	1	South Africa
Other independent supermarkets	many	many	many	Namibia

Source: Survey results (2005) and Namibian Agronomic Board (2004)

Table 2.7: The top five supermarkets in Namibia

Supermarket name	**Retail sales (million euro)**	**Number of stores**	**Sales area (sq. metres)**	**Sales by product**	
				%food sales	% Non food sales
Shoprite	131	48	46 300	72.2	27.8
Pick 'n Pay	28	9	7 200	90	10
Spar	18	23	14 000	90	10
Woolworths	9	5	4 000	5	95
Woermann Brock	-	15	-	90	10
Local Independent supermarkets	-	many	350>	90	10

Source: Planet Retail (2004) and survey results (2005)

The supermarket chains tend to import products from South Africa and globally, and to source directly from local producers. Wheat-flour products, maize-flour products and

most of the pasta products were sourced locally from local manufacturers. Many smaller supermarket stores, locally owned, were located in residential areas because most people use public transport to shop, so they find these stores convenient. People buy products as they go home from work. These stores were much smaller and had one to two till points and stocked fewer product lines. The smaller independent supermarkets procure processed food products through wholesalers and FFV from wholesalers and directly from farmers. Some independent supermarkets are located in the city centre. These are large, and import products from South Africa and other countries of the world as well. A description of two major supermarkets in Namibia is given below:

Shoprite Holdings runs a number of store formats in Namibia such as Shoprite supermarkets, Checkers superstores, Usave discount stores (three shops opened in 2003), OK Grocer supermarkets, OK Foods supermarket, OK MiniMark convenience stores, Value supermarkets and Hungry Lion fast food outlets. It is the largest South African supermarket operating in Namibia. Most of the stores feature most or all of the following departments - butchery, bakery, delicatessen, fresh fruit and vegetables and fast foods. The assortment of products depends on store size, customer profile and the area where the store is located. The number of stores has increased from 41 in 2002 to 48 in 2004, whereas retail sales have also grown from 60-million to 83-million euros in the same period (Table 2.8).

Table 2.8: Shoprite supermarkets in Namibia

Type of supermarket	Number of stores			Retail sales (million euro)		Sales area (sq. m.)	
	2002	2003	2004	2002	2003	2002	2003
Super stores							
Checkers	3	3	3	9	11	9 000	9 000
Supermarkets							
OK Foods	4	4	4	10	12	4 800	4 800
OK Grocer	6	6	7	13	16	4 800	4 800
Shoprite	8	8	8	14	18	12 000	12 000
Value	10	10	10	7	8	8 000	8 000
Neighbourhood stores							
Sentra	10	9	9	6	7	6 000	5 400
Convenience stores							
OK MiniMark	-	2	3	-	4	-	500
Discount stores							
Usave	-	3	4	-	7	-	1 800
Total Food Retailing	41	45	48	60	83	44 600	46 300

Source: Adapted from Planet Retail (2004) and survey results (2005)

The second most expansive supermarket in Namibia is Spar with 23 stores. Spar is spread over all the provinces of Namibia (Table 2.9). Spar supermarkets in Namibia are run by independent retailers and supervised by Spar Group Limited, South Africa.

Table 2.9: Spar supermarkets in Namibia

Spar supermarkets	Number of stores			Retail sales (million euro)		Sales area (sq. m)	
	2002	2003	2004	2002	2003	2002	2003
Total food retailing	20	20	23	14	18	14 000	14 000

Source: Planet Retail (2004) and Agronomic Board (2005)

Supermarkets in urban and residential areas offer a wide range of fresh products, processed food products and non-food items. As in Shoprite, most stores feature most or

all of the following departments - butchery, bakery, delicatessen, fresh fruit and vegetables and fast foods.

2.5.3 Botswana

The South African supermarkets such as Shoprite (with most of its brands - Shoprite, Checkers, OK Foods and Super save), Spar, Pick 'n Pay, MetCash and Woolworths, dominate the Botswana retail market. Local supermarket chains such as Payless, Choppies and smaller independent stores such as cash and carry and convenience stores located in filling stations are also important in the Botswana retail market (Table 2.10). As in South Africa, the modern retail sector handles about 50 to 60% of the food retail in major towns such as Gaborone, Francistown, Kasane and Maun, and in urban villages such as Mochudi, Lobatse, Molopolole and Kanye (Exploratory survey results, 2004). In the rural areas and rural villages, the general dealerships are more important in food retailing even though most villagers tended to shop in major towns when the opportunity arises.

There are no operational wholesale markets for fresh fruit and vegetables as in the case of South Africa and Zambia. Street vendors are important markets for retailing fresh fruit and vegetables. Street vendors purchased fruit and vegetables directly from farmers, wholesalers and from large supermarket chains for resale. This is because prices on the supermarkets shelves for FFV were normally lower than those of the street vendors. The street vendors are especially important to farmers in villages situated near the urban centres because this marketing channel is easily accessible to small-scale farmers. This channel may have begun to shrink especially as the larger supermarket chains keep their businesses open until very late making it difficult for the street vendors and smaller retailers to exploit the time slots when these big shops were closed (for example some supermarkets were open from about 08:00 to 22:00 hours from Monday to Sunday and public holidays). This may have taken away the advantages the street vendors and other small retailers had over supermarkets by selling to customers when the big retailers had closed.

Table 2.10: Supermarkets in Botswana

Supermarket name	Number of stores	Urban (Gaborone)	Other and/ rural towns	Origin
Shoprite*	3	1	2	South Africa
Payless	4	4	0	Botswana
Spar	26	8	18	Franchise/ supervised by Spar South Africa
Metro Cash & Carry (wholesale) METSEF**	12 3	1 2	430 (Viva stores & other general dealers-franchises)	Metro South Africa (original company from Germany)
Checkers OKFoods	2 3	1 3	1 (Francistown) -	South Africa
Choppies	27			Botswana
Woolworth foods	3	3	0	South Africa
Fairways	7	1	6	Botswana
Pick 'n Pay (family stores) Score supermarkets	2 16	2 4	0 12	Franchise Pick 'n Pay owns over 50% shares
Other independent supermarkets	many	many	many	Botswana

*Source: Survey results (2004); **METSEF (these are trade centres that sell to both consumers and other traders on wholesale)*

According to one respondent, "supermarkets use fresh produce to attract customers to their stores; to do this supermarkets price their fresh produce at cost or below cost. In some situations the prices in the wholesale may be higher than those in supermarkets. This could occur because supermarkets have power and negotiate better prices from their suppliers compared to smaller businesses which order small quantities." Generally prices of FFV in supermarkets in Botswana are lower than those of street vendors. This implies that supermarkets may be beneficial to consumers in a country such as Botswana, which is not self-sufficient in production of FFV, dairy and other crop products. According to the key informants, with more supermarkets having invested in the food market in Botswana, food prices have been lowered as competition for the consumers' pula intensifies. These observations concur with what other studies carried out in countries in

the European Union such as UK (Cooper, 2002; Dobson *et al*., 2003) found namely that consumers' benefit from supermarkets trading activities, while some producers and suppliers may be negatively affected by some practices of supermarkets.

Some major South African supermarkets have only recently entered the Botswana market. For example, Pick 'n Pay opened its first family franchise store in December, 2003. Before this, Pick 'n Pay had and still has a stake in the Score supermarkets which have a strong presence in Botswana (Score has about 16 supermarkets in Botswana). Score supermarkets have been in operation in Botswana since 1980. Shoprite has also increased its presence in Botswana in the last three years by using its OK franchising store banners (about three OK food stores have been opened in Gaborone in partnership with local companies) in the past three years (2004-2006).

Spar is the largest retailer in Botswana dealing in food with a total of 26 stores and retail sales of about 32-million euros in 2003 (Table 2.11). Spar supermarkets are spread over all districts of Botswana. The stores are found in all towns such as Gaborone, Kasane, Maun, Francistown, and in urban villages such as Mochudi, BDF camps, Ghanzi, Lobatse and Molopolole. Independent retailers under Spar Group Ltd, South Africa, operate Spar in Botswana. About five years ago Spar was the main retailer in food products in Botswana but in the last two years Shoprite and Pick 'n Pay has invested in the country which implies that competition has become stiffer.

The number of supermarkets investing in Botswana has increased dramatically in the last five years. According to one wholesaler, Gaborone and Francistown are overtraded (a large number of supermarkets selling to a fixed population). The entrance of many of these chain supermarkets has led to the closure of some of the smaller stores (Key informants, 2004). The number of small businesses that have closed could not be verified quantitatively because of a lack of data, as there were no public records of such closures. The benefits of these increased FDI investment by supermarkets for countries such as Botswana are that owing to the large number of retailers, competition among retailers is very high which may have pushed down prices of some food products.

Table 2.11: Spar supermarkets in Botswana

Type of supermarkets	Number of stores			Retail sales (million euros)		Sales area (sq.m.)	
	2002	2003	2004	2002	2003	2002	2003
Super stores Superspar	4	4	4	6	8	4 800	4 800
Supermarkets Spar	20	20	20	19	22	15 000	15 000
Neighbourhood stores Kwikspar	2	2	2	2	2	800	800
Total Food Retailing	26	26	26	27	32	20 600	20 600

Source: Planet Retail (2004)

2.5.4 Formats of South African supermarket expansion in SADC countries

The South African supermarket chains choose various strategies and retail formats to enable them to penetrate and grow in SADC countries (Tables 2.6, 2.8 and 2.11). The use of multiple formats for penetration of different market segments is a common practice among retailers worldwide (Arda, 2006; Howell, 2000). For example, Shoprite has adopted a number of retail formats to cater for the needs of different consumer segments and as a means of expansion and diffusion into poorer regions in the South African market as well as internationally. The Checkers Hyper format is used to penetrate the high to medium consumer segments in South Africa and countries such as Botswana and Namibia. The supermarket format is used to expand into medium to low income areas, whereas the discount stores such as Usave are specifically designed to target low income consumers in poorer areas and countries.

According to supermarket growth and expansion literature, supermarkets first start in high to medium income niches and as competition among other food retailers increases supermarkets begin to move from urban towns and expand into smaller towns and into poorer areas in the same country and from rich countries to poor countries in developing countries (Weatherspoon & Reardon, 2003; Reardon & Berdegué, 2002). The latter development comes with an emphasis on low prices and austere presentation, and the

opening of chains of hard discount stores. The strategy includes small discount stores in densely populated areas, which avoids transportation needs of consumers, narrower choice, and packaging in small quantities to allow poor consumers to afford the products (Arda, 2006; Colla, 2003).

2.6 A historical overview of supermarket growth in SADC

In the following section, a historical analysis of individual major South African supermarkets is provided.

2.6.1 OK Bazaars

OK Bazaars introduced the concept of the supermarket in South Africa in 1948 (Strydom, 1989). Supermarket growth was slow in the early years, as shown in Table 2.12. By 1986, OK Bazaars had reached R2-billion ($0.3 billion) turnover; 62.5% contribution was from food sales, 11.8% sale of clothes, 9.9% household goods, and 15.8% sale of furniture and appliances. Probably because of a lack of focus on specific product lines, OK Bazaars began to experience problems and began to make losses. Shoprite Holdings took over OK Bazaars in 1997, consisting of 139 OK Bazaar stores and 18 Hyperamas from South African Breweries. At the time of takeover, OK Bazaars was making a loss of R 20-million ($2.9m) per month (Botha, 1997) which Shoprite inherited and managed to turn around into profit-making supermarkets. Now OK Bazaars does not exist, it has become part of Shoprite Holdings Ltd.

Table 2.12: Growth and development of OK Bazaars in South Africa

Year	Number of stores	Comments
1927	1	Year when first store opened
1929		Listed on JSE
1937	14	
1950	35	
1951	35	Ownership changed to Cohen /Miller and Leon/Fox families
1967	100	
1973		OK Bazaars bought by South African Breweries
1986	205*	164 department stores and supermarkets, 26 furniture stores, 7 Hyperamas, 6 House and Home and 2 filling stations

Source: Strydom (1989)
** 200 stores in South Africa, 2 in Swaziland, 1 in Lesotho and 1 Namibia.*

2.6.2 Checkers

Checkers was established in 1956. At the time of opening, Greatermans, the parent company of Checkers, was a major force in the South African department store business. The first four Checkers stores were mostly clothing-oriented, with 66% of shelf space allocated to clothing and the rest to grocery lines. Price discounting, which had at that time just been introduced in the United Kingdom and the United States of America, was not to be part of the business philosophy of Checkers. The results of the first year of business were dismal with a total deficit of R400 000 or $57142.9 (Strydom, 1989).

Raymond Ackerman, then still a manager in the Greatermans group, visited the USA to acquaint him with the supermarket trade and its trends in that country. On his return, he was put in charge of the Checkers supermarket operations. Checkers then changed its business philosophy to that of price discounting and strong growth followed. In 1966, Ackerman left Checkers to start his own supermarket discounting operation, Pick 'n Pay. At that time, there were 85 Checkers supermarkets across South Africa. Because of several corporate takeovers and management disputes, Checkers was not operating well and it was the weakest among the large three supermarket operators (OK Bazaars, Pick 'n Pay and Checkers) in the late 1970s.

In the years that followed, Checkers continued to struggle in its trading. In 1984 personnel motivation was very low. It was during this time that Checkers was incorporated as part of the Tradegro group and this marked its great turn around. The original Checkers was taken over by Shoprite in 1993 (Business Times, 2002).

2.6.3 Shoprite Holdings Group

The Shoprite group of companies started operations with the acquisition of 8 Cape-based supermarkets in 1979 at their headquarters in Cape Town run by the Rogut family (Business Times, 2002). It had an annual turnover of R12million ($1.7million), which now stands at R39.3billion ($5.6billion) (Shoprite Holdings Ltd, 2007). Presently, Shoprite Holdings Ltd has spread to all the provinces of South Africa. It has also spread to the black townships in South Africa. It mainly caters for the middle and low-income

segments of the population and it mainly acts as the price leader. Shoprite operates in all SADC countries except for the Democratic Republic of Congo (DRC) and the Seychelles. It also has a presence in non-SADC countries such as Egypt, Ghana, Uganda and India. The number of Shoprite supermarkets and other retail businesses is shown in Table 2.13. Outside South Africa, the company has its strongest SADC presence in Namibia (6.2% of all stores), Zambia (2.5% of all stores) and Botswana (1.7% of all stores). The group has a wide range of retail formats operating under brand names such as Shoprite (supermarkets), Checkers, OK Furniture, Hungry Lion, OK Foods, OK Grocer, Sentra, Value, Mega Save and Buying Partners.

This supermarket chain has grown phenomenally, mainly through acquisition and buy-out of smaller retail supermarkets. The original Checkers was one of four big acquisitions by Shoprite. It acquired Grand Bazaars in 1990, followed by Checkers in 1993, Sentra in 1995 and an ailing OK Bazaars in 1997, from the South African Breweries (Business Times, 2002). The takeovers and acquisitions have also been used as a means of expansion. For example, Shoprite acquired the loss-making state run supermarket chain owned by the Zambian government to set up the present Shoprite supermarkets in Zambia. The favourable FDI conditions, which were afforded the group by the Zambian government, such as tax holidays, were a major catalyst in their being able to establish themselves in Zambia. Its latest acquisition is the Tanzanian operation of Pick 'n Pay's subsidiary, Score supermarkets in 2002 (The Economist, 2004). Shoprite has also expanded through franchises in other countries such as Namibia. The franchising brands include Sentra, 8' Till Late, Value and Megasave (these were consolidated under the OK banner). The franchising is only in southern Africa.

Shoprite uses its distribution centres[9] (DCs) in Cape Town and Gauteng, South Africa, to source and distribute its merchandise. Importation of products is done through the DCs to stores in South Africa and other African countries. For fresh fruit and vegetables, Shoprite uses Freshmark, its own fresh-produce procurement company, which operates as

[9] Central purchasing centres for supermarkets. Most of the merchandise is sourced centrally and then distributed to its stores across South Africa and other places where its supermarkets are located.

a handler for imported and domestically procured fruit and vegetables via nine distribution centres in southern Africa. In 2002, 90% of all fresh produce was bought directly from producers and distributed via these distributions centres. These warehouses also supply other Shoprite stores in neighbouring African countries.

Table 2.13: Type and number of Shoprite Holdings in RSA, the SADC and other countries (2007)

Country	Shoprite (supermarkets)	Hungry Lion (Fast food restaurant)	Checkers (supermarkets & Hyper)	OK Foods	Other*	Total
Angola	3				5	8
Zambia	18	7	0	0	0	25
Namibia	8	2	3	3	47	63
Botswana	4	7	1	5	6	23
RSA	297	80	135	18	462	992
Lesotho	4	2	0	0	7	13
Swaziland	2	1	0	0	2	5
Tanzania	7	0	0	0	0	7
Mozambique	3	1	0	0	1	5
India	1	0	0	0	0	1
Ghana	0		0	0	3	3
Mauritius	1	0	0	0	0	1
Madagascar	7	0	0	0	0	7
Malawi	2	2	0	0	6	10
Zimbabwe	1	0	0	0	0	1
Egypt	7	0	0	0	0	7
Uganda	3	0	0	0	0	3
Total	368	102	139	26	539	1174

Source: Shoprite Holdings Ltd (2007), Annual report
Other includes: OK Furniture, OK Grocer, Sentra & Value, Megasave, House & Home (SA), 8'Till late, OK MiniMark and Buying Partners*

The Shoprite group employs more than 28 500 permanent employees and some 36 800 temporary and casual workers. It has a turnover of R39.3-billion (US $5.6-billion[10]) and has stores in 16 African countries. It is the largest retailer in Africa and therefore it has an impact on the consumption and production of food in the countries where it has invested. Shoprite is a force to reckon with in the agrofood sector in the SADC. The spread of Shoprite/Checkers in Africa is set to continue. According to Whitey Basson (chief executive of Shoprite), "Africa has wealth. Its lack of infrastructure is an advantage to us because we can expand without competition." The future and the role of this giant group

[10] 1 USD =R 7. South Africa's economic situation and the strength of its currency, the rand, have improved considerably since 2001. The rand declined from an average of R4.30 to the US dollar in 1996 and reached R13 to US dollar in late 2001. It strengthened considerably to R6.09 in 2004 (Ntloedibe., 2004a)

in the food-retailing business in Africa will remain important in the coming years (Shoprite Holdings Ltd, 2006).

2.6.4 Pick 'n Pay

Pick 'n Pay was established in 1967 and registered on the JSE in 1968 (Pick 'n Pay Stores Limited, 2002). The group now operates through three divisions; the Retail division, the Group Enterprise division and Franklins Australia, each with its own managing director and management boards (Pick 'n Pay, 2007). Through franchising it has grown and spread in South Africa and other countries of Africa as shown in Table 2.14 and Table 2.15. Pick 'n Pay retail chains started in 1967 and by 1994 there were 148 stores. In 2007, there are a total of 706 stores in Africa and Australia with a turnover of R 39.3-billion ($ 5.62-billion). Pick 'n Pay has increasingly used franchising in its expansion in South Africa and other countries. Pick 'n Pay trades under several brands such as Score and Boxer, which have had mixed success in Africa. It sold its Score stores in Tanzania to Shoprite and moved to Mozambique, where it is setting up two of its brands — Score and Pick 'n Pay.

Table 2.14: Growth of the Pick 'n Pay retail supermarket chain in SA and SADC countries

Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Number of stores										
Corporate	148	249	222	237	216	234	224	221	332	391(504)
Franchise	1	6	47	125	237	185	176	193	139	157(192)
Total selling area (000 m^2)										
Corporate	392	514	497	488	465	497	492	503	678	748 (875)
Franchise	1	8	52	88	153	162	187	206	173	187 (224)
Total no. employees (000)	21.8	21.7	22.2	25.3	25.1	25.2	24.7	24.5	27.3	31.0 (49.2)

Source: Pick 'n Pay (2004) and Note: floor space in 1000m^2; Figures in brackets are for 2007

It also has a stake in the 56-store TM chain in Zimbabwe (as part of the Meikles Africa group), Botswana and Namibia. All of these have been successful, including those in Zimbabwe, where inflation has boosted the operation rather than undermined it. However, the group is focusing its core efforts on the South African market, which it describes as still being the most lucrative on the continent (Games, 2003). The Pick 'n

Pay supermarkets in SADC are located in Botswana, Swaziland, Zimbabwe and Namibia. Of its total turnover, the rest of Africa accounts for less than 8% (Pick 'n Pay, 2006)

Table 2.15: Type and number of Pick 'n Pay stores in SA and SADC (2007)

Country	Hypermarkets	Supermarkets	Family stores (franchise)	minimarkets	Other*	Total	% in each country
Zambia	0	0	0	0	0	0	0.0
Namibia	0	0	13	0	0	13	1.8
Botswana	0	0	3	0	16	19	2.7
RSA	16	159	190	35	217	617	75.8
Lesotho	0	0	0	0	0	0	0.0
Swaziland	0	0	1	0	5	6	0.8
Tanzania	0	0	0	0	0	0	0.0
Mozambique	0	0	0	0	0	0	0.0
Malawi	0	0	0	0	0	0	0.0
Zimbabwe	0	0	0	0	56	56	7.6
Total	16	159	207	35	294	711	100

Source: Pick 'n Pay (2007)
**Other include Boardmans, Boxer supermarkets, Score supermarkets, TM supermarkets in Zimbabwe and Franklins in Australia*

2.6.5 Spar

Spar, a multinational Dutch company, started operations in the Netherlands in 1932 (Spar, 2003). Spar can best be described as a buying group. Spar retail is independently owned by retailers who have signed a voluntary trading agreement with Spar in the country of operation. Spar international is the umbrella buying and marketing organization. Supermarkets under Spar form one of the largest food retailers in the world with 17 500 stores in 32 different countries, employing 180 000 people throughout Europe, the Far East, Africa and South America. Spar International sales have reached US$ 25billion making it one of the largest retailers in the world (Spar, 2003).

Spar in South Africa started in the 1960s. Spar retail in South Africa and other African countries is independently owned by retailers who have signed a trade agreement with Spar South Africa. Spar South Africa operates six distribution centres that supply goods and services to 700 Spar stores in Africa (Spar, 2003). It operates three store formats: Spar (for neighbourhood shopping; floor space; any size from 700 m^2 to 4 000 m^2), Super Spar (one stop shopping; floor space; 1300 m^2) and Kwikspar (for everyday convenience; floor space; 300 m^2 to less than 700 m^2). The Spar group controls 26.9% of the market

share in retail in South Africa. It also operates in countries such as Botswana, Swaziland, Namibia, Zambia and Mozambique. Independent retailers who operate under Spar enjoy support from the mother company in South Africa such as obtaining goods at low prices due to the massive buying power of the Spar group, strong brands created by Spar, promotional activities ensuring that owners of Spar retail make profits. The retailers operating under Spar also obtain technical support, advanced information and logistics technology and management support from Spar South Africa.

2.6.6 Woolworths

Woolworths is a South African-based retail group founded in 1931 that operates locally and internationally through two subsidiaries, namely Woolworths (Propriety) Limited and Country Road Limited (Woolworths Holdings Ltd, 2006). It deals in products such as shoes, clothes, textiles, cosmetics and food. Woolworths has a turnover of R 14 billion ($2 billion) and employs 14 243 people in its stores (Woolworths Holdings Ltd, 2006). In Africa, Woolworths stores are found in South Africa, Botswana, Kenya, Lesotho, Mauritius, Namibia, Swaziland, Tanzania, Zambia and Zimbabwe. In most of these countries it operates franchises and it is mainly confined to the urban areas and caters for the upper income segments of the population and mostly sells private brands (own label products). The number of stores in each country in Africa is shown in Table 2.16.

Table 2.16: Woolworths stores in Africa

Country	Number of stores	% of total stores
South Africa	320	92.5
Botswana	11	3.2
Kenya	1	0.2
Lesotho	2	0.6
Mauritius	1	0.4
Namibia	4	1.2
Swaziland	3	0.9
Tanzania	1	0.2
Zambia	1	0.2
Zimbabwe	2	0.6
Total	346	100

Source: Woolworths Holdings Ltd (2007) NB includes food and non-food stores

Woolworths started retailing food in the mid-1990s in South Africa and some SADC countries such as Botswana and Namibia. An organic food range consisting of meat and dairy products was launched in 1999 and has since been expanded to fruit and vegetables and continues to expand. Foods are the largest growing product range in the own label portfolio. Currently, Woolworths offers 300 own label food products in its stores.

2.7 Retail sector supply chains

There are three main forms taken by players in the retail sector, these include buying groups, wholesalers and own labels.

Buying groups

Leading operator Massmart operates two major buying alliances, Shield and Furnex, alongside its wholesale network. Shield and Furnex both serve over 600 members and retail outlets. Buying alliances play an important part in South Africa and SADC, as there are still a large number of independent supermarkets and informal sector retailers such as corner shops, street vendors, hawkers and Spaza shops. Spar operates as a buying group as already described in section 2.7.5 supplying to independent retailers who operate under the Spar logo.

Wholesale

Wholesale outlets such as Metro Cash and Carry and specialised wholesalers play an important role in the South African market and SADC as a source of merchandise for the retail shops (independent supermarkets, informal retailers such as kiosks, small shops and spaza shops). Wholesalers play a major role in the procurement of grocery products, and fresh fruit and vegetables. Some supermarkets such as Shoprite have their own distribution wholesale network for the procurement of fruit and vegetables. Suppliers deliver mainly to wholesale or distribution centres where products from various suppliers are collected before being shipped out to chain stores or sold to independent retailers.

Own labels

All major South African retailers (Shoprite, Pick 'n Pay, Spar, Metro, Woolworths) have their own-label (private-label) products. Own-label products encompass all merchandise under a retailer's brand. The brand can be the retailer's own name or a name created exclusively by that retailer. In some cases, the retailer may belong to a wholesale group that owns the brands available only to members of the group (Berges-Sennou *et al*., 2004). It is the retailer who owns and controls the brand (traditionally it was the role of the producer), and different retailers do not sell identical private-label products unlike when they sell manufacturers brands. Own-label products are mainly sold under the company logo in the economy price range. Thus, the development of own-label products does not only alter the relationship between producers and retailers, but also affects competition between retailers because own labels become an additional way of differentiating between retailers. Woolworths is developing a more up market ready meal range in partnership with UK retailer Marks & Spencer.

2.8 Drivers of supermarket growth and diffusion in Africa and the SADC

In most developing countries changes in food retail systems have come about as a result of globalisation, trade liberalisation and foreign direct investment. In Africa rapid growth and diffusion of supermarkets is observed in east and southern Africa (Weatherspoon & Reardon, 2003). The growth and diffusion of supermarkets and other large-format stores in retailing food and non-food products in African countries and especially in SADC has been influenced by both demand and supply-side factors. Demand-side factors include population growth and urbanization, increased income and middle class and relative political stability. Supply-side factors include market liberalisation, foreign direct investment, and introduction of new technologies, competition and market-access conditions. These factors are discussed in more detail below:

2.8.1 Population growth and urbanisation

The world population, especially in developing countries, is in a phase of rapid urbanisation, a process projected to continue during the next two to three decades (United Nations, 2003). Most of the population growth in the world in the next 30 years is expected to be in urban areas. According to the World Urbanisation Prospectus

(United Nations, 2003), population growth will be particularly rapid in the urban areas of the developing countries, averaging about 2.3% per year during the period 2000-2030. Africa is also experiencing rapid urbanisation and a growing middle-income group in these countries' populations.

Southern African countries (Botswana, Lesotho, Namibia, South Africa, Zambia and Swaziland) have experienced increases in their total population and phenomenal urbanisation (Table 2.17). Approximately 52.4% of the population in these countries resided in urban areas in the year 2000 (United Nations, 2003). During this time, among these countries, South Africa had 55.5% of its population residing in urban areas and Botswana followed closely with 50.2%. Urbanisation in these southern African countries has developed rapidly and it is estimated that by the year 2030 about 70% of the South African and 65.7% of Botswana's population will reside in the urban areas. Generally, by the year 2030, 67% of the region's population will reside in the urban areas. Some countries in the SADC, such as Zambia and Malawi have not experienced such a great growth in its urban populations. Currently Zambia has about 40% and Malawi has about 33% of their populations residing in urban areas (United Nations, 2003).

The increasing urbanisation and incomes have led to a shift in the diet of consumers from staples to non-staples (fruit, vegetables, dairy products, meats and oils), according to Reardon and Barret (2000). Now urban consumers demand high quality, processed easy-to-cook food in order to save time, which is a scarce commodity among the working class in urban areas especially with the increased involvement of women in the labour force. Supermarkets and other large-format stores seem to have evolved to cater for the needs of the growing urban populations.

Table 2.17: Total population, urban population and urbanisation rates in SADC countries 1981-2003

Country	Year					
	1981			2003		
	Total Pop (million)	Urban population (million)	% Urban	Total pop (million)	Urban population (million)	% urban
SADC	132.1	36.5	27.7	228.4	84.7	37.1
Botswana	1.0	0.2	17.7	1.8	0.9	49.5
Namibia	0.8	0.2	29.1	2.0	0.6	32.5
South Africa	29.9	14.4	48.2	45.0	25.8	57.2
Zambia	6.2	2.5	40	10.8	3.8	40

Source: FAOSTAT (2004)

2.8.2 Globalisation, market and trade liberalisation policies

Globalisation and liberalisation policies (such as reduced tariffs and free trade arrangements) are major drivers of the changes observed in the agrofood systems in many parts of the world including the developing countries. Globalisation describes the recent impact of innovation in communications (such as internet, e-commerce) and transport systems (improved air freight) on trade and growing interdependence of countries due to economic sophistication, specialisation and increased output. These innovations have caused countries to reduce protection between blocks of trading countries and to adopt policies of liberalisation (Robbins & Ferris, 2002). Free trade regulations negotiated under the World Trade Organisation (WTO) and previously the General Agreement on Tariffs and Trade (GATT) have resulted in nations reducing barriers to trade and their prohibitive conditions for trade with other nations.

Globalisation and liberalisation among other factors have resulted in changing agrofood systems in SADC countries. Most countries in the SADC have undertaken some form of economic reform since 1991 to date. For example Zambia, Malawi, Botswana, South Africa and Namibia have liberalised their economies. Liberalisation and privatisation policies prescribed by the International Monetary Fund (IMF) and the World Bank, which have been implemented by these countries since the 1990s, have facilitated the involvement of the private sector in various sectors of the economy including agriculture.

For example, since 1991 the Zambian government has implemented economic and structural reforms to improve economic growth. Changes of policy from a controlled economy to a free market economy in the 1990s allowed many private firms to invest in the economy. The macroeconomic policy changes (such as freeing the exchange rate, monetary policy and fiscal policy) and changes in agricultural policies implemented by the Zambian government facilitated entry of the private sector into many sectors of the Zambian economy.

Under the policy reforms most economies have become more open. The process of trade liberalisation in South Africa started in the early 1990s and gathered momentum since South Africa became a signatory to the Marakech Agreement of the GATT in 1994. Since 1995, South Africa has significantly liberalised its economy through reform of the import regime and deregulation of the agricultural sector (Lewis, 2001). As a result of the ongoing process of trade liberalisation, the South African economy has opened up significantly. Other countries in the SADC, such as Zambia, Botswana, Malawi, and Namibia have also liberalised their economies facilitating imports and exports within the region and the rest of the world. For example, in Zambia under the Structural Adjustment Programme the government embarked on a radical programme of trade and industrial policy reform in 1992. All licensing and quantitative restrictions on imports and exports were eliminated. Tariffs were reduced and the tariff structure was simplified (University of Zambia, 2004). This meant that Zambian producers were exposed to competition from imported products from other countries.

With increased globalisation and trade liberation there has been concerted efforts for countries to integrate and form trading blocks in both developing and developed countries. For southern Africa, various countries have entered into partnerships to promote trade and other forms of co-operation. South Africa and the European Union (EU) negotiated a free trade agreement (FTA) in 1999. The EU also opened up its markets to poor developing countries including some SADC countries in 2001 under the "Everything but Arms" (EBA) initiative. SADC member states are pursuing an FTA since 2000 which should become operational by 2008-2015. A country such as Zambia is

a member of several trade blocks such as the common market for eastern and southern Africa (COMESA), SADC and the WTO. Zambia's trade with COMESA countries averages around 15% of total Zambian imports, about 7 to 9% originates from Zimbabwe. In the SADC region, the share of Zambia's imports from South Africa averages about 43% of Zambia's imports (Republic of Zambia, 2002). There has been an increase in cross-border trade between Zambia and its neighbours, especially in agricultural produce. Research carried out by COMESA (2001) on informal cross-border trade shows that approximately $60 million worth of agricultural produce was traded in the year ending 1998 without government records of these transactions (Haantuba, 2003).

Botswana, Lesotho, Swaziland, Namibia and South Africa are members of the Southern African Customs Union (SACU). SACU has been in existence since 1910. The agreement allows member countries privileges such as duty-free circulation of goods, grants transit rights across South Africa's territory and sharing of customs revenue according to laid-down policy. The SACU agreement was renegotiated in 2002 to cater for the needs of member countries in a changing world. Lesotho, Namibia and South Africa have also formed a common monetary area (CMA) signed in 1969. The integration of SADC countries into various groups is expected to accelerate economic growth through enlarged domestic markets, better competition and efficient use of resources.

Market and trade liberalization in SADC countries have facilitated FDI, which in turn has had a major impact on the growth and expansion of supermarkets into these countries as already discussed in section 1.3. A number of South African firms have adopted franchising as a means of investing and a business format for expansion into other African countries (Saunders, 2004). Franchising is a very popular form of investing. It is well developed in developed countries (US, Canada) but it is also becoming a popular means of investing by companies from developed countries into economies in transition and least-developed countries such as those of Latin America and Africa. It is linked to the current trend of globalisation of world trade. Co-operation with economies in transition or even those in developing countries in the form of franchising still represents

very interesting possibilities for foreign investors with a successful business concept (Randenković-Jocić, 2002). Franchising is a business technique that permits rapid and flexible penetration of markets, growth and capital development and is particularly effective in development of small and medium enterprises. Franchising may be defined as a contractual arrangement under which an entrepreneur or enterprise (the franchisor), who has developed a system for conducting a particular business, allows another entrepreneur or enterprises (the franchisee) to use that system in accordance with prescriptions of the franchisor, in exchange for a fee or other monetary consideration (WIPO Magazine, 2003).

South Africa as a leader in franchising in Africa, boasts an impressive record with 56% of its franchise concepts exported to African countries. Recent trends show that the three most favoured franchise sectors are: food services, retailing and entertainment and leisure, respectively. Franchising stimulates entrepreneurship; and its structured support system brings about skills development, job creation and the empowerment of its people as training the franchisee is part of the package (Saunders, 2004).

According to the Franchise Association of Southern Africa, the largest franchise sector in South Africa is fast food, representing 29% of the franchise industry. An example of a successful franchising operation is "Famous Brands," which has recently doubled its number of restaurant outlets from 562 to 1040. The Famous Brands franchise model includes a manufacturing facility that supplies bakery, butchery and sauce products to franchises including Steers and Wimpy's (hamburger restaurants), Church's Chicken, Debonairs Pizza, Brazilian Coffee and House of Coffees (Ntloedibe, 2004b). Franchising has also been used with tremendous success by various South African supermarkets such as Shoprite, Pick 'n Pay and Woolworths to expand in South Africa, SADC and other African countries. For example since 1994, the number of Pick' n Pay franchise stores have grown from 1 to 187 in 2003 (Table 2.15). This franchise format has been used to expand in Botswana, Namibia and domestically in South Africa in the former townships.

2.8.3 Information, communication and technological change

The agriculture sector in many developing countries has been undergoing change and among the core changes in the food supply chain of the 20th century are its integration, control systems and its increased productivity (Lang, 2003). Bio-technological advances have dramatically affected farm-input industries (e.g. seed and chemicals) and, increasingly, the distribution channels from farm to table. Advances in information technology, packaging, processing, storing and transport have greatly contributed to this revolution. Downstream improvements in transport, storage and packaging technologies have fashioned growth of capital-intensive agro-industries in wholesaling and retail sectors (Narayanan and Gulati, 2002).

As mentioned above, in the SADC multiple chain supermarkets, such as Shoprite, Pick 'n Pay, use their fresh-produce sourcing companies such as Freshmark (Shoprite) or special wholesale companies such as Freshco and distribution centres (Spar, Shoprite, Pick 'n Pay) to centrally source fresh produce and other merchandise from contracted farmers and/or suppliers. These products are then distributed to their stores in South Africa and other African countries. This is possible because of the improvement in technology, information systems and communication. Investments in cold storage facilities by these giant firms enable them to source produce (fruit, vegetables and dairy produce) from farmers and store and distribute them. This enables them to stagger the supply and provide all-year-round supply and maintain stable prices. This is beneficial for consumers as the supply of fresh produce can be availed throughout the year at affordable prices.

The use of information technology in sourcing and e-commerce has implications for the participation of small producers in the supply chain. Large retail companies such as Shoprite/Checkers are changing from the use of paper-based and verbal purchase orders to electronic delivery of all purchase orders to suppliers (Shoprite, 2003). This implies that processors and farmers have to invest in technology in order to access the supply chain and comply with set standards or be left out. Policies at both private and public level and improved institutional arrangements are required to make the system

operational for these groups and at the same time keep the new markets working efficiently in order to tackle developmental issues such as job creation and poverty alleviation.

2.8.4 Domestic policies

Most sub-Saharan African countries such as Zambia, Botswana, Kenya and Tanzania undertook economic reforms in the form of structural adjustment programmes as prescribed by the Bretton woods institutions (World Bank and IMF) in the early 1990s (Lewis, 2001). These policies involved privatisation of some services provided by government to private sector provision. Also involved in this privatisation and market liberalisation were the sale of loss-making government parastatals, removal of foreign exchange controls and favourable foreign direct investment policies to attract foreign capital. These changes opened up opportunities for private sector involvement in the economies of these countries (Lewis, 2001). Investments have been made in agriculture, manufacturing and food retail. The opening up of the economy created opportunities for multiple chain supermarkets from South Africa and other countries to invest in these countries. In some cases, the favourable conditions offered to foreign firms gave them an advantage over local firms as in the case of Shoprite Zambia.

2.9 Issues related to the expansion of South African supermarkets in SADC

As South African supermarkets expand in SADC and other African countries several issues of concern have been raised as discussed below.

2.9.1 Importance of South African foreign direct investment in Africa

Most governments in Africa have tried to improve their policies to make them more conducive to foreign investors in order to attract foreign direct investment (FDI) to their countries (University of Cape Town, 2000; Thomas, 2004). The share of Africa in global FDI is less than 2% even though there has been a general increasing trend in the flow of FDI. According to a survey by UNIDO (2003), European Union (EU) companies are the largest investors in Africa. They provide about 40% of the investments in the region. South African companies follow as the second most important group of investors in sub-Saharan Africa, both in terms of number of projects and amount of capital. South African

companies account for a third (33%) of all African investments. In total, three quarters (75%) of all foreign investments in the survey region originate from these two sources (UNIDO, 2003). Therefore, South African foreign direct investment into Africa could contribute to the much-needed capital to increase economic growth in the region as already discussed in section 1.3

South African supermarkets are expanding and making a contribution to FDI activities in SADC and other regions of Africa. This expansion is seen as offering tremendous opportunity to suppliers (farmers and food processors) in host countries to increase their output and income, as supermarkets offer a ready market for domestically produced products. But the major issue has been their sourcing strategies, which may exclude local producers, especially small-scale farmers and processors.

2.9.2 Potential exclusion of small producers/processors

These issues relate to high transaction costs that make it difficult for supermarkets to do business with small-scale farmers and small processors. The rapidly changing procurement systems of supermarkets may contribute to further marginalisation of producers.

2.9.3 Rapid change of supermarkets' procurement systems

Another issue that is closely related to the potential exclusion of small-scale farmers and processors from the supply chain is the rapid rate of change of the procurement systems of supermarkets. Supermarkets tend to consolidate and change their procurement systems very rapidly as shown in Figure 2.4. This phenomenon has been observed in Latin America and Central America (Berdegué *et al*., 2004) and in the emerging economies of central and Eastern Europe (Dries *et al*., 2004) and in Africa for the major South African supermarkets (Survey results, 2004). Shoprite completed its centralisation of its FFV supply chain in Zambia in 2005. In this model, when supermarkets start operating in a region, they may have decentralised procurement strategies that may allow sourcing from individual producers and the wholesale markets. But as supermarkets increase their market share, they consolidate their procurement and may begin to use specialised wholesalers and preferred suppliers. The key objectives of procurement

officers/supermarket managers in their procurement practices in the region may be to increase market share vis-à-vis other supermarkets and vis-à-vis traditional food retailers (hawkers, food vendors and wet markets).

The supermarkets achieve this objective by:

- Lowering purchase costs
- Lowering transaction costs
- Maintaining consistency of supply
- Ever-increasing volume of supply
- Raising quality and differentiating products (brand making).

As the supermarkets adopt new procurement systems, it might be easier for small-scale farmers and processors to be included in the supply chain of supermarkets than to remain on the supplier list of these emerging markets. This could be as a result of rapidly changing procurement systems, for example, changing from decentralised to centralised with associated grades and standards. These changes can take as little as six months making it very difficult for small-scale producers and processors to cope with the changes and hence they may end up being dropped from the list as suppliers. As supermarkets move from decentralised to centralised procurement systems, there is a need for increasing technological, managerial, organisational and financial changes that small-scale farmers and processors need to implement in order to be included and/or remain on the procurement systems of supermarkets. As markets mature, supermarkets tend to move towards centralised procurement with increased use of private grades and standards as well as use of contracts with suppliers. These practices may further increase the cost of doing business for the small producers and processors resulting in many of them falling off the supply chain of supermarkets.

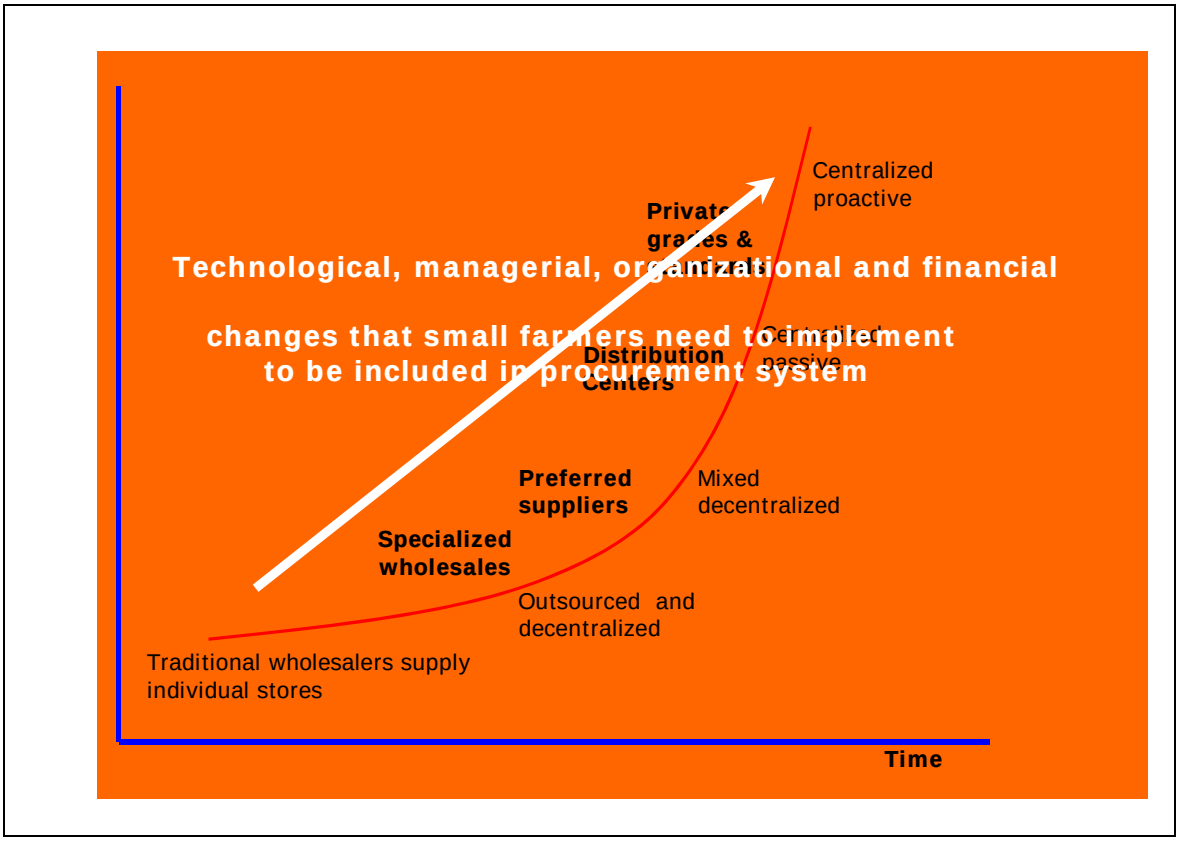

Figure 2.4: Evolution of procurement systems
Source: Berdegué et al. (2004)

Most supermarkets in the SADC are probably in mixed stages of procurement development. Some supermarkets such as Shoprite, Pick 'n Pay, Spar and some domestic chain supermarkets are already using central distribution centres to source and procure products for their stores. As this happens, there are increased consolidation and concentration in the retail sector with increased inability of small-scale producers and processors in accessing these markets. This also results in complex relationships between farmers, processors and retailers that may necessitate formulation of policy and other interventions to facilitate fair trade.

2.10 Trade impacts of supermarkets in SADC

The expansion of South African supermarkets into SADC may both create trade and in some cases divert trade. The presence of multinational retailers is likely to lead to increased trade in food products. The quest for year round supply of fresh products has

encouraged joint-venture partnerships and strategic alliances among firms in the northern and southern hemispheres thereby increasing trade in these products (Regmi & Gehlhar, 2005). South African supermarkets in SADC countries have been importing fresh products such as fruit to their stores in other African countries to meet the deficit in production, which implies the procurement activities of South African chain supermarkets have created trade in these products in the region. Alliances between retail firms and producers can open export opportunities for both small-scale and large-scale farmers and manufacturers. For example Namib Mills in Namibia was able to export its flour products to Angola through Shoprite[11]. Lack of domestic supply that meets the demand of supermarkets may bring in imports to meet the void. Later on, as these supermarkets develop their supply chains, the organization of production and distribution on regional rather than on a national level may increase cross-border trade leading to trade creation. Imports of food products into newly established foreign supermarkets have been a feature of transition until a local supply base is built (Vorley *et al*., 2007). Centralised procurement encourages international trade and provides opportunities for producers' especially small-scale producers in their respective groups to grow and achieve scale economies, depending on where the global sourcing is located (Vorley *et al*., 2007).

The presence of multinational supermarkets in a country may also encourage food manufacturers to expand their manufacturing units into the region by assuring steady markets. For example Foodcorp from South Africa has invested in Zambia to process fresh fruit and vegetables into processed products such as tomato sauce and so on. The establishment of the processing plant in Zambia will lead to reduced imports of these products. Bokomo, a South African company involved in milling grain products, invested in Botswana in 2004 and has started producing for the Botswana market. This investment will reduce trade (divert trade) in these products from South Africa and the world as supermarkets in Botswana source from the local processing company.

[11] Van Graan, K., Managing Director, Namib Mills (Pty) Ltd, Namibia. Personal communication 25 April 2004

The use of private labels (own labels), especially when the purpose is to guarantee quality is often accompanied by strict control of suppliers of raw materials and can as a result inhibit trade. The use of own labels by South African supermarkets is increasing. The increasing use of own labels can have a negative impact on food trade, that is reduce imports and thus trade. The certification of quality assurance requires adhering to national and retail private standards, therefore the use of local materials to ensure quality may inhibit trade i.e. reduce imports.

Trade rules or policies may, inhibit (divert) trade. The supermarkets' decision whether to source locally or import products is influenced by the rules (policies) governing trade in these products internationally as well as locally. Trade policies that ban imports in certain products, or impose tariffs or quotas may divert trade in these products as supermarkets use local producers.

2.11 Summary

Supermarkets' growth and expansion is occurring rapidly in developing countries and is commanding a large share of the food-retail market in these countries. In Africa, supermarkets have been in existence in South Africa from as early as the 1950s, which implies that supermarkets are not a new occurrence in southern Africa. The initial growth and expansion of supermarkets has been gradual over time. However, in the last 15 years there has been a marked rapid growth and expansion of supermarkets in South Africa.

The major supermarkets have grown rapidly and increased their market share by buying out the smaller supermarkets, franchising and forming partnerships with other retail companies both in South Africa and other African countries. South African multinational chain supermarkets have spearheaded the current expansion into SADC and other African countries. The major chain supermarkets from South Africa have moved into and invested in the SADC and Africa since 1994 when South Africa changed from apartheid to democratic rule. Since 1994, major South African supermarket chains (Shoprite, Pick 'n Pay, Spar and Woolworths) have a presence in one or more African countries. In individual countries, there were local multiple chain and independent supermarkets

involved in food retailing. Supermarkets (both local and multinational) handled large quantities of food especially in urban areas. The proportion of food sales to total sales in most supermarkets was about 90% for Spar and Pick 'n Pay and varied between 62 to 90% for Shoprite in Zambia, Botswana and Namibia.

In Africa, supermarkets are important as markets for farmers and processors products but there is the problem of potential exclusion of small-scale farmers and processors. Due to the fact that African countries depend on agriculture as the backbone of their economies and small farmers are the majority, exclusion of these farmers is a real threat to livelihoods, poverty alleviation and more so to rural development in general. The major issues of concern are the strategies used by supermarkets in sourcing and procurement of products. These may have a negative impact on small farmers and small processing firms by excluding them. The sourcing and procurement practices may lead to stifling of agriculture and industry if centralised procurement systems rely on imports instead of purchasing from local producers. Various mechanisms such as contracting, farmers groups and government intervention by setting efficient regulatory institutions could help in reducing transaction costs making it possible for small farmers to participate in the supermarkets' supply chains.

CHAPTER 3

A CONCEPTUAL AND THEORETICAL FRAMEWORK

3.1 Introduction

This chapter presents the conceptual framework that will be used to analyse the sourcing and procurement practices of supermarkets and their impact in the case study countries. As postulated in chapter 1, the impact of supermarkets in the SADC or Africa may largely follow from their sourcing and procurement practices and policies. Where and from whom the supermarkets purchase their merchandise will impact on local production at firm level, which in turn may impact on the growth of the agricultural, food manufacturing/processing and other sectors of the economy. The procurement decisions and practices of supermarkets are complex in nature and may be influenced by many factors, both economic (reducing transaction costs and increasing efficiency in the supply chain) and non-economic factors (forming relationships of trust with suppliers).

This chapter is organised as follows: section 3.2 sets forth a conceptual model explaining the sourcing and procurement decisions and practices of supermarkets in the SADC and other African countries. In section 3.3, conceptual models showing how the sourcing and procurement practices of supermarkets may lead to the observed impacts on firms are elaborated on. Section 3.4 compiles the perceived/measurable impacts of supermarkets in SADC. Section 3.5 gives the theoretical models for the determinants of farmers' choice of marketing channel and the supermarkets choice of procurement system. Section 3.6 gives a summary of the issues discussed in this chapter.

3.2 Conceptual framework for analysing procurement practices of supermarkets

The decisions made by supermarkets to procure products locally or internationally are determined by three sets of factors. The first set of factors operates outside the supermarket in what is usually referred to as environmental factors (macroeconomic conditions, government regulations, competition and so on). The second set of factors is internal to the supermarket, usually referred to as organisational factors (objectives,

policies, procedures, organisational structure and systems of supermarkets). The third set of factors is those operating at farmer and processor level (assets or resource base of the farmer and processor). These factors interact to determine the capability of the farmer or processor to access and supply to supermarkets (inclusion or exclusion on the supermarkets' supply chains), which may result in certain impacts at household, firm and sector level (Figure 3.1).

Supermarkets purchase goods for resale, and goods and services for conducting their operations. Supermarkets have to decide what product assortment to carry, what vendors to buy from and what prices and terms to negotiate with their suppliers (Kotler, 1984). The sourcing and procurement decisions of supermarkets would be motivated by efficiency and profit maximisation criteria taking into consideration environmental and organisational factors with the aim of satisfying the needs and wants of their customers. To keep abreast with changing retail systems, supermarkets continuously innovate so that they remain competitive and create a competitive advantage for themselves in the market place. To position the supermarket in the retail market requires continuous innovation changes (technological, managerial and organisational), which supermarkets need to undertake to remain competitive (Reardon *et al*., 2004a). Therefore, South African supermarkets investing in other SADC countries are going to carry out their business just like any other reseller-buyers anywhere in the world. Owing to the above reasons, the model presented in Figure 3.1 captures what might be the determinants of the sourcing and procurement decisions of supermarkets in the SADC. These factors are further discussed below.

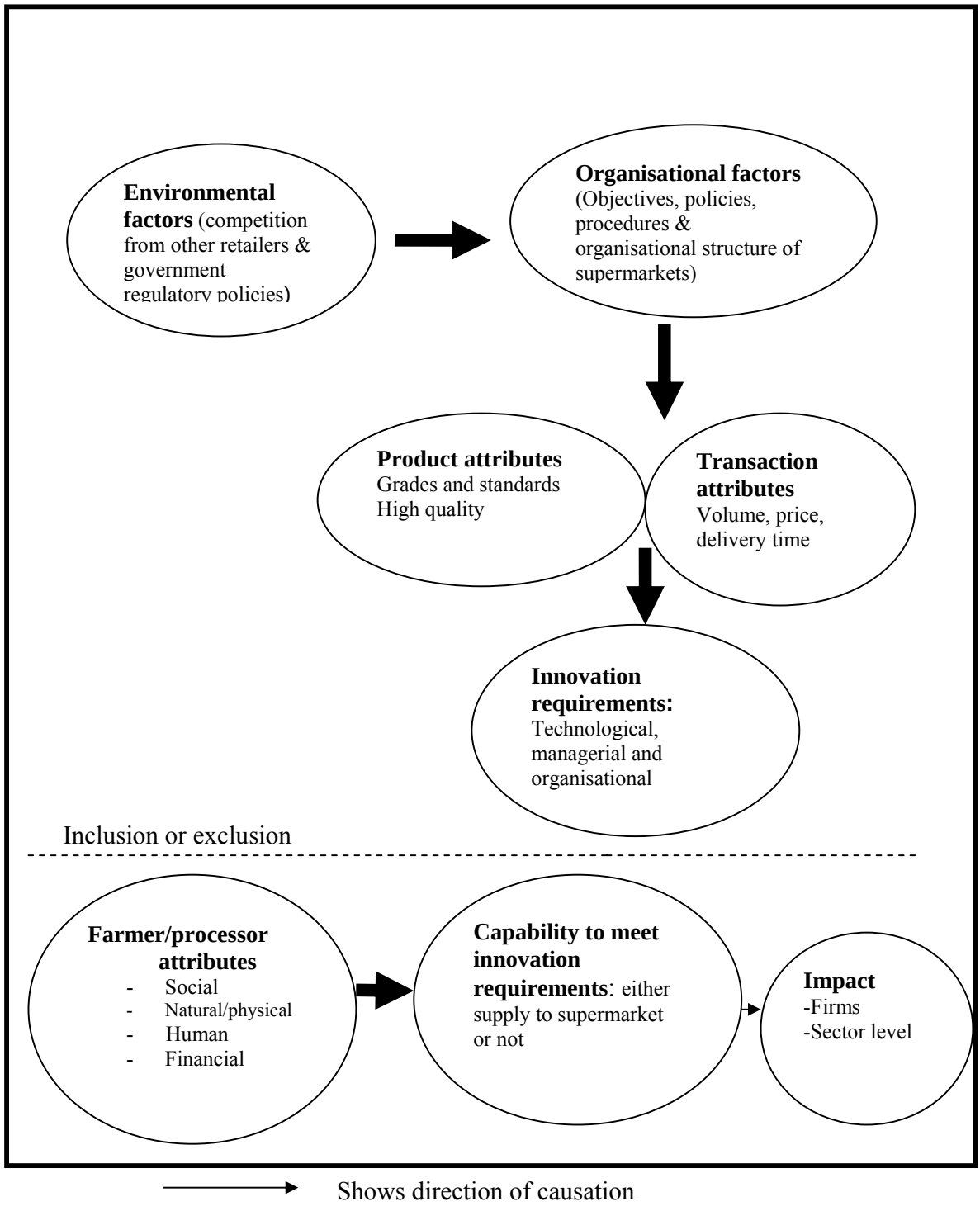

Figure 3.1: Conceptual model explaining supermarkets' procurement decision
Adapted from: Kotler, (1984), and Reardon *et al*., (2004b)

3.2.1 Environmental and policy factors

The first group of these factors relate to the environmental and policy situation facing the supermarket as a business. These are factors external to the supermarket. Though supermarkets lack control over these factors, supermarket managers may engage in activities to lessen the effect on their operations. These factors include level of demand and supply, economic outlook, competition from other retailers and political and regulatory policies. For example, the nature of competition in the retail industry may determine how supermarkets craft strategies to position them to compete. The sourcing and procurement strategies have to be aligned with the corporate strategies of the supermarket and must also be efficient compared to competitors.

To some extent the way supermarkets source and procure goods and services in a given country may be influenced by the government's regulatory policies. For example, in Botswana, Namibia and Zambia these governments have put in place trade policies that encourage supermarkets to source locally those products that are produced locally instead of importing. For the case of milled grain products such as maize flour and wheat flour, policies to prohibit importation are in operation in Zambia and Namibia, whereas in Botswana, government regulation requires that 50% of these products be sourced from local companies. For FFV, individual countries enforce regulations aimed at ensuring that supermarkets source and procure from local producers. For example, in Namibia, supermarkets are required to source 5% of their FFV from local producers. This quota is set to increase to 7.5% and then finally to 12.5% in the next two to three years. In Botswana, in an effort to promote local production, a farmer can apply to the ministry of agriculture for the closure of the border so that a certain product, for example cabbage is not allowed into Botswana to allow the local farmers to sell their produce. When the produce from the local farmers is exhausted then the border reopens to imports. As a result of these regulations, supermarkets have been encouraged to develop FFV supply chains that include local producers. Currently though, supermarkets tend to buy from large to medium industries, leading to further marginalisation of small farmers and processors in the region.

Another environmental factor that may influence the procurement decisions of supermarkets is the level of competition in the food retail industry. According to the structure, conduct and performance (S-C-P) model of industrial organisation literature, the number of firms (structure) and level of concentration (conduct) will influence competition. Supermarkets compete against each other and against other smaller retailers such as street vendors. Fresh produce wholesale markets (such as the Johannesburg Fresh Produce Market or Soweto Market in Zambia) do not exist or are not in operation yet in Botswana and Namibia. In Botswana and Namibia, most of the FFV is imported from South Africa owing to harsh environmental conditions that are not favourable for the production of these crops. For countries such as Zambia, there is high potential in the production of FFV locally. Currently, most fresh vegetables sold in supermarkets are now sourced locally from Zambian producers.

From the foregoing discussion, it is clear that competition in the food-retail market, state regulatory policies as well as agricultural resource base play a substantial role in influencing the sourcing and procurement behaviour and practices of supermarkets. The supply chains that are formed have implications for the development of agriculture and food manufacturing in these countries. This is because governments have a role to play in assisting in the development of viable institutions that facilitate trade, ensuring the development of efficient food-supply chains that are favourable to all participants.

3.2.2 Organisational factors

These factors are internal to the supermarkets. These organisational factors include: the objectives, procurement policies, organisational structure and systems of supermarkets. For supermarkets to compete, they have to create unique brands by imposing certain product attributes (grades and standards; quality) and transaction attributes (volume and consistency of supply, price and delivery time). All these factors translate into innovation requirements (technological, managerial and organisational) at the level of the supermarkets as well as the farm and processor level.

Supermarkets operate in highly competitive retail environments. Apart from meeting their goals and objectives such as profit maximisation and increasing their market share, supermarkets have to take into account the strategies of competitors. Supermarkets desire to satisfy the needs and wants of their customers by ensuring that the right range of products are delivered to their stores on time and at prices that help them to remain competitive. To achieve these objectives, supermarkets have invested in efficient and cost-effective replenishment and support systems. The major reasons for developing efficient supply chain management systems are to reduce transaction costs. The goals and objectives of supermarkets are embodied in the corporate strategies of these firms, and these dictate the type of sourcing and procurement systems that are formed.

Product attributes: Product attributes are usually managed and guided by grades and standards (G&S) which are implemented either by public authorities or by private companies themselves. Increasing the use of grades and standards by supermarkets has implications for the participation of small-scale producers in the supply chain, as these grades and standards increase in complexity. The grades also increase the cost of production, which ideally should be passed on to consumers (Freidberg, 2003), but are often not due to the bargaining power of the large retailers. Closely associated with grades and standards is the need to maintain a high quality of products on supermarket shelves. The quality and consistency requirements by the supermarkets will also impact on a greater need for improved management on the part of small-scale farmers and processors, which if not met may result in most of them being excluded from supplying to supermarkets.

This is also true in the SADC context, especially where large supermarkets are setting private quality standards to which their local and foreign suppliers and outlets must adhere. In Zambia, Freshmark sets its own private standards that all FFV suppliers (small and large farmers) must comply with. Standards and grades for tomatoes include specifications on the size of the tomato, its colour (champagne colour), barcode and taste (no foreign taints, odours or flavour). Small-scale farmers find it difficult to comply with the supermarket grades and standards (Weatherspoon & Reardon, 2003). This implies

that the private grades and standards may act as barriers to entry into the supermarket because grades and standards can be both subjective and objective. If the specifications are not met farmers' produce can be rejected. Most supermarkets and their sourcing companies in SADC countries have a policy not to get involved in farming practices and management (apart from providing the specifications of the product) on the farms and rely on partnerships with other organisations to ensure that a good product is produced.

The large-scale farms are usually independent and have their in-house experts to assist the farm to meet the supermarket specifications. Large chain supermarkets such as Shoprite and Pick 'n Pay find it more cost-effective to procure from established farmers who already export produce to international markets. By sourcing from these large farms, supermarkets ensure that the products they sell meet local and international standards. The grades and standards are therefore an important gateway to the formal agrofood system but most small-scale producers are ill equipped to meet these standards and thus tend to be excluded.

Transaction attributes: These include volume and consistency of supply, price and delivery times. The impact of the changing market structure and the growth of supermarkets on small-scale farmers and processors will be on the ability to meet the requirements of large volumes for long periods of the year (Chen *et al*., 2005; Berdegué *et al*., 2004).

3.2.3 Farmer/processor factors

Apart from environmental and supermarket factors, there are factors at the firm level that contribute and influence the ability of the farmer or processor to produce and supply to the supermarkets. Assets or the resource base of the farmer is critical in enhancing the ability of the farmer to produce for the supermarket. These assets include social (e.g. social capital), natural/physical resources such as land, and human assets such as the education level of the producer and experience (number of years in producing certain products). For farmers to access and sell produce to the supermarkets it has been shown that basic assets such as land and irrigation systems are required; to have a continuous

supply of the horticultural crops that are sold in supermarkets. Farmers with capability to meet the volumes required by supermarkets or farmers may need to be organized into groups to attain the volumes required by supermarkets in order to be able to supply to supermarkets. This will require investments in production and post-harvest technology such as irrigation and cold storage. To produce a continuous supply of FFV, investment in irrigation infrastructure is needed by farmers. The need for irrigation is one of the reasons why the production of horticultural products such as potato, spinach, and tomatoes is concentrated at the large-farm level. Apart from irrigation, other constraints may hinder small-scale producers expanding FFV production such as lack of planting seeds and the high cost of seed. Currently, not enough seeds, planting materials, and production technologies are readily available in Zambia, Botswana and Namibia.

In the case of processors, ownership of a well-developed transport and logistic systems is necessary to be able to deliver products to various stores of a supermarket in a given country. Financial resources may also play an important role in as much as it may help producers to purchase inputs needed in the production process. In the case of processors financial capability may allow them to supply and receive payments in 30 or 60 days, which may be a constraint for small-scale processors who do not have financial capability. Therefore, producers with few assets have less chance of accessing supermarkets because they have no capability of producing the large volumes and high quality products demanded by these markets

3.3 Constructs on how the impact of supermarkets in host countries may occur

The impacts resulting from supermarkets' activities on the host nation's agriculture, food manufacturing and processing sectors are complex in that some are direct and observable while others are indirect and may affect the whole economy. These impacts may occur as a result of the decisions made by supermarkets to source and procure from local suppliers in the host nations or import from South Africa or other countries of the world. Assuming that these impacts depend solely on the procurement decisions made by supermarkets, the impacts will be felt at producer level, consumer level and industry level (Figure 3.2).

3.3.1 Impacts when supermarkets source from South Africa

If supermarkets decide to import most of the merchandise from South Africa or the rest of the world, this could result in both positive and negative impacts in the host countries.

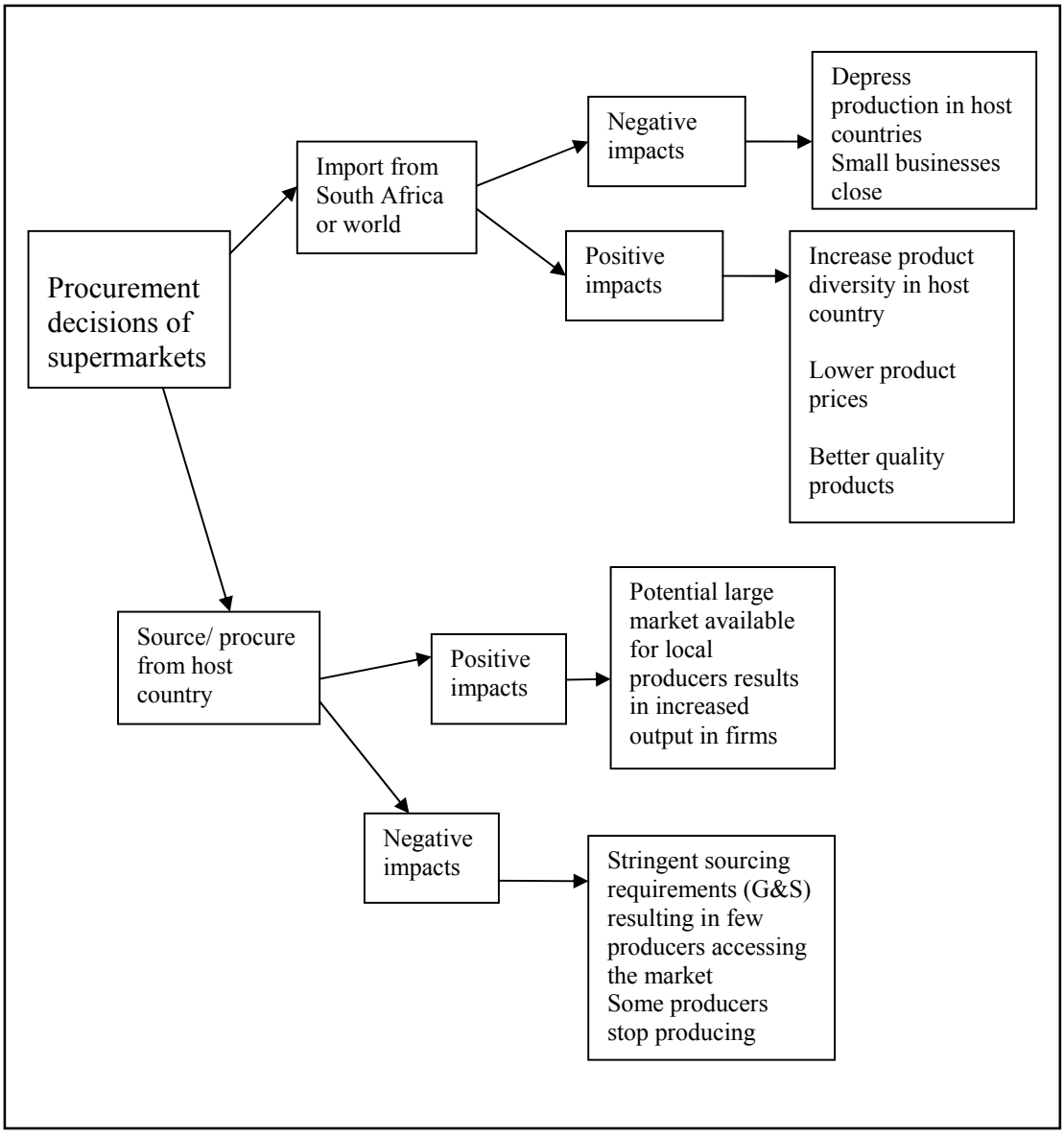

Figure 3.2: Conceptual model of impact of South African supermarkets in SADC countries

Positive impacts when supermarkets import from South Africa

Positive impacts may accrue to consumers who may be able to access goods and services efficiently procured and sold by supermarkets. Consumers may benefit from supermarket trade through convenient one-stop shopping, lower food prices and in some cases availability of exotic products (not produced in host countries) imported from other countries. Therefore, supermarkets increase the choice of products available to consumers. Consumers may also benefit by accessing high quality imported goods from South Africa and the rest of the world. It has been documented that the impact of supermarkets on consumers can be positive (Cooper, 2002; Dolan & Humphrey, 2000; D'Hease & Van Huylenbroeck, 2005).

Negative impacts when supermarkets import from South Africa and rest of the world

When supermarkets develop import-based supply chains in host countries it may result in depressed production as locally produced goods have to compete with high quality, low-cost goods produced in South Africa and the rest of the world. Increased production will be stimulated in exporting countries whereas output in host nations may decline. Owing to stiff competition from imports some domestic firms that are not able to compete may go out of production leading to stifling of various industries such as agriculture and manufacturing.

3.3.2 Impact when supermarkets procure from host countries

The impacts on producers might be either positive or negative depending on whether local producers manage to access and sell their products to supermarkets. In dualistic economies where there are both small-scale and large-scale producers, large-scale producers may be positively impacted upon because these producers may be able to access supermarkets' supply chains. Large-scale farmers and processors have in-house mechanisms and specialists that help them to meet the required grades and standards demanded by international and domestic supermarkets but because of supermarkets dominance the terms of trade may not be favourable.

Positive impacts when supermarkets source from local producers

Supermarkets' activities in the host nations may result in positive impacts on producers and the economy if the right incentives and contracting systems exist that facilitate the participation of local producers in the supply chain of supermarkets. In an ideal set-up where the right conditions prevail, FDI by supermarkets may result in favourable outcomes such as higher productivity, high household incomes and improvement in welfare of rural households by reducing poverty.

The changes that are occurring now, or will occur in the future, in the agrofood systems of SADC and African countries will depend on the environmental and policy conditions in individual countries. Multinational supermarkets' entrance into a country may stimulate the development of modern marketing systems (better and efficient distribution systems, better efficiency in using resources already available), which in turn may stimulate economic development (Drucker, 1958; Hagen, 2003). This may happen as supermarkets' FDI into a country bring better technologies and innovations, which may be copied or adopted by local supermarkets and other food retailers or if supermarkets assist farmers to acquire new technologies that help improve production. The requirements of all supermarkets in terms of high quality including use of private grades and standards in the supermarket supply chain, may stimulate use of better production methods and inputs (increased use of fertilisers, pesticides and high quality raw materials) which may lead to higher productivity. Adoption of better production methods may be accompanied by improvements in management requirements on the part of producers. To better the skills of producers, training may be necessary. Adoption of new methods of production may need availability of funds which implies that domestic credit systems have to be working well for producers to access funding for their projects.

Productivity at firm level may increase as local farmers and processors access the supermarkets and market their products. In a more favourable scenario, where supermarkets' involvement in these countries find favourable policy conditions that enhance supermarkets' procurement from local producers it may lead to increased

productivity at the firm level. Higher productivity at the firm level might have positive impacts through higher incomes. As producers for example, farmers obtaining higher income may be able to access information and adopt better technologies facilitating better management of natural resources (Minten *et al*., 2005). The final outcome of these activities may probably lead to sustainable development (long-term improvement in the quality of life) as specified in the millennium development goals.

For the above outcomes to happen, the right enabling conditions must be available or developed by supermarkets in a given country. These conditions include better technologies (production inputs, marketing services) that must be available to all producers. The regulatory legislation and policies that facilitate fair trade are also necessary. Legislation and policies that regulate the conduct of supermarkets and other stakeholders in the food markets are vital if the gains from supermarket expansion are to be realised by local communities. The regulatory legislation and policies must not stand in the way of the development of efficient food supply chains in the region but rather facilitate efficiency in the agrofood systems. Regulatory policies (for example trade protection policy) may be useful in protecting infant industries against unfair competition from cheap imports, and may encourage supermarkets to source and procure locally, facilitating the development of efficient supply chains in individual countries in the region. Also urgently needed are legislation and policies that regulate oligopolies and competition in the food-retail market to ensure that small retailers are not destroyed by unfair competition from the large retail supermarkets.

Apart from the development of regulatory policies and other institutions that facilitate participation in the supermarket supply chain by local producers, there is a need to develop new and to upgrade existing wholesale and retail markets in host countries. Owing to the fact that some small-scale farmers and processors may not be able to access the supermarket supply chain, the development of alternative retail food markets is vital. As production at the firm level improves, supermarkets may not be able to absorb all the produce necessitating the development of alternative markets. The availability of

alternative markets may open up opportunities for more local producers to access markets and hence improve their incomes.

Negative impacts when supermarkets source in host countries

For the positive impacts to be realised in any developing country the right conditions need to be in place in the host country. But so far evidence from other developing countries, for example in Latin America (Reardon *et al*., 2002), Africa (Weatherspoon & Reardon, 2003) and east Asia (Manalili, 2004), have shown that these conditions are non-existent in most developing countries. Currently what has been reported are the negative impacts of supermarkets on small producers in developing countries making these issues a hot debate among professionals and non-professionals alike involved in the development process.

Supermarket activities in SADC and other African countries may result in negative impacts if the conditions that are required to regulate and/or facilitate fair trading are weak or lacking. For example, if legislation and regulatory policies are unfavourable (biased towards imports or FDI policies that grant the investing supermarkets unrealistic concessions) giving them an advantage over local companies, it may result in unfair competition. The inability of local firms to compete may lead to the closure of small and medium businesses, traditional wholesale and retail food markets in these countries. Many African and SADC governments have implemented policy reforms (such as privatisation) in a bid to attract FDI. Some of these policies have been carried out in an environment of weak institutions (lack of legislative and regulatory policies) to control monopolies and oligopolies and other forms of imperfect competition in the food markets. These developments may have set an impetus for supermarkets to develop their supply chains based on imports. This state of affairs may have led to the exclusion of local producers who were forced to completely exit from agriculture as well as the closure of small to medium manufacturing firms with the accompanying loss of livelihoods.

Another avenue through which supermarkets' FDI may result in negative impacts on local producers is when alternative food channels are poorly developed or lacking altogether. The lack or poor development of alternative food markets may further exacerbate the problem of exclusion of local producers. The traditional wholesale and retail food markets are an important entry point especially for small producers as these markets are more accessible to small poor producers compared to supermarkets (Emongor *et al*., 2004). Entry by traders in the traditional (spot) markets such as street trading is much easier. Studies carried in African cities show that these markets face various constraints such as drastic seasonal price variations and problems of co-ordination of product flows among others. For example, at the Soweto market in Zambia prices fall or rise dramatically during wet and dry months. This is because most small-scale farmers produce under rainfed conditions resulting in horticultural crops maturing at the same time (Emongor *et al*., 2004).

Stringent sourcing and procurement policies and practices of supermarkets may also result in exclusion of local producers. The use of private grades and standards may lock out most small producers in host countries who fail to meet the quality requirements. In addition, the transactional requirements of supermarkets such as high volume of consistently high quality products throughout the year may further make it impractical for small producers to access the supermarkets. Owing to these sourcing and procurement requirements, only a certain group of producers are able to access and sell to supermarkets. The unequal access to supermarkets by producers implies that a certain group of large or well-capitalised small-scale producers access the markets leading to increased income for these producers and low income for those who are not able to access the supermarkets. This may further exacerbate the already skewed distribution of income in these countries. Because most small producers have a low income, these producers may not be in a position to afford to use modern inputs for production and because most of them cannot access the markets there will be a tendency towards increased production for subsistence. The fact that people are engaged in production for subsistence may lead to low output in the agriculture and food-manufacturing/processing sectors. Low production in agriculture may lead to lack of materials for the processing

industries in these countries. This may result in a vicious cycle of non-development of local processing firms to produce the products that are imported.

Various impacts on people in the host country may include low income for those who do not have access to the supermarkets. Owing to low income, most farmers may produce low output using family labour implying that there would be no job creation in the rural areas. Low income and lack of employment on farms may lead to displacement of labour from farms, which might migrate to the urban areas. The increased migration of people into urban areas in search of better living conditions could be a blessing if there were factories ready to absorb the excess labour. Unfortunately, this is not the case in most SADC countries, which have very few industries resulting in massive unemployment in these countries. For example, Botswana has an unemployment rate of 20% (Republic of Botswana, 2003), Zambia over 20% (Republic of Zambia, 2002) and Namibia over 20% (Republic of Namibia, 2002). Lack of employment in rural and urban areas may lead to increased poverty in both rural and urban areas. The increased number of able-bodied people not able to provide their own basic needs may turn to illegal means of survival resulting in escalating crime and social unrest.

In this scenario, the long-term impacts of supermarket activities on producers in other African countries may be that the rich get richer, the poor get poorer, and natural resources become degraded as farmers produce for subsistence without using modern inputs. As the poor get poorer and the rich get richer, social unrest may become the norm. For example, when Shoprite moved to Chipata in Zambia, local farmers felt threatened and wanted to burn the store because they felt that Shoprite was taking their market[12]. But as steps were taken to include small farmers in the supply chain of Shoprite, this social unrest was dealt with and farmers are not overly threatened anymore.

Another negative impact would be unsustainable food supply in the country in that the rural poor producing under traditional systems with little income become prone to hunger

[12] Jere, G., Crops Officer. Chipata, Ministry of Agriculture and Cooperatives, Zambia. Personal communication 25 July 2005

and famine outbreaks. As small producers lack markets and exit from farming and food manufacturing and processing, less food would be produced locally. This implies that rural households may also begin to depend on the modern sector (supermarkets and other large-format stores) for their food supply. If this happens, rural households would be exposed to unsustainable food supply systems that depend on having cash which is scarce in these households as they are already producing for subsistence. In an effort to combat poverty, most governments would have to supplement the income of poor households by offering social grants (South Africa and Botswana are running such programmes). This obviously would lead to food insecurity in rural households and this would translate into the inability of governments to meet the millennium development goals. Currently, many households in the SADC suffer from food insecurity (SADC, 2003). The causes of this are varied and the link to supermarkets and food retailing cannot be easily proved.

3.4 Perceived and/or measurable impacts of supermarkets in SADC countries

Combining the three constructs, the impacts of supermarkets at firm and sector level can be as shown in Table 3.1. The impacts of supermarkets on agriculture and manufacturing were examined using both qualitative and quantitative methods of analysis. In this study, an estimation of the impact on firms (farmers and processors) was examined by studying the effect of supermarkets on the supply chain of selected products (FFV, dairy and processed food products).

Table 3.1: Summary of quantifiable supermarket impacts

Supermarkets source locally	Supermarkets source from South Africa
Positive impacts **Higher productivity at firm and sector level** • Increased output and income • Number of workers on farms and processing factories increases • Goods of better quality manufactured locally to meet demand by supermarkets • Increases in number of manufacturing/processing firms • Improvement in welfare of households • Increased economic growth (agriculture and manufacturing sectors)	**Positive impacts** • Increase availability of cheaper products through increased trade • Increase diversity • New products (processed) first sourced from South Africa and then local firms begin to produce them for supermarkets • Better quality goods imported • Revolution of retailing by forcing other stores to modernise, adopt better methods of pricing, inventory control, training and window displays • Supermarkets employ people • Governments receive tax revenues • Increase competition and efficiency
Negative impacts **Exclusion of small-scale firms from supermarket supply chain** • Inability to meet G&S • Small-scale production constraints (not able to meet all-year supply requirements) • Lack of markets to sell produce due to inability to negotiate contracts with supermarkets	**Negative impacts** • Displacement of other stores • Loss of employment for workers when other stores, processors and farms close

3.5 Theoretical models to estimate the impact of supermarkets on farmers, the agriculture and manufacturing industry in the SADC

In this section, the model to estimate the determinants of farmers' participation in the supermarket FFV supply chain and the impact on farmers' income in SADC countries is described. The model to explain the determinants of supermarkets' choice of procurement system is also presented.

3.5.1 A model to estimate the determinants of farmers' choice of marketing channels and the resultant impact on farmers' income

Factors faced by supermarkets in the retail market influence how and from whom supermarkets may procure (Figure 3.1). The environmental and organisational factors translate into product (grades and standards, quality) and transactional attributes (price, volume, delivery time) that make up innovation requirements (technological, managerial and organisational) that may influence the choice of a given channel (whether to supply to the supermarket or not) by suppliers (small-scale farmers). The choice of the channel (supermarket or traditional markets) is a function of the set of incentives (embodied in the product and transactional attributes determined by the supermarket). In a liberalised economy, farmers and processors are free to make a choice of the channel in order to maximise utility or profits.

This study is interested in determining the factors that influence the choice of farmers to participate in the supermarket channel and what impact the participation in the supermarket channel has on income. The choice is conditional in that some are able to access while others are excluded because of supermarkets' sourcing/procurement requirements resulting in sample being censored. There is selection bias in that some unobservable variables affect the choice of the marketing channel. The model attempts to estimate treatment effects; the farmers' decision to participate in the supermarket channel results in changes in income of the household. But can the change in income be solely attributed to participation in the supermarkets' supply chain?

The standard sample selection model is a generalisation of the tobit model and basically specifies that a second variable R* affects whether Y_i is observed or not. Consider the following model (Greene, 2000) for the effect of a dichotomous variable R on a continuous variable Y_i :

$Y_i = \alpha + \beta X_i + \delta R_i + \varepsilon_i$ (1); δ is the treatment effect to be estimated; R_i is a dummy variable indicating whether farmer participates in supermarket channel or not. The sample selection rule is that Y_i is observed when $R^*_i > 0$

$Y_i = Y_i^*$ if $R^*_i > 0$

$Y_i = 0$ if $R^*_i \leq 0$

$R^*_i = w_i Z_i + u_i$ (2); R^*_i is a continuous latent variable

$R_i = 1$ if $R_i^* > 0$, 0 otherwise

$R_i = 0$ if $R_i^* \leq 0$

Where;

Y_i is Income

X is the explanatory variables that influence income

Z_i are observable variables determining participation in supermarket channel

ε_i , u_i are error terms and are correlated.

To measure the treatment (causal) effects assume that associated with each observation there are two variables (Rubin, 1974; Lalonde, 1986; Imbens, 2004):

Y_i^0 which is the outcome on variable Y for observation i when it is assigned to treatment level Ri = 0 and Y_i^1 which is the outcome on variable Y for observation i when it is assigned to treatment level $R_i = 1$

The casual effect of the treatment for the i^{th} observation is the difference (gain or impact from participation in the programme or market channel) which can be expressed as:

$$\delta = Y_i^1 - Y_i^0 \quad (3)$$

The average casual effect δ is the average of these differences across observations, which is the average treatment effect.

$$\delta = E(Y_i^1 - Y_i^0 \; I \; R = 1) = E(Y_i^1 \; I \; R = 1) - E(Y_i^0 \; I \; R = 1) \quad (4)$$

Normally, only one of the states is observed at one time, that is a farmer either participates or does not. So to estimate the effect (impact) of participation one has to sample a substitute group that represents non-participants and get the difference between the participants and non-participants.

Y_i is observed only when $R_i > 0$. If there is a random assignment as in a suitably designed experiment then the potential outcomes are independent from the assignment mechanism and $E(Y_i^0 \; I \; R = 1) = E(Y_i^0 \; I \; R = 0)$. This criterion is not fulfilled as there is selection bias in assigning farmers (choice-based selection into the supermarket supply chain of FFV). This is a choice-based sampling problem and a two-step regression procedure is used to estimate the average treatment effect as detailed in Chapter 6.

3.5.2 A heuristic model to estimate the determinants of supermarkets' choice of procurement system

Supermarkets' procurement systems for food and groceries have undergone tremendous changes in the 1990s in developing countries as shown in figure 2.3 and figure 2.4. These changes in turn influence the organizational and institutional context in which supermarkets choose suppliers (farmers, food processors or wholesalers). The type of procurement systems adopted by a given supermarket has a bearing on the incentives facing and capacities of producers regarding participation in the supermarket market channel (Figure 3.1). Different supermarket chains in a given country or region may adopt these changes and systems at differential rates.

According to Berdegué *et al*. (2005) and Reardon *et al*. (2004a) the patterns of technological, organizational, and institutional innovation changes that characterises supermarkets' procurement revolution can be described as the "four pillars" of procurement systems change. The main points of Berdegué and Reardon arguments are summarised below.

Pillar 1: Tendency towards centralisation and regional-procurement systems: As supermarkets start their operations they may use decentralised sourcing and procurement systems, for example FFV producers may deliver produce to individual stores. As the supermarket chain grows, there is a tendency to shift from per store procurement system to more centralised procurement systems serving several stores in a zone, district, country or region (Reardon *et al*., 2004a: Reardon *et al*, 2005). Centralisation is characterised by increased use of centralised warehouses and centralised procurement-decision processes. Centralisation of procurement reduces costs and improves efficiency in the supply chain. In procurement-literature terms, improvement in procurement offers an opportunity for firms to save on costs of distribution and logistics and therefore efficient procurement can help to create competitive advantage for the firm (Kauffman, 1994).

The move from decentralised to centralised sourcing/procurement takes place in stages. In the case of SADC, as South African supermarkets move to new markets in host countries they continue using their well-developed procurement systems in South Africa which is reflected in the high share of imports in their product assortments (trade creation effects). The share of imports in the products of internationalising supermarkets may begin to decline as supermarkets develop local supply chains (trade diversion if they are replacing low cost imports with high cost locally produced goods). As the supply chain develops, these supermarkets may shift from using traditional procurement systems (store to store) to use of distribution centres. For example, Shoprite has centralised its procurement systems in Zambia by using Freshmark to source FFV produce in Zambia and also use its distribution centres in South Africa for procurement of FFV such as fruit and processed products for its stores in other parts of Africa. This trend is common among the major four food retailers in South Africa, which are expanding into other African countries.

Pillar 2: The tendency to shift from reliance on traditional suppliers (spot markets such as traditional wholesalers and middlemen) to dedicated and preferred suppliers and logistics firms as the centralisation of their procurement systems and development of supply chains in the country of FDI proceeds. These suppliers are specialised to a

product(s) and dedicated to supplying the supermarket sector. This shift results in fewer suppliers. At this stage of evolution a mixture of procurement systems may be found for different products. Supermarkets may opt to use preferred suppliers and specialised wholesalers for certain products categories such as FFV and use traditional wholesalers for processed food categories. Some supermarkets may still use spot markets or direct buying from farmers for vegetables or outsourcing of a particular function to a more efficient firm.

Pillar 3: Supermarkets' adoption of institutional innovations of coordination such as contracts with their suppliers. Supermarkets enter into direct contracts with suppliers via a specialised wholesaler or dedicated supplier. The use of contracts is meant to achieve coordination in the supply chain (Hudson 2000). A contract is established when the retailer (via its dedicated wholesaler or directly) "lists" the supplier (Reardon *et al*.2005). The contracts with producers are a form of quasi-integration whereby a firm attempts to influence producers according to tightly specified production programmes without fully owning them. This type of coordination mechanisms are used by processors/retailers who require farmers to produce high quality commodities for processing or resale by providing production inputs to contracted farmers. The use of contracts by supermarkets is increasing. This type of coordination reduces transaction costs according to transaction cost proponents (Williamson, 1975 and North, 1990). Apart from minimizing transaction costs, the use of contracts as means of coordination is important in the control of inventory and management of quality by the multinational supermarkets. This consolidation may translate into competitive advantage for the firm resulting in benefits to consumers such as lowering food prices.

Pillar 4: The fourth pillar is the tendency towards increased use of private quality and safety standards implemented by supermarkets and large processing firms. Quality and safety standards function as instruments of coordination of the supply chain, standardizing product requirements over suppliers who may cover regions or even countries (Mainville *et al*, 2005). Large chain supermarkets have developed their own private standards in their procurement systems for example for FFV produce such as

tomatoes (Emongor, 2004; Louw & Emongor, 2004). The use of quality and safety standards differentiates products of supermarkets from those of other retailers enabling supermarkets to attract customers who desire 'high quality' products making it possible for supermarkets to compete and outdo traditional retailers.

The choice of suppliers (farmers and processors) by the supermarket is influenced by the changes in the supermarkets' procurement systems and can be modelled from an adoption perspective (Reardon *et al* 2005). The adoption of the procurement system including choice of suppliers can be modelled as a two-step adoption process.

Step 1: With the first step, the supermarket first chooses the procurement system: whether to continue using the traditional procurement system (traditional wholesalers or buy directly from spot markets) or whether to use the modern procurement systems such as distribution centres inclusive of the four pillars described above. The choice (adoption) of the procurement system will be influenced by the requirement of the supermarket buyers to meet the objective function of the supermarkets which may be to maximize profits, increase market share and increase efficiency in the supply chain by lowering costs of inputs, transaction costs, differentiating products in order to compete in the food retail sector.

Step 2: After choosing the procurement system, the supermarket is faced with the choice of the channel that is whether to source from local or international sources. If the supermarket chooses to source locally, then the supermarket also decide from which supplier (small-scale, medium-scale or large- scale farmers/ food processors) to source from. The determinants of the choice of the procurement system by chain South African or local supermarkets, whether to use decentralised (traditional wholesale) or centralised (distribution centre) and secondly the choice of channel (source directly from producers and the type of producer, whether small-scale or medium to large-scale) will be influenced by external factors and organizational factors of the supermarket (Kotler, 1984; Reardon *et al* 2005) as elaborated below.

1. The capacity of the traditional wholesale markets (spot markets) to meet the objectives of the supermarkets' procurement officers which may be to maximize profits or market share by reducing purchase costs, lowering transaction costs, maintaining consistency of supply, increasing volumes to enjoy scale economies and raising quality and differentiating products (brand making).
2. The capacity (ability) of supermarket to invest in capital to achieve the required procurement systems. The ability to invest in:
    - Physical capital (distribution centres, logistics systems such as fleets of refrigerated and unrefrigerated trucks and information technology).
    - Investment in organizational and social capital (supermarkets work towards forming relationships with a few dedicated or preferred suppliers) instead of continuing to source from traditional wholesale markets.
    - Investment in institutional capital (investment in the use of institutional frameworks and to use contracts with their suppliers) and
    - Investment in the institutional use of grades and standards in their procurement processes.

3. The capability (cost) of the local producers (farmers and processors) to supply directly to the supermarket or sourcing agent.
4. The ease (cost) of sourcing products the supermarket needs from international sources. This will be governed by the policies regulating trade in the country of FDI as well as the cost involved (transport costs and other transaction costs).
5. The price vector of competing retail firms in the area of operation-cost competition among retailers per consumer segment.
6. Quality and product differentiation of products sold by competitors and their effective demand for the product attributes by consumers.
7. The size of the supermarket chain. Supermarkets may decide to use the centralised procurement system if the supermarket has attained the threshold size (in terms of number of stores) or throughput (volume of product).
8. The type of product and how important it is to the objectives of the supermarket.

This model was tested using case studies in the FFV, dairy and processed food supply chains of supermarkets (local and South African) in Botswana, Namibia and Zambia. The results of the survey of the procurement practices of supermarkets in case study countries are described in chapter 4.

3.6 Summary

In this chapter, the conceptual framework and analytical models for analysing supermarkets' sourcing/procurement practices and the expected impacts on producers in SADC countries and Africa have been presented and discussed. As the two models have attempted to show, supermarkets' FDI in developing countries such as SADC can result in either positive or negative impacts depending on whether local producers manage to access the supermarket supply chain and sell their products or not. The impacts largely follow from sourcing and procurement decisions and practices of supermarkets. The impacts on producers are influenced by three sets of factors: environmental, supermarkets and farmer/processor factors. Which impact becomes dominant will largely depend on how the three factors (environmental, supermarkets and farmers/processors) interact. Incentives to encourage supermarkets to source locally coupled with the involvement of all stakeholders in the supply chain are vital. The impacts resulting from supermarkets activities in host nation's agriculture, manufacturing/food-processing sectors are complex because some are direct and observable while others are indirect and may occur at the level of the whole economy. The estimation of impacts is complex because supermarkets impact on consumers, producers and the entire economy in various ways.

CHAPTER 4

SOURCING AND PROCUREMENT PRACTICES OF SUPERMARKETS IN SELECTED SADC COUNTRIES

4.1 Introduction

This chapter presents and discusses the results of the survey of supermarkets' sourcing and procurement practices in the SADC countries using Botswana, Namibia and Zambia as case studies. Supermarkets make decisions from where and from whom to source their products. The results and discussion in this chapter attempts to answer research questions 2 and 3 as well as testing the hypotheses 1.

The chapter is organised as follows: section 4.2 provides an analysis of the products on sale in supermarkets and local shops in the case study countries. In section 4.3, the sourcing and procurement practices of major supermarkets for FFV, dairy and processed food products in Botswana, Namibia and Zambia are presented. Section 4.4 highlights the sourcing and procurement policies of supermarkets as regards FFV and processed food products in the case study countries. In section 4.5, procurement policies of supermarkets are presented. In section 4.6, the sourcing and procurement criteria used by supermarkets for FFV, dairy and other processed products are presented and discussed. In section 4.7, the role of public policy and its influence on trade on selected products is presented. Finally, section 4.8 gives a summary of the entire chapter.

4.2 Products sold in supermarkets/local shops in Namibia, Botswana and Zambia

A survey of food products sold in supermarket and local shops in the three case study countries was undertaken. Using these information and information obtained from key informants a percentage estimation of the various products and their sources was determined. The results showed that fresh vegetables such as cabbages and fresh milk were mainly sourced from local farmers and processors in Zambia. In Namibia and Botswana most of the fresh produce is imported from South Africa due to limited local

production (Table 4.1). For Namibia and Botswana, most of the fresh fruit and vegetables were imported as these two countries produce only about 20% of their domestic FFV requirements.

Table 4.1: Product categories found on supermarket shelves/local shops and their sources

Type of product	Country					
	Botswana		Namibia		Zambia	
	Source (origin) of products	% of brands on s/market shelves**	Source (origin) of products	% of brands on s/market shelves	Source (origin) of products	% of brands on s/market shelves
Processed food products						
Frozen vegetables (mixed vegetables, peas, potato chips)	South Africa Zimbabwe	90[2] 10	South Africa	100	South Africa	100
Tomato sauces	South Africa Zimbabwe ROW (US, Australia)	85 10 5	South Africa ROW	90 10	South Africa Zambia	90 10
Fruit juices (100%)	South Africa	100	South Africa	100	South Africa	100
Milled products (wheat flour, maize flour)	Botswana South Africa	80 20	Namibia	100	Zambia	100
Pasta products	Botswana South Africa ROW (Italy)	25 70 5	Namibia	100	South Africa ROW (Italy)	90 10
Canned vegetables	South Africa	100	South Africa	100	South Africa	100
Canned fruit	South Africa	100	South Africa	100	South Africa	100
Processed milk (UHT)	South Africa Zimbabwe	90 10	South Africa	100	Zambia	100
Pasteurised fresh milk	Botswana*	100	Namibia	100	Zambia	100
Fresh vegetables						
Tomatoes	South Africa Botswana	70 30	South Africa Namibia	90 10	Zambia South Africa	80 20

Type of product	Country					
Irish potatoes	South Africa	100	South Africa	100	Zambia	100
Cabbages	South Africa Botswana	30 70	South Africa	100	Zambia	100
	Botswana		Namibia		Zambia	
Leafy vegetables (spinach/kale)	South Africa Botswana	30 70	South Africa Namibia	90 10	Zambia	100
Onions	South Africa Botswana	80 20	South Africa	100	Zambia South Africa	50 50
Carrots	South Africa Botswana	80 20	SA Namibia	90 10	SA Zambia	60 40
Fresh fruit						
Apples	South Africa	100	South Africa	100	South Africa	100
Oranges	Botswana South Africa	50 50	South Africa	100	South Africa	100
Bananas	South Africa	100	South Africa	100	South Africa	100
Mangoes	Botswana South Africa	50 50	South Africa	100	South Africa Zambia	80 20

*Source: Survey results (2004-2005) and author's own estimations; * fresh milk imported by local dairy processing firms. These firms' process and supply to supermarkets and shops; Row:- other countries outside Africa; ** Products were similar across supermarkets (local and foreign) and local shops especially in processed products.* [Z] *the percentages were calculated by taking into account the number of brands available across the sampled supermarkets and local shops (for an example see Appendix 7) as well as estimations using information obtained from key informants.*

Canned fruits and vegetables, jams and other processed foods such as 100% fruit juices were imported from South Africa by the supermarkets located in all three countries. All supermarkets (local and South African) including small shops stocked similar products especially in the processed food categories.

4.3 Procurement practices of supermarkets in case-study countries

In this section, a description of the sourcing and procurement practices of supermarkets in the case study countries is provided. The results indicated that different chain supermarkets have adopted their own unique procurement systems. However, there appears be similarities among different supermarkets. Detailed research on the procurement of selected products by major supermarkets or their sourcing agents was carried out in the case study countries in order to analyse how these supermarkets performed the procurement function.

4.3.1 Zambia

4.3.1.1 Fresh fruit and vegetables

Several types of sourcing and procurement practices were observed among the supermarkets in Zambia. Some supermarkets use specialised sourcing and procurement companies, others accept direct delivery of FFV from farmers and lastly it was also found that farmers deliver produce directly to distribution centres. A description of these practices is given below:

Specialised sourcing and procurement companies

Most supermarket chains use specialised companies to source and procure FFV for their stores. For example, Shoprite uses Freshmark to source and procure fresh fruit and vegetables (FFV) for all its stores. Freshmark is a subsidiary of Shoprite and is responsible for sourcing, grading and packaging of fresh fruit and vegetables for sale in Shoprite stores in Zambia. When Shoprite started operations in Zambia in 1995, most FFV was imported from South Africa but now up to 80% of all FFV is procured from local farmers. Given the large volumes required by the Shoprite stores throughout the year, Freshmark tends to source mainly from large-scale farmers. According to

Freshmark, 90% of fresh produce in their Zambian operation is sourced from large-scale farms and the remaining 10% from small-scale. This change could be explained by the high cost of sourcing these products from South Africa, and government policy (e.g import licensing) that requires that products available locally be purchased from local producers.

Almost 95% of all produce sourced by Freshmark is distributed to Shoprite stores in Zambia and the remaining 5% is sold to other buyers such as hotels, lodges, hawkers and street vendors. Freshmark enforces private quality standards by rejecting produce that do not meet the specified grades and standards. Freshmark provides the quality standards to supplying farmers and since farmers are aware of them, the rate of rejection was low at about 2%. Delivery is on agreement. Verbal contracts or agreements are used. Most of the farmers supplying to Freshmark Zambia have been doing so for a number of years (on average six years) and, therefore, these farmers have formed a relationship of trust between them and the buyer. According to survey results of farmers supplying fresh vegetables to Freshmark in Zambia, 53% had a very good relationship, 21% a good relationship, 16% a fairly good relationship and 10% had no relationship of trust with Freshmark. This shows that 90% of the farmers supplying to Freshmark had formed some kind of relationship with the buyer.

The procurement system in Zambia is computerised. This helps in co-ordination by keeping track of inventory. For example, by the touch of a button the manager can check how much was supplied, sold and how much was remaining to guide replenishment decisions. To support this type of centralised co-ordination bar code, packaging and information technology are used. Freshmark's distribution centre is located in Lusaka and only small-scale farmers who are near to the DC and small-scale & large farmers who have the capability to transport and deliver fresh produce to the DC (for example Welkom farm a large-scale situated 500km away from Lusaka supplies bananas to Freshmark twice per week) can participate in the supply chain. Small-scale farmers distant from the DC and who do not have means of transport are not able to deliver produce because of lack of transport and high transport costs. Freshmark Zambia achieved complete centralisation of its procurement system towards the end of 2004. This

led to small-scale farmers who used to supply directly to the Shoprite store in Chipata some 600km from Lusaka being dropped from the list of suppliers. Now fresh produce is shipped to the Chipata store from Lusaka. Fortunately for these farmers, the traditional wholesale and retail markets are operational in Chipata where they can sell their produce. The move to more centralised sourcing and procurement systems is not unique to supermarkets in Zambia. These changes are observed in many developing countries. For example, in Kenya, Neven and Reardon (2004) reported that front-runner chains in the concentrated supermarket system in Kenya had moved or were moving towards a more centralised procurement system. These changes are also observed in other developing countries in Latin America and East Asia (Berdegué *et al*., 2005).

Direct delivery to individual stores

This is mainly practiced by local independent supermarkets in Zambia, for example Melissa. Melissa is a chain of smaller supermarket stores owned by Zambians. Farmers are paid cash on delivery. No written contracts are used. Farmers deliver by arrangement. This type of procurement system is more accessible to small-scale farmers and processors than the centralised system.

Delivery to distribution centres

Some supermarkets make use of distribution centres to source and procure fresh produce for their stores. This practice was found in the Spar group in Zambia. There are two Spar stores in Zambia. The first one, located at Arcades in Lusaka, was opened in December 2003. It operated as a franchise, wholly owned by local people. The second one opened late in 2004. Farmers supply their produce to the Spar distribution centre. Spar buys directly from the farmer to cut out the middleman, which means that their fresh produce is much cheaper. Quality and price are important when buying from the farmers. Spar in Zambia buys whatever the farmer can grow and which Spar can pack for the consumer. Farmers deliver vegetables such as rape, spinach, cauliflower, broccoli, cabbage, lettuce, tomatoes and onions to Spar.

4.3.1.2 Procurement of processed products.

Shoprite sources grain-milled products and processed dairy products from large processing firms in Zambia. In Zambia, dairy products such as fresh milk, yoghurt and milk drinks are locally sourced from large processors such as Parmalat, Finta and large dairy farms that are involved in on-farm milk processing such as Momba farms, Cedrics and Northern Dairies. Maize-flour and wheat-flour is supplied by National milling company and Antelope milling company in the Copper Belt region. These are large-scale milling companies. The supermarkets enter into a formal contract with these companies who must have the capability to supply all their stores (18) across the country. The price negotiated includes the cost of transport and a credit period of 30 to 45 days. These conditions are unfavourable to small-scale dairy processors such as Dairy King and Millers (SABCO millers) who are cash-strapped and lack transport facilities to meet the conditions required by supermarkets. Small-scale processors use the traditional marketing channels such as selling to wholesalers and directly to consumers in their own company outlets.

The supermarkets in Zambia import other processed food products such as canned fruit and vegetables, powder milk, creams, breakfast cereals, tomato sauces and ketchup, fruit juices, processed and pre-packed potato chips from South Africa and other neighbouring countries such as Zimbabwe. For example, about 80% of the mentioned processed foods sold in supermarkets in Zambia are imported from South Africa due to the small manufacturing base in Zambia. This implies that these products are not available locally or if available the products are not in sufficient quantities to satisfy domestic demand. Shoprite uses their DC in South Africa and local importers to source these products and distribute these products to their stores in Zambia. Local supermarkets (Mellisa, independent cash and carry) use local importers or agents stationed in South Africa to procure these products for their stores in Zambia.

4.3.2 Botswana

4.3.2.1 Procurement of fresh fruits and vegetables

Various sourcing and procurement practices for FFV were observed among supermarkets in Botswana. These included: direct delivery of produce to individual stores, supermarkets use specialised wholesaler or preferred suppliers, supermarkets use distribution centres and outsourcing.

Direct delivery to individual stores

This type of procurement was observed among local supermarket chains such as Payless, Friendly and Choppies, as well as the various independent retailers operating under Spar brands. The individual store makes arrangements with the farmers to deliver a specified quantity of produce (cabbages, spinach/kale, and tomatoes) at a specified price on given days of the week (once or twice per week). Contracts are verbal (by arrangement) and credit period varies from 1 week to 60 days. Some chain supermarkets such as Spar procure directly from farmers, mainly large- scale farmers.

Specialised FFV wholesalers or preferred suppliers

Some supermarkets in Botswana procure FFV through specialised wholesalers or preferred suppliers. For example, Mr. Veg, a wholesaler, supplied FFV to various supermarkets such as Ms Veg (franchise of Mr. Veg), METSEF, and Pick 'n Pay. This wholesaler also supplies institutions such as schools, hotels, Botswana defence force and other government institutions. About 90% of the fresh produce sold by this company is sourced from the Johannesburg fresh market. The remaining 10% is sourced from large-scale farmers from the Tuli block, which is about 300 km from Gaborone. Farmers deliver the produce to the wholesaler's warehouse from where it is distributed to the various institutions as demanded. Produce from the Johannesburg Fresh Produce Market is imported through agents based at that market. The wholesaler has a cold chain for storing the products. Various supermarkets used different wholesalers to source and procure some or all of its FFV requirements. For example, Lulu Fresh Produce

wholesalers supplies bananas to Pick 'n Pay stores in Botswana. Lulu Fresh Produce wholesalers are acting as agents of the Lulu farm located in Mpumalanga in South Africa and receives bananas and other fresh produce from this farm, which are distributed to Pick 'n Pay stores and other supermarkets in Botswana.

Use of distribution centres

Large South African supermarkets procure FFV centrally using distribution centres. This is observed among large South African supermarkets such as Spar, Shoprite and Pick 'n Pay especially for procuring fruit. These supermarket chains use their sophisticated distribution centres and specialised FFV sourcing companies in South Africa to source FFV and distribute these products in Botswana.

Outsourcing of the FFV function to a specialised wholesaler or preferred supplier

A supermarket enters into a contract with a local specialised FFV wholesaler or preferred supplier to run its FFV section of the FFV business (the supermarket relinquishes the day to day management of that part of the business to the contracted firm). The contracted entity sees to it that FFV is supplied in the right quantity and quality as agreed upon. Mr. Veg, a specialised FFV wholesaler, was running the FFV for Score supermarkets and also METSEF (contract ended 2004 and METSEF took over the function since 2005). The supermarket relinquishes the entire responsibility of everyday sourcing and procurement of FFV to the contracted firm. For example Score supermarket provides space for the specialised FFV wholesaler to sell FFV in its shops for a fee.

4.3.2.2 Procurement of dairy and other processed food products

Most of the supermarkets in Botswana use distribution centres to procure processed products and groceries, which are then distributed to their stores. In Botswana, most processed food products such as canned fruit and vegetables, powder milk, UHT milk, creams, breakfast cereals, tomato sauces and ketchup are mainly imported from South Africa and other neighbouring countries such as Zimbabwe. For example, about 80% (survey of supermarkets' results, 2004) of all processed foods sold in supermarkets in Botswana are imported from South Africa. This could also be a result of the probably

small food-manufacturing/processing base in Botswana. The processing sector for most products such as fruit and vegetable canning, making of fruit juices and potato chips is not well developed because raw materials for processing are not available. This implies that these products are not available locally or if available, the products are not in sufficient quantities to satisfy domestic demand. Shoprite, Pick 'n Pay and Spar use their DCs in South Africa to source these products and then distribute these products to their stores in Botswana. Supermarkets use local importers when importing some products from South Africa to their stores in Botswana. Local chain supermarkets also source these products from South Africa using agents based in South Africa.

There are two major dairy companies; namely Sally Dairy and Clover Botswana. According to the production managers of Sally Dairy and Clover Botswana, 97% of the fresh milk processed by Sally Dairy and 75% of the fresh milk processed by Clover Botswana were imported from South Africa. Parmalat in Botswana does not process fresh milk because it is expensive. Instead, it acts as a distributor of processed products such as UHT milk, cheese and yoghurt from Parmalat South Africa in the Botswana market.

Grain-milled products such as wheat flour and maize flour are sourced locally from large milling companies such as Bolux Milling Company, Shashe Milling Company and Bokomo (started milling operations in Botswana in 2004) and from South Africa. The milling companies are protected by import quotas. Some supermarkets procure wheat and maize-flour products from large milling companies in South Africa such as Premier Foods Ltd, and are also supplied with their own supermarket brands (Family Favourite – METSEF brand, Spar maize meal brand) and company brands such as 'Iwisa', 'Induna' and 'Impala' (Survey results, 2005). Flour products manufactured in South Africa and Botswana were found on the shelves of all branches of supermarkets such as METSEF, Shoprite/Checkers and OK Foods. Maize-flour products from South Africa were much cheaper than those produced in Botswana in the supermarkets when they were stocked (Table 4.2).

We have different millers for different cereals in Botswana. According to government policy, small-scale millers deal with traditional grains such as sorghum and finger millet whereas maize and wheat is milled by large scale-millers. The large scale-millers such as Bolux Milling Company are also responsible for importing grain that they mill. The subdivision of traditional grain to small and medium-scale millers enables these firms to access and supply to chain supermarkets in Botswana.

Table 4.2: Comparison of maize-flour prices in Botswana supermarkets

Supermarket	Flour brand	Place/company	Price
Shoprite/Checkers	Iwisa 5kg* paper packaged	Premier Foods Ltd South Africa	P 11.95
	Impala super maize meal 5kg paper pack	Premier Foods Ltd South Africa	P 8.45
	A1 Super maize meal 5kg paper pack	Bolux milling Ltd Botswana	P 14.75
OK foods	Iwisa 5kg paper pack	Premier Foods Ltd South Africa	P 13.25
	A1 Super maize meal 5kg paper pack	Bolux milling Ltd Botswana	P 14.25

** Prices are quoted for maize flour packed in 5kg paper pack.*

4.3.3 Namibia

4.3.3.1 Procurement of fresh fruit and vegetables

Several procurement practices for FFV were observed in Namibia as follows: use of specialised wholesalers, specialised sourcing and procurement companies and farmers delivering produce directly to supermarkets. The sourcing and procurement practices of supermarkets in Namibia are described below:

Specialised wholesalers

Local supermarkets (chain and independent), procure fresh fruit and vegetables from specialised wholesalers. For example, Woermann Brock a local supermarket chain with 15 stores in the country uses wholesalers to procure its FFV. This implies that this supermarket does not deal directly with farmers. The Woermann Brock chain of supermarkets uses two wholesalers: Fruit and Veg City (operates as a wholesale and a supermarket) and Stampriet wholesalers to deliver the right quality and specified

quantities of produce to its stores. The responsibility for the quality of the produce rests with the wholesaler. Most small independent supermarkets obtain their FFV from specialised fresh-produce wholesalers. The wholesalers buy from local producers (mainly large scale). For example, Fruit and Veg City has two large suppliers from North Ruaka who supply cabbage, watermelons, pumpkins and tomatoes. About 30% of all vegetables sold by Fruit and Veg City are sourced locally; the rest is imported from Johannesburg or Cape Town fresh produce markets.

Direct delivery to supermarkets

Some supermarkets have contracted with farmers (mainly large scale) to supply FFV directly to their stores. For example, Fruit and Veg City, which operates as a supermarket and wholesale[13], source directly from Johannesburg Fresh Produce Market and directly from local large-scale producers. Products are supplied on arrangement and there are no formal contracts. Fruit and Veg City runs 85 stores in South Africa and three in Namibia. According to the manager of Fruit and Veg City in Namibia, products such as lettuce, cabbage, green pepper and watermelons are sourced from Namibian farmers producing under irrigation in regions such as Hardap and Okahandja. In general, about 2% of the FFV sold by Fruit and Veg City in its three stores across the country is procured from small-scale producers because of high transaction costs. In the north, Fruit and Veg City supermarket/wholesalers buy from two farmers who are medium-scale farmers, products such as cabbage, watermelons, pumpkins and tomatoes. Fruits such as bananas, apples, mangoes, litchi, and kiwi fruit are imported from South Africa. Fruit such as strawberries and grapes are produced locally mainly in the south of the country next to the Orange River. Local farmers deliver directly to the DC located at the supermarket. The price offered includes transport costs. For farmers to supply to this supermarket, Fruit and Veg City starts by talking to the farmers and gives them grades and standards required for the various products.

[13] Fruit and Veg City in Windhoek is a two-in-one operation. It has a supermarket for fresh produce and besides it is a fresh-produce wholesale market. This is a private initiative to create a market for local producers. Any farmer can bring produce and sell at the wholesale market to consumers, Fruit and Veg City itself and other independent supermarkets. This Fruit and Veg store started operations in 2005.

Specialised sourcing and procurement companies

A number of supermarkets in Namibia use specialised sourcing and procurement companies to source FFV for their stores. For example, Shoprite uses Freshmark to source and procure FFV for all its stores in Namibia whereas Pick 'n Pay use Freshco Company to source and procure FFV in Namibia. Freshco Namibia operates as a depot getting most of their products from the parent company in South Africa and distributing to all Pick 'n Pay stores in Namibia. Due to government regulations requiring that 5% of produce be sourced locally, Freshco Namibia has begun to procure from local producers. Procuring from local farmers is difficult because most small-scale farmers do not meet the quality, grades and standards required by Pick 'n Pay. Currently, Freshco meets the 5% locally procured goods by sourcing from one large-scale farmer from Okahandja. This supplier is able to meet the quality and quantity demands of Freshco, which imposes grades and standards passed to it by Pick 'n Pay.

Shoprite uses Freshmark to procure FFV for its stores in Namibia as it is for South Africa and Zambia. Almost 95% of all produce sourced by Freshmark Namibia goes to Shoprite and Checkers stores in Namibia with the remaining 5% going to other buyers and small-scale vendors in Windhoek. Farmers cannot supply fresh produce directly to any of the Shoprite stores in Namibia. Currently, Freshmark Namibia does not procure from small-scale producers; it only deals with large-scale producers (procures watermelons from one farmer in Etunda, two farmers from Tsumeb region supply tomatoes consistently). This could be because of the long distances involved. For example, small-scale farmers are found in the north, which is about 800 km from Windhoek. Apart from high transport costs, small-scale farmers are mainly involved in subsistence farming. Another constraint is inconsistent production implying that farmers cannot meet the year-round supply requirements. According to Freshmark Namibia, most small-scale producers are not able to meet the private grades and standards Freshmark demands. Lack of traceability and high transaction costs are some of the factors that contribute to Freshmark Namibia not procuring directly from small-scale farmers. This implies that currently small-scale farmers are automatically excluded from the Shoprite FFV supply chain in Namibia.

The procurement system for FFV in Namibia is also centralised. To support this type of centralised co-ordination, bar code, packaging and information technology are used. By Freshmark operating FFV distribution centres in the capital city means that only small-scale farmers nearby and large-scale farmers who have the capability to deliver to the DC can participate in the supply chain. Small-scale farmers distant from the DC cannot afford to deliver produce because of a lack of transport and high transport costs.

Some large supermarket chains use their distribution centres (DCs) in South Africa to source and procure products for their stores in Namibia. For example, Spar stores in Namibia are operated by independent retailers under supervision from Spar group South Africa. Spar operations in Namibia are controlled from the Spar DC North Rand in Olifantsfontein, South Africa. Individual stores carry out procurement of fresh fruit and vegetables in Namibia and each store makes its own arrangements. From their distribution centre in North Rand, they supply several trucks of products to Spar stores in Namibia every two to four weeks.

4.3.3.2 Processed products

Milled products (wheat flour and maize flour) are sourced locally from large milling companies such as Namib Mills in Namibia. The products from this milling company are protected by an imposition of a total ban on flour imports into Namibia. Namib Mills is involved in the milling of maize, wheat, traditional cereals (millet and sorghum) and in making pasta. Protective measures enabled maize production to improve. Importers cannot import flour products, therefore Namib Mills's brands find a ready market in supermarkets. In Namibia, small-scale millers (9 to 13 in number) are mainly involved in milling traditional crops such as sorghum and millet.

Fresh milk is processed by Namibia Dairies who has processing plants located in Windhoek and Rietfontein (Namibia Economist, 2001-2004). This firm is not able to meet the demand for all dairy products in Namibia. Therefore, other dairy products such as cheese and yoghurt are sourced from large South African companies such as Parmalat, Clover/Danone and Dairy Belle. Importation of fresh milk into Namibia is banned despite

a major deficit in fresh milk production. This deficit is met through the importation of powder milk that is then reconstituted into fresh milk.

Other processed food products such as canned fruit and vegetables, powder milk, UHT milk, creams, breakfast cereals, tomato sauces and ketchup are mainly imported from South Africa. For example, about 80% of all processed foods sold in supermarkets in Namibia are imported from South Africa reflecting again the small manufacturing base in Namibia.

4.4 Comparison of the procurement practices in the case-study countries

A comparison of procurement practices for FFV and processed food products in the case-study countries is shown in Table 4.3. Some practices were found in all the countries while others were only found in some. Direct delivery of FFV to supermarket stores and the use of distribution centres for processed food products were common in all three countries.

Table 4.3: Comparison of procurement practices among supermarkets in Botswana, Namibia and Zambia

Type of procurement practices	Country		
	Botswana	Namibia	Zambia
Procurement directly from farmers or processors	+	+	+
Procurement by use of specialised wholesalers	+	+	NA
Procurement by use of specialised sourcing/procurement company	NA	+	+
Procurement by use of distribution centres	+	+	+
Outsourcing	+	NA	NA

Legend: + practiced and NA not practiced

4.5 Procurement policies of supermarkets in case-study countries

The procurement policy of local and South African chain supermarkets is that fresh produce should be procured as close as possible to the consumption and sales points. Governments in Africa are not too keen to import fruit and vegetables from South Africa or other countries as it impacts on their balance of payments. Most countries encourage domestic production to create jobs and substitute for imports where applicable. It is logical that the closer the fresh produce is produced to the market, the more affordable it would be for the consumer and the greater the profit possibilities for the farmer.

For example, when Shoprite started operations in Zambia in 1995, most of the fresh fruit and vegetables were imported from South Africa. Currently, Freshmark in Zambia sources about 80% of fresh vegetables from local farmers, both small-scale and large-scale. This change could be explained by the high cost of sourcing these products from South Africa and government policy that requires that products available locally be purchased from local producers. Fruits such as apples are imported from South Africa because they are not produced in Zambia, Botswana and Namibia. Importing fresh produce from South Africa is expensive,[14] resulting in fresh produce becoming unaffordable for a large percentage of the people in Zambia. The reason is that the FFV imported from South Africa costs up to three times more in Zambia than in South Africa due to import taxes and high transport costs. This is illustrated by the price data presented in Table 4.4.

For processed products the policy of the major supermarket chains is to source/procure from food processors who can supply products of high quality and at reasonable prices. The capacity of the processor to supply to all stores owned by the supermarket was an advantage in accessing the supermarket supply chain. Therefore, chain supermarkets tended to source and procure from well-established processing companies in the country of FDI.

[14] Transport costs from Cape Town to northern Zambia on a 28-pallet refrigerated truck are about R40 000 (USD$ 6000) and by road transport from Johannesburg is R30 000 (USD$ 5000). This is approximately R2 per kilogram and R20 per 10kg packet of potatoes. Import tax is between 5 and 30%. Levies and permit fees, as well as other costs, must be added to the cost of the produce itself.

Table 4.4: Comparisons of retail prices in the SADC region (June-November 2004)

Product	Description	South Africa Price[1] (Rand)	Botswana Price[2] (Pula)	Namibia Price[3](Namibia dollar)	Zambia Price[4](Kwacha)
Fruit juices (100%)	1litre tetra pack Pure Joy brand Liquifruit brand	 6.99 8.39	 P6.20=R9.3 P6.45=9.7	 7.99 9.25	 K8960= R12.62 K9900=R13.94
Maize flour	2.5 kg paper pack 5 kg paper pack	7.9 13.99	P7.5 =R11.3 P14.75=R22.1	10.59 19.79	K 4250 =R5.98 K8150=R11.48
Wheat flour	2.5 kg white bread flour paper packaging 5kg white bread flour paper packaging	11.99 24.99	P10.95=R16.4 P19.75=R29.6	14.49 27.39	K12850 =R18.10 K18900 =R26.62
Pasteurised fresh milk	2 litres - plastic bottle	10.29	P9.45=R14.2	11.99	K6980 =R9.83
FFV Apples*	1.5kg Granny Smith. Plastic packaging 1.5kg Golden Delicious Plastic packaging	7.99 8.99	P6.35=R9.5 P7.35=R11.0	9.99 -	14980=R21.10 15000= R21.13
Carrots*	1kg plastic packet	3.99	P3.98=R5.97	4.99	7880 = R 11.1
Tomato	1kg loose	6.99	P5.95=R8.93	6.99	3280=R4.62

*[1] Prices collected at Shoprite city centre in Pretoria; [2] Prices collected at Shoprite bus rank in Gaborone; [3] Prices collected at Shoprite Independence Avenue in Windhoek and [4] Prices collected at Shoprite Manda Hill in Lusaka, Zambia for the period June-November, 2004. *imported from RSA,* ***Exchange rates****: 1pula = 1.5 rand, 1R = 1N$ and 1R = 710 kwacha*

Comparison of prices of similar products in chain supermarkets and local shops was carried out. Data on FFV and processed food prices were collected from chain supermarkets, traditional retailers (local shops such as small independent supermarkets, general dealers, Spaza shops, kiosks, street vendors and local whole market of FFV) in the case-study countries. The average retail prices per kilogram or litre across supermarkets and local shops were documented. Prices in Zambia and Botswana were collected in April 2007.

The case countries show that within countries supermarket chains offer significantly lower prices for food products (Table 4.5). This could be attributed probably to the use of efficient supply chains and scale economies in sourcing and procurement. In the three case countries on average supermarkets offered significantly lower prices compared to local shops especially in the processed food categories (Table 4.5). In the fresh-foods category street vendors and traditional wholesale markets (Soweto market in Lusaka and Saturday market in Chipata) offered significantly lower prices compared to supermarkets

in Zambia, whereas in Botswana supermarkets had lower prices in both processed and FFV products (Table 4.5). Small local independent supermarkets and general dealers stocked very few FFV products and some local shops did not stock FFV.

Table 4.5: Comparisons of mean retail prices in chain supermarkets and local shops

	Botswana (Pula; 1 US$ =5.54Pula)				*Zambia (Kwacha, 1US$=4800Kwacha)*			
Product	***Super market N=12***	***Local shops N=22***	***LSD***	***P value***	***Supermarket N=4***	***Local shops N=20***	***LSD***	***P value***
Wheat flour	3.32	6.00	0.92	0.013**	5070	5550	36.75	0.0001***
Maize flour	2.75	4.24	0.60	0.001***	1635	2000	254.1	0.0196**
Bread	2.96	4.48	0.31	0.0001***	2200	3600	343.7	0.001**
UHT milk	6.68	10.49	1.15	0.0003***	5200	5425	271.8	0.078
Fresh milk	6.41	7.92	1.5	0.05*	3502	3927.5	169.7	0.0041***
Sugar	4.67	6.16	1.41	0.0247**	3737.5	4025	209.2	0.0221**
Tomato sauce	10.43	14.45	2.39	0.0117**	-	-	-	-
Dry beans	14.01	14.02	3.17	0.91	-	-	-	-
Rice	6.06	10.05	1.64	0.0006***	6135	6650	270.5	0.009***
Apples	6.07	12.93	1.19	0.0001***	15250	10063	706.8	0.0002***
Oranges	3.36	7.93	2.15	0.0081***	9875	7000	457.0	0.0003***
Bananas	6.41	10.05	1.43	0.0034**	-	-	-	-
Cabbage/ head	6.47	9.60	1.20	0.0033**	3000	1500	259.9	0.0004***
Irish potatoes	4.52	8.28	1.54	0.0024**	2725	1300	102.7	0.0001***
Onions	6.76	9.95	3.56	0.0995	4000	2000	389.8	0.0005***
Tomatoes	7.36	11.86	1.46	0.0005***	3000	1987.5	135.9	0.0002***
Carrots	5.86	11.20	2.43	0.0042**	7870	6500	161.2	0.0001***

Source: Survey results, 2007
* 10 % significance level, ** 5% significance level; *** 1% significance level
Note: Comparison between stores within a country is done here. For that reason a common currency was not included.

4.6 Supermarkets' sourcing and procurement criteria for fresh fruit and vegetables and processed products in case-study countries.

Using the structured questionnaire supermarkets managers were asked what criteria they considered in sourcing and procurement of FFV, dairy and other processed products from

suppliers. In answer to the question, "which listed attributes do you consider when sourcing food products and how important are these attributes?" as shown in Appendix 3. First of all did they consider for example price? (answer was yes or no) and if the answer was yes how important was this? For example if the supermarket manager considered price or any of the other criteria listed, the responses were classified according to criterion (0=not important, 1= fairly important, 2= important and 3=very important). This was an attempt to test hypothesis 1 of the study. This response was analysed graphically and also by using non-parametric statistics. The results from the graphical analysis showed that all supermarkets considered price, quality and volume (consistency of supply) and trust to be important attributes when sourcing and procuring these products from suppliers (Figure 4.1).

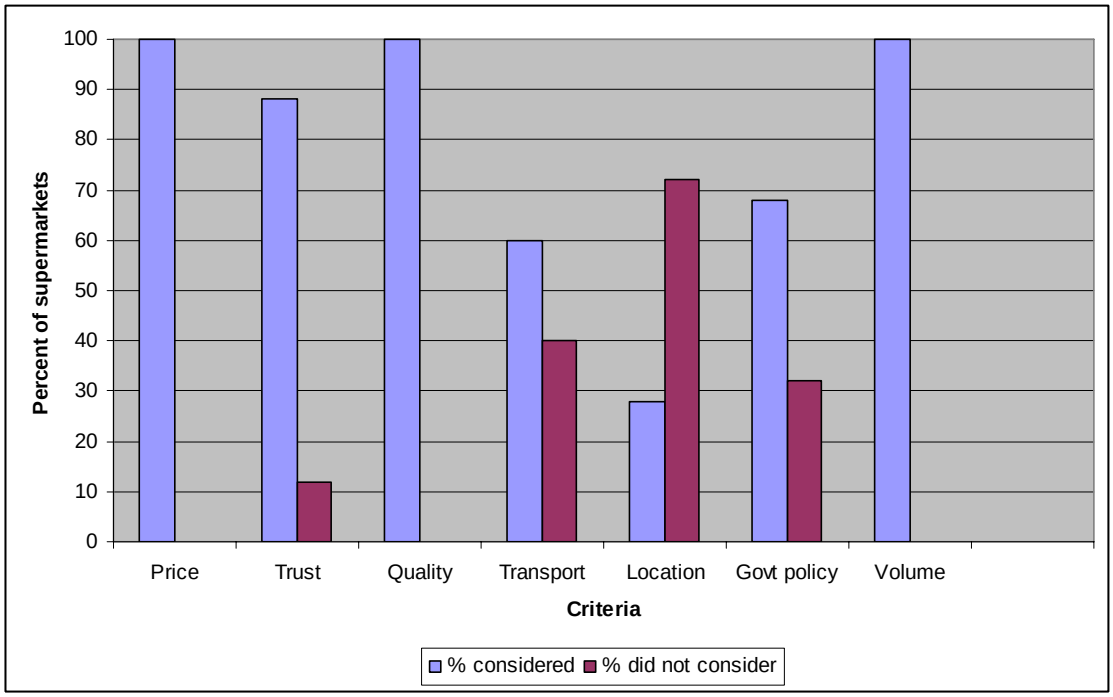

Figure 4.1: Criteria used by supermarkets to source FFV and processed foods
Source: Survey results (2005); Number of chain supermarkets = 12

The results of the non-parametric statistics (ANOVA) showed that irrespective of country, supermarket or product (whether processed or fresh) the most important criteria used by supermarkets in sourcing and procurement of products for their stores were price,

followed by volume (consistency of supply), followed by quality and relationships of trust. The least considered criteria were location, followed by transport (Table 4.6). Location and transport may not be such important factors in determining sourcing and procurement decisions when taking globalisation, trade liberalisation and improvements in communication and information technology into account. These changes have made it possible for many multinational supermarkets to develop global supply chains. This implies that products can be sourced and procured from any location in the world as long as efficient logistics and transportation systems are in place.

Table 4.6: The important criteria used by supermarkets in sourcing and procurement of FFV and processed food products

Criteria that supermarkets used	Mean ranking [y]
Price	2.92
Trust	2.40
Quality	2.41
Transport	0.76
Location	0.32
Credit period	1.92
Volume	2.88
Government policy	1.88
Significant	0.01
LSD	0.4986

y- is the mean of 200 observations of 12 supermarkets, in three countries (Botswana, Namibia and Zambia) and 3 groups of products (FFV, milled products and dairy products) ; significant at 0.01 Ranking: 0=not important; 1=fairly important; 2=important and 3=very important Means separated using the protected least significant difference (LSD) at 0.05.

In the past price was the most important criterion considered in purchasing but due to development in supply-chain management and development of brands by processors many authors argue that this may not be the case any more. Many writers theorise that price is not a very important consideration because by differentiating their products and branding them, supermarkets may obtain higher prices from consumers who may be willing to pay more for goods perceived to be of high quality when some value-adding activities having been performed on the goods such as cutting and packaging. Volume,

quality and trust have been theorised to be very important in determining from whom and where supermarkets source and procure their products. This result concurs with what other researchers have found in Latin America and Asia (Reardon *et al*, 2002) and in Africa (Weatherspoon & Reardon, 2003).

4.7 The role of public policy and its influence on trade in the selected products

The evidence from our cross-country survey suggests that supermarkets source/procure merchandise from both local and international suppliers. The sourcing patterns and resulting supply chains for the various products seem to have been influenced by one common factor for the three studied countries in this research, namely trade policies (government intervention in agricultural markets). The trade policies in force may affect how supermarkets and other retail firms conduct their business and the resulting impact on producers and consumers. These trade policies may encourage or hinder trade flows between two or more of the countries involved. The rationale of trade policies is intended to protect local industries from competition and encourage local production of goods and services either for local consumption or for export or both.

As already discussed in section 2.8.2, SADC countries have implemented trade liberation in line with trade regulations negotiated under WTO and also under the SADC "protocol on trade" which aim to eliminate trade barriers and thus increase trade among SADC countries. Much has been accomplished, but many countries in SADC still retain some policy interventions in agricultural trade (ESRF, 2003). In the three case-study countries various types of trade policies are in operation such as import tariffs on certain products, import quotas in processed grain products (Botswana), laws that ban import on grain-milled products such as maize flour and wheat flour (Namibia and Zambia), local content requirement in FFV (Namibia, Zambia &Botswana), non tariff barriers such as import licensing among others.

The above-mentioned trade policies in case-study countries may be intended to increase domestic production to substitute the imported products. By doing this the government may aim to fulfil non-efficiency objectives (welfare objectives) such as increased food self-sufficiency, correction of market failures (such as market imperfections, market

power and externalities), alleviation of poverty and improvements in income distribution. Despite good intentions of policy makers for interfering in trade, impediments to free trade may reduce mutually beneficial transactions and cause a variety of transfers among various parties involved (Nicholson, 2005).

The issue of trade restriction in agriculture is pervasive the world over. It is even more critical for SADC countries that are dependent on agriculture for development. Where trade restrictions have been imposed there is evidence that this may have resulted in increased production and helped local farmers to access chain supermarkets supply chains in host countries, but this gain may come at a cost to society. There is need therefore for more quantitative analysis and monitoring of these policy decisions to determine the extent and nature of the impacts on the various participants and on development such as job creation, poverty alleviation and so on. Policies in agriculture and related industries are not made in isolation, a holistic approach is required, and there are cases where restricting trade may be useful especially in protecting infant industries.

4.8 Summary

All the supermarkets surveyed in the case-study countries handled both fresh and processed foods. Several forms of sourcing and procurement practices for FFV were observed among supermarkets in Botswana, Namibia and Zambia. These practices included: 1) supermarkets' use of specialised sourcing and procurement companies; 2) farmers deliver FFV directly to individual supermarket stores; 3) supermarkets' use specialised FFV wholesalers; 4) delivery to distribution centres and 5) outsourcing was used by some supermarkets. The most important criteria used by supermarkets in making sourcing and procurement decisions were price, volume (consistency of supply), quality and trust, respectively. The sourcing and procurement decisions and practices follow similar trends occurring globally. In the case-study countries, trade policies that restrict trade in agricultural products were in practice. There is need to evaluate and quantify the effects of these policies on various participants in the selected supply chains.

CHAPTER 5

PROFILES OF FARMERS SUPPLYING TO SUPERMARKETS AND TRADITIONAL MARKETS IN BOTSWANA AND ZAMBIA

5.1 Introduction

The description of products found on supermarket shelves and the procurement practices in Botswana, Namibia and Zambia in Chapter 4 showed that FFV was sourced mainly from South Africa and in smaller volumes from both large and small to medium scale-farmers in Botswana and Zambia. The objective of this chapter is to describe the characteristics of farmers that supplied FFV to supermarkets and those that supply to the traditional markets in Botswana and Zambia and to determine if there are any differences among them. In Namibia, a survey of farmers supplying to supermarkets and the traditional markets was not possible because there were very few if any small-scale farmers who produce FFV for commercial purposes let alone supplying to supermarkets. Therefore, the analysis was carried out for Botswana and Zambia where farmers supplying FFV to supermarkets and traditional market channels were available. Some of this information will be used in the next chapter to determine the factors that influence participation in the supermarket channel and the impact of this participation on farmers' incomes.

Small-scale farmers that supplied to supermarkets and the traditional market channel (in Zambia and Botswana) were sampled as already detailed in section 1.8.2. Farmers were interviewed using a structured questionnaire (Appendix 6). The characteristics of small-scale farmers supplying to supermarkets and the traditional channel are described in the following paragraphs to answer research question 4 of the study and test hypothesis 1.

5.2 Profiles of farmers that supply FFV to the two market channels in Zambia

The profiles (characteristics) of farmers selling FFV to supermarkets and those selling to the traditional market were obtained by interviewing sampled farmers. Examining household characteristics of farmers supplying to these markets may help to explain why

some farmers use the FFV supply chain of supermarkets while others do not. The farmers who were sampled and interviewed produce a range of vegetables including tomatoes, cucumbers, kale/spinach, traditional vegetables, onions, carrots, green maize and cabbages.

5.2.1 Entry of sampled farmers in FFV production in Zambia

Approximately 90% of interviewed farmers supplying vegetables to supermarkets and 85% of those supplying to the traditional market channels in Lusaka and Chipata in Zambia started production in the early 1990s to 2004 (Table 5.1). This could be attributed to policy changes by the government of Zambia that focuses on promoting agriculture as an alternative source of economic growth, employment and foreign exchange earnings (Haantuba, 2003).

Table 5.1: Entry of small-scale farmers into production of FFV in Zambia

Type of market	**Year**			
	1970-1989		**1990 – 2004**	
	Frequency	Percent of farmers	Frequency	Percent of farmers
Those supplying to supermarkets	2	10	18	90
Those supplying to traditional markets	9	15.5	49	84.5

It is evident that many more farmers have entered the production of fresh fruit and vegetables since the 1990s and production of FFV has gathered momentum since then to date. These farmers also started selling to supermarkets in the late 1990s to date (Table 5.2).

These changes could be explained by direct government intervention in promoting high-value crop production as a way of diversifying the economy away from mining. To create jobs and improve the livelihood of the people the government has facilitated the production of high-value crops such as FFV for local consumption and export. Increasing demand for FFV by the middle to upper-income groups and probably the availability of

markets (for example supermarkets and export markets) for these products could also have contributed to increased involvement of farmers in the production of these crops.

Table 5.2: Year when small-scale farmers started selling to supermarkets in Zambia

Year		Frequency	Percent	Cumulative percent
	1997	2	10.0	10.0
	2000	5	25.0	35.0
	2001	1	5.0	40.0
	2002	4	20.0	60.0
	2003	6	30.0	90.0
	2004	2	10.0	100.0
	Total	20	100.0	

5.2.2 Resource endowment of sample farmers in Zambia

In this section the resource endowments of farmers participating in the supermarket and traditional channel of FFV supply is discussed.

5.2.2.1 Land ownership and endowment

Farmers sampled and interviewed in Lusaka acquired land through buying and through land allocation by government 30% and 70% of the respondents respectively. Farmers accessed land for producing FFV through ownership or renting. There are two main types of land ownership namely freehold and traditional (Table 5.3).

Table 5.3: Types of land ownership among sampled farmers in Zambia

Type of land ownership	Those who supply to supermarkets		Those who supply to traditional market channel	
	Frequency	%	Frequency	%
Freehold	12	60	9	15.5
Traditional ownership	7	35	49	84.5
Rented	1	5	0	0
Total	20	100	49	100

Among the farmers supplying through the traditional market channel, some acquired land through inheritance (12.2%) and the remaining (87.8%) were allocated land by chiefs or

the state. The land ownership type was traditional meaning the possessor has the right to use the land but may not sell it nor uses it as collateral to negotiate a loan.

Farm sizes are generally small even though farm sizes differ. It is significant that farmers supplying supermarkets have farms that are, as a mean, double the size of the farms of farmers supplying to the traditional markets: 6.1 ha as opposed to 3.1 ha (Table 5.4).

Table 5.4: Farm sizes of FFV producers in Zambia

Farmer type	Land size [15] (hectares)				
	Sample size (N)	Minimum	Maximum	Mean	Std. deviation
Supplying to supermarket	20	1	22	6.09	4.624
Supplying to traditional market channel	58	0.8	22.2	3.1	3.1843
Significance test of means t value P value					 1.99 0.0027***

*** 1% significance level

Total land size under FFV has been undergoing gradual change since farmers started supplying to the supermarkets and traditional market channels in Zambia as shown in Table 5.5.

[15]The concept of small farm varies widely across different regions of the world since they are defined primarily in relation to the average land holding size in that region. In sub-Saharan Africa, small-scale or smallholder farms can be classified as having a size of <2ha to 5ha on average or a farmer having 10-20 head of cattle (Narayan & Gulati, 2002). But for different countries in the region classification of small farms also varies widely, for example in Kenya a small-scale farm has a size from 0.52 -10ha (Republic of Kenya, 1989), whereas in Zambia it varies from 1- 9ha (Copstake, 1997) and in Botswana it varies from 1ha-10ha (Republic of Botswana, 2004a). Therefore, for the purpose of this study all farm holdings involved in the production of FFV with a total farm size from 0.5 ha to 10 ha are considered to be small-scale farms.

Table 5.5: Comparison of total land size, land under FFV 5 years before and after supplying FFV to various channel in Zambia

Variable	Supermarket farms	Traditional market farms
Total land size	6.1	3.1
Land under FFV 5 years ago	0.6	0.2
Land under FFV today	0.9	0.3

5.2.2.2 Ownership of vehicles

In Zambia, 45% of the farmers interviewed supplying supermarkets owned vehicles whereas 55% relied on hired vehicles (Table 5.6). Among farmers that supplied to the traditional market channels, 1.7% owned a vehicle for transporting produce to the market while the remaining 98.3% did not. Most of these farmers relied on bicycles, ox carts or hiring of vehicles to transport their produce to the market.

Table 5.6 Ownership of vehicles among sampled farmers in Zambia

Type of farmer	Ownership of vehicle	Frequency	Percent	Cumulative percent
Farmers who supply to supermarkets	Own 1 or more	9	45	45
	Own none	11	55	100
	Total number	20	100	
Farmers who supply to traditional markets	Own 1 or more	1	1.7	1.7
	Own none	57	98.3	100
	Total number	58	100	

5.2.2.3 Ownership of tractors and other land-preparation implements

Ownership of tractors among the farmers supplying to supermarkets was negligible (only 15%). Instead of tractors farmers used hand hoes (65%) and in some cases ox-drawn ploughs or hiring of tractors for land preparation. None of the farmers supplying the

traditional market channel owned tractors. The majority of these farmers used hand implements (hoes) and in some cases ox ploughs for preparing land for the production of vegetables.

5.2.2.4 Ownership of irrigation systems

It was evident from the survey of farmers in Zambia that all farmers that supplied FFV to the supermarkets own irrigation systems. Given the harsh climate and the need to supply FFV consistently this is something that was to be expected. Most of the farmers purchased the irrigation systems from their own savings or from loans obtained from government schemes such as FAP in Botswana and ZATAC in Zambia. None of the farmers received any assistance from the supermarkets they supplied to. About 45% of these farmers owned sprinkler irrigation systems, 20% owned drip irrigation, 20% used treadle pumps and 15% used hosepipes and/or furrow irrigation (Table 5.7). Those farmers who do not own irrigation systems and rely on rainfed production are not in a position to supply to supermarkets because of erratic production. These farmers therefore, tend to produce only field crops such as maize and sweet potatoes. Those who produce vegetables using rain-fed conditions could rely on traditional markets such as Soweto or any other spot market. The majority of the farmers producing vegetables for the traditional markets also used simple irrigation methods such as buckets or furrow irrigation (89.2%) and treadle pumps (10.25%). These farmers farmed a quarter to one hectare of land under irrigation.

Table 5.7: Types of irrigation systems owned by farmers in Zambia

Type of farmer	Type of irrigation system	Frequency	Percent	Cumulative percent
Farmers supplying supermarkets	Sprinkler	9	45.0	45.0
	Drip	4	20.0	65.0
	Treadle pump	4	20.0	85.0
	Bucket/ furrow	3	15.0	100
	None	0	0	100
	Total	20	100	
Farmers supplying traditional markets	Sprinkler	3	5.2	5.2
	Drip	0	0	0
	Treadle pump	5	8.6	13.8
	Bucket/ furrow	44	75.9	89.7
	None	6	10.3	100.0
	Total	58	100.0	

5.2.2.5 Ownership of sorting/packaging shades

Ownership of sorting/packaging shades[16] was low (20.7%) among farmers' who supply vegetables to supermarkets in Zambia and almost non-existent (1.7%) among farmers supplying to the traditional channels (Table 5.8). Ownership of sorting /packaging shades indicates that such farmers are engaged in basic processing at farm level before delivering to the market.

The type of on-farm processing of fresh produce by farmers who supply to various supermarkets included washing, sorting and packaging, which were practiced by 40% of these farmers. Among those supplying to traditional markets none were involved in this type of processing on farm that is adding value to the produce, before delivery.

[16] The sorting/packing shades are either temporary or permanent buildings in which farmers' sort, grade and package fresh produce. In the sorting/packaging shade there are equipment such as tables, knives, machines for sealing plastic bags, troughs for washing etc, which are used to sort, wash, grade and pack products such as tomatoes, or wash, cut and pack products such as kale or spinach. This is an attempt to add value to the product before marketing them. The farmer owns these sorting/packing shades privately.

Table 5.8: Ownership of sorting/packaging shades in Zambia

Type of farmer	Owned sorting/packaging shades	Frequency	Percent	Cumulative percent
Farmers supplying supermarkets	Yes	8	27.6	27.6
	No	21	72.4	100.0
	Total	29	100.0	
Farmers supplying traditional markets	Yes	1	1.7	1.7
	No	57	98.3	100.0
	Total	58	100.0	

5.2.2.6 Ownership of greenhouses

About 10% of the farmers interviewed supplying to supermarkets owned greenhouses while none of the farmers supplying to traditional market channels had greenhouses. Farmers depended on natural conditions to produce fresh vegetables for the market with minimal modification of the crop environment.

5.2.3 Household characteristics

A descriptive analysis of the household demographics and structure of the sampled Zambian farmers is described below. This analysis may help us to understand whether the number of persons in a household may influence participation in FFV production and marketing.

5.2.3.1 Household size

The households interviewed who are producing vegetables and supplying the supermarkets consist on average of six persons (in adult equivalents) whereas households supplying traditional markets consist on average of seven persons (Table 5.9).

Table 5.9: Household size among sampled farmers in Zambia

Type of farmer	Household size				
	Sample size (N)	Minimum	Maximum	Mean	Std. deviation
Farmers supplying supermarkets	20	2	14	6.36	2.629
Farmers supplying traditional markets	58	3	15	7.17	2.992

5.2.3.2 Gender of household head

There were both male and female-headed households involved in producing fresh vegetables for the supermarkets and the traditional market channels. Among households supplying to supermarkets, 85% are male-headed. Among the households supplying to traditional market channels, 81% of the households are male-headed (Table 5.10).

Table 5.10: Gender of household heads in Zambia

Type of farmer	Type of household head	Frequency	Percent	Cumulative percent
Farmers supplying supermarkets	Male-headed	17	85.0	85.0
	Female-headed	3	15.0	100.0
	Total number	20	100.0	
Farmers supplying traditional markets	Male-headed	47	81.0	81.0
	Female-headed	9	19.0	100.0
	Total number	58	100.0	

5.2.3.3 Education levels of household heads

Household heads supplying to supermarkets have a higher level of education compared to those supplying vegetables to the traditional channels. Nearly all household heads supplying to the supermarket channel attained secondary level of education (85%) and tertiary level of education (15%). The majority of farmers supplying to the traditional channel only have low levels of formal education, 60.3% of these household heads only completed primary level education, 29.4% secondary education, and 8.6% have no formal schooling (Table 5.11).

Table 5.11: Education levels of household heads in Zambia

Type of farmer	Level of education	Frequency	Percent	Cumulative percent
Farmers supplying supermarkets N=20	None	0	0	0
	Primary	1	5	5.0
	Secondary	17	85.0	90.0
	Tertiary	2	10.0	100.0
	Total number	20	100.0	
Farmers supplying traditional markets N=58	None	5	8.6	8.6
	Primary	35	60.3	68.9
	Secondary	17	29.4	100.0
	Tertiary	1	1.7	100.0
	Total number	58	100	

5.2.3.4 Income sources of farmers

There is high incidence of dependence on farming as the only source of income among farmers supplying the traditional market channel (77.6%) compared to those supplying the supermarket channel (65%). About 35% did not depend on farming as their only source of income. These farmers hold other jobs or are engaged in other off-farm activities that earn them income. These farmers tend to delegate the management of the farming activities to their wives or hired managers. The other sources of income for these farmers include teaching, some are civil servants and some are engaged in private sector activities (business such as running shops and brick making) as shown in Table 5.12.

Table 5.12: Types of off-farm sources of income for farmers in Zambia

Type of farmer	Type of off-farm source of income	Frequency	Percent	Cumulative percent
Farmers supplying supermarkets N=20	Teachers	0	0	0
	Civil servants	3	15.0	15.0
	Private sector	2	10.0	25.0
	Pensioners	3	15.0	40.0
	Depend on farming only	12	60.0	100.0
	Total number	20	100.0	
Farmers supplying traditional markets N=58	Teachers	1	1.7	1.7
	Civil servants	1	1.7	3.4
	Private sector	8	13.8	17.2
	Pensioners	3	5.2	22.4
	Depend on farming only	45	77.6	100.0
	Total number	58	100.0	

This implies that farmers supplying the supermarkets are wealthier, and may have access to other sources of funds and information for production compared to those supplying the traditional markets.

5.2.3.5 Input use and costs

Farmers supplying to supermarkets used more inputs, which translated into higher mean input costs compared to non-supermarket farmers (Table 5.13).

Table 5.13: Input costs of farmers in Zambia

	Input costs (Kwacha/Ha) 1US$ = 4800 Kwacha				
Type of farmer	**Sample size (N)**	**Minimum**	**Maximum**	**Mean**	**Std. deviation**
Farmers supplying supermarkets	20	152000	5 000 000	1200363.20	1155021.989
Farmers supplying traditional markets	58	46000	4 440 000	423092.62	706989.7

5.2.3.6 Household wealth ranking

This was based on enumerator assessment of the farmer's wealth status. Farmers' ownership of a permanent house (iron-roofed and built of stone or bricks), a vehicle or tractor and other assets of production such as large land size, higher income and other sources of income apart from farming, were used to classify households into either low, medium or high-wealth households. This is a qualitative measure of household wealth or income. According to the assessments made by interviewers, 70% of farmers supplying supermarkets in Zambia belong to medium-wealth households and the remaining 30% belong to high-wealth households. Household wealth ranking of farmers who supply to the traditional market showed that 48.3% belonged to the low-wealth household group, 48.3% to medium and the remaining 3.4% to the high-wealth household group (Table 5.14).

Table 5.14: Wealth ranking of interviewed farmers in Zambia

Type of farmer	Household wealth ranking	Frequency	Percent	Cumulative percent
Farmers supplying supermarkets	Low	0	0	0
	Medium	14	70.0	70.0
	High	6	30.0	100.0
	Total number	20	100.0	
Farmers supplying traditional markets	Low	28	48.3	48.3
	Medium	28	48.3	96.6
	High	2	3.4	100
	Total number	58	100.0	

5.2.3.7 Proximity to urban centres and FFV markets in Zambia

Most of the small-scale to medium-scale farmers producing vegetables and supplying the various market channels (supermarket or traditional) are located near urban centres. Farmers supplying the supermarket in Lusaka were on average located approximately 15.25km away from the urban centre whereas those supplying the traditional markets are located on average 20.85km from the markets that they supply (Table 5.15).

Table 5.15: Mean distance (km) from farm to market or urban centre

Farmer type	Distance from farm to major town (km)				
	Sample size (N)	Minimum	Maximum	Mean	Std. deviation
Supplying supermarkets	20	5	35	15.25	6.414
Supplying traditional market channel	58	5	25	20.85	5.218

The assumption made is that those who live near urban centres have easier access to the market compared to those who are located far away and hence those near the market face lower transaction costs especially transport costs and can easily access information regarding market conditions such as prevailing prices and what products are required in the market.

5.2.4 Farmers' ability to meet supermarket conditions

The ability of farmers to supply supermarkets may be influenced by transaction costs. According to the New Institutional Economics, high transaction costs, tough contract conditions and high quality requirements imposed by supermarkets on suppliers may also influence who and who does not participate in the supermarket channel. These factors are examined below to shed light on how trading conditions affect farmers' access to supermarkets.

5.2.4.1 Supply arrangements (Contracts)

All the interviewed farmers in Zambia that supplied FFV to supermarkets had done this on contract basis (mainly verbal). Written contracts only apply in the case of processed products. The preference for verbal contracts largely lies in the increased flexibility provided to the supermarket buyers or their agents. It allows them to vary purchase prices according to trends in market prices. By having these verbal contracts, the buyer avoids paying a very high price when the market price of the product is low. The verbal contract also provides more flexibility for small-scale producers since they are often in a situation where they would not be able to meet the volumes specified in written contracts. Thus for both parties a verbal agreement allows the flexibility which reduces the risk considerably. However, the problem with a verbal agreement is that the buyer does not always honour these agreements as a result of opportunistic behaviour. It quite often happens that if there is excess supply to the supermarket resulting in them not being able to purchase the produce, it forces the farmers to make alternative marketing arrangements at short notice like selling at Soweto market, where the produce may fetch much lower prices.

5.2.4.2 Credit period

In Lusaka, 90% of farmers supplying to the supermarkets are payed within a week, whereas the remaining 10% receive their payments immediately, that is cash on delivery (Table 5.16). When and how the farmers receive their payments depends on the agreement made between the farmer and the supermarket during negotiations at the start of the contract.

Table 5.16: Number of days before receiving payment from supermarkets

	Frequency	Percent	Cumulative percent
Immediately (cash on delivery)	2	10.0	10.0
1 Week	18	90.0	100.0
Total	20	100.0	

5.2.4.3 Membership of a farmers' group

Membership of a farmers' group can assist farmers to access supermarkets in that pooling their products can help mitigate the problem of the small size of their separate enterprises and the related low volumes that might make supplying supermarkets near to impossible. Of the farmers supplying supermarkets 65% belong to a farmers' organisation (Table 5.17).

Table 5.17: Farmers who supply supermarkets and belong to a farmers' group in Zambia

Response	Frequency	Percent	Cumulative%
Yes	13	65.0	65.0
No	7	35.0	100.0
Total	20	100.0	

5.2.5 Mean comparisons of farmers supplying to supermarkets and traditional market channels

Several of the continuous variables (farm size, age of household head, number of persons forming part of the household, labour, input costs and distance from farm to nearest urban centre) were tested to establish if there are any significant differences between these two groups of farmers. A one-way analysis of variance was performed to test for equality of means between these two groups of farmers. The mean comparison analysis compares the two to determine whether there are any statistical differences.

Group 1: farmers who supply to the supermarket channel

Group 2: farmers who supply to the traditional channel

Let μ_1 and μ_2 be the means of the two populations with variance δ^2. A random sample was drawn from each population.

Let $\overline{X_1}$, $\overline{X_2}$, S_1^2 , S_2^2, n_1 and n_2 denote the sample means, variances and sizes.

Ho: $\mu_1 - \mu_2 = 0$ or Ho: $\mu_1 = \mu_2$ versus H1: $\mu_1 \neq \mu_2$

Assumptions:

The variance (δ^2) is the same in the two populations

$\overline{X_1}$ and $\overline{X_2}$ are normally and independently distributed

Test for significant differences between the means of the two independent and unequal samples from the two populations is based on the t-distribution. This test is fully described in Snedecor and Cochran, 1989: 89-94 and in Steel & Torrie, 1986:96-97). These computations are normally provided in most statistical packages such as SAS.

The test criterion is

$$t = \frac{\overline{X_1} - \overline{X_2}}{s_{\overline{X_1} - \overline{X_2}}} \qquad (1)$$

$$\text{Where } s^2 = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{(n_1 - 1) + (n_2 - 1)} \qquad (2)$$

The two samples in this study were not equal, $n_1 \neq n_2$,

Hence, $S_{\overline{X_1} - X_2}$ is calculated by

$$S_{\overline{X1} - \overline{X2}} = \sqrt{S^2\left(\frac{1}{n_1}\right)\left(\frac{1}{n_2}\right)} = \sqrt{S^2\left(\frac{n_1 + n_2}{n_1 n_2}\right)} \qquad (3)$$

Using equations 1 and 3 a t-value is computed and used to test for differences in means between the farmers supplying supermarkets and those supplying the traditional channel.

The result of this analysis is given in Table 5.17. Farmers who supply supermarkets own on average significantly more land (double the size) compared to those who supply the

traditional market channel. The difference in farm size means that between the two farmer groups it is significant at 5% significance level. There was no significant difference in mean age of the household head and mean number of persons residing in the households in the two groups (Table 5.18).

Farmers who supply supermarkets used more labour (number of household members who work full-time on the farm plus hired labour) than those who supply traditional markets. The difference in labour use is significant at 1% significance level. Farmers supplying supermarkets use twice as much labour as those who supply the traditional markets. Farmers who supply to the supermarkets in Zambia use more inputs, which translate into higher input costs compared to those who supply to the traditional market. This variable is significant at 1% significance level. Farmers supplying the supermarkets incur twice as much input costs compared to farmers supplying the traditional markets. This could be explained by the need to meet quantities and quality standards set by supermarkets necessitating the use of more inputs such as labour, chemicals and fertilisers in order to produce more high quality vegetables.

Table 5.18: Mean comparison of sampled farmers supplying FFV to supermarkets and the traditional market channels in Zambia

Variable	Least-squares means	t Value	p Value
Farm size (ha)			
Supply to supermarkets	4.7306	2.50	0.0221**
Supply to traditional markets	2.6658		
Age of household			
Supply to supermarkets	47. 198	1.65	0.1172
Supply to traditional markets	42.0545		
Household size (number)			
Supply to supermarkets	7.78277	0.64	0.5296
Supply to traditional markets	7.3091		
Number of labourers			
Supply to supermarkets	7.58277	3.98	0.0009***
Supply to traditional markets	4.1090		
Input use (costs) in Kwacha			
Supply to supermarkets	672 780.885	3.89	0.0011***
Supply to traditional markets	291 422.727		

Supply to supermarkets, N=19; Supply to traditional markets, N=55
** 10 % significance level ** 5% significance level; *** 1% significance level*

5.3 Profiles of farmers that supply FFV to the two market channels in Botswana

The sampling for the Botswana farmers was also detailed in section 1.8.2 in the sampling and data collection procedures. The number of farmers engaged in FFV production in Botswana is still small. The sample consisted of 13 out of 20 farmers from the Gaborone District/Region representing approximately 65% of the farmers producing for commercial purposes at the time of the survey. It is important to note that

there are not many farmers in Botswana producing FFV on a commercial scale and this is therefore a constraint not only for the supermarkets investing in Botswana but also for this study.

5.3.1 Entry of sampled farmers into production of FFV in Botswana

All farmers sampled and interviewed in Botswana commenced production of FFV in the mid-1990s (Table 5.19). The emerging group of small-scale to medium-scale horticultural producers who are now beginning to produce for the market started their farming enterprises in the mid-nineties and started selling to supermarkets in the late 1990s to date (Table 5.19).

Table 5.19: Entry of small-scale farmers into production of FFV in Botswana

Year	Frequency	Percent	Cumulative percent
1993	1	7.7	7.7
1995	2	15.4	23.1
1998	1	7.7	30.8
1999	1	7.7	38.5
2000	5	38.5	76.9
2001	1	7.7	84.6
2003	1	7.7	92.3
2004	1	7.7	100.0
Total	13	100.0	

This trend may well point to the availability of markets because this period also coincided with the rapid expansion of supermarkets in Botswana. There was an upsurge of farmers starting horticultural farming in 2000. This trend could probably be explained by direct government intervention through the implementation of the Financial Assistance Policy, a free government grant to farmers to start horticultural projects, which ran from 1991-2001. This is the period when supermarkets were expanding in Botswana. Coupled with government policy requiring supermarkets to source FFV available locally (this is effected by closing borders to imports when local farmers have produced enough of a particular commodity) may have encouraged farmers to venture into FFV production.

5.3.2 Resource endowment of farmers in Botswana

The resource endowment of farmers participating in the supermarket and traditional channel of FFV in Botswana is discussed below.

5.3.2.1 Land ownership

In Gaborone District/Region, 61.5% of the farmers interviewed obtained access to land by being allocated land by the state (land boards), 30.8% by buying and 7.7% by renting land. Most (61.5%) land under horticultural production was acquired on a 15-99 years leasehold. Freehold land made up 30.8% of all land under horticulture. Some farmers participating in the study reported that accessing more land for FFV production was difficult because of lack of surface water for irrigation.

Farmers supplying to supermarkets in Gaborone District/Region owned on average 7.63 ha of land compared to 4.33 ha owned by farmers supplying to the traditional market channel. Generally, all 13 farmers producing vegetables in the region own on average 6.87 ha of land (Table 5.20).

Table 5.20: Size of land owned by farmers involved in FFV production in Botswana

Farmer type	Land sizes (hectares)				
	Sample size (N)	Minimum	Maximum	Mean	Std. deviation
Gaborone (supply to supermarket)	10	1	31	7.63	9.704
Gaborone (supply to traditional market channel)	3	1	10	4.33	4.933
All farmers	13	1	31	6.87	8.762

5.3.2.2 Vehicle ownership

Approximately 69.2% of the farmers supplying FFV to supermarkets and other market channels owned at least one vehicle, whereas the remaining 30.2% relied on hired vehicles (Table 5.21) to transport their produce to the market.

Table 5.21: Ownership of vehicles among sampled farmers in Botswana

Own transport facility	Frequency	Percent	Cumulative percent
Own 1 or more	9	69.2	69.2
Do not own	4	30.8	100
Total	13	100	

5.3.2.3 Ownership of tractors and other land-preparation implements

There was a high incidence of farmers owning tractors among the sampled farmers in Gaborone District/Region (61.5%). The higher incidence of farmers owning tractors in Botswana could have been a result of the implementation of the Financial Assistance Policy, a grant by government, to farmers to assist them to purchase farming equipment.

5.3.2.4 Ownership of irrigation systems

All the farmers interviewed own irrigation systems (Table 5.22). Production of FFV in the studied region is close to impossible without irrigation. This is because of Botswana's climatic conditions, which are mainly arid to semi-arid. The annual rainfall is in the range of 250-650mm, with an evapotranspiration rate of 1800-2200mm per annum. Among the farmers interviewed, 46.2% own and use sprinkler-irrigation systems, 30.8% own and use drip-irrigation systems and 23.1% own and use hosepipes or furrow irrigation to produce vegetables (Table 5.22).

Table 5.22: Types of irrigation systems owned by sampled farmers in Botswana

Place	Type of irrigation system	Frequency	Percent	Cumulative percent
Gaborone	Sprinkler	6	46.2	46.2
	Drip	4	30.8	76.9
	Hosepipe/furrow	3	23.1	100.0
	Total	13	100.0	

It is worth noting that those farmers who do not own irrigation systems and have no access to water for irrigation mainly grow field crops such as sorghum, maize and vegetables under rainfed conditions. Production under rainfed conditions is highly erratic and unreliable, and these farmers barely produce enough for subsistence purposes.

Therefore, these small-scale farmers are automatically excluded from the supermarkets' supply chain in Botswana.

5.3.2.5 Ownership of sorting/packing shades

Approximately 31% of surveyed farmers in Botswana own sorting/packing shades but a reasonable number are involved in basic on-farm processing. The survey results reveal that 38.5% of farmers interviewed are involved in some basic on-farm processing of FFV (Table 5.23).

Table 5.23: On-farm processing of FFV by sampled farmers in Botswana

Place	Basic On-farm* processing	Frequency	Percent	Cumulative percent
Gaborone	Yes	5	38.5	38.5
	No	8	61.5	100.0
	Total	13	100.0	

** Basic processing of farm produce such as cutting of vegetables and packing in plastic bags or packing tomatoes and cucumber in plastic bags following the specifications and requirements of the supermarkets.*

Of the farmers involved in basic processing, about 7.7% are engaged in cutting and packing leafy vegetables such as kale or spinach and 30.8% were involved in washing, sorting and packaging products such as tomatoes and cucumbers for the supermarkets. One tomato grower has his own tomato brand and through his own marketing efforts negotiated space in the supermarket and sold his own tomatoes, which competed favourably with other supermarket brands.

Approximately 23.1 % (3 out of 13) of the surveyed farmers owned greenhouses. Those producing in greenhouses were mainly engaged in growing tomatoes, cucumber, broccoli and cauliflower. These are high value crops mainly targeting the chain supermarkets.

5.3.3 Household characteristics

A descriptive analysis of the household demographics and structure for the farmers sampled in Botswana is described below. As already explained for Zambia, this analysis

may help us to understand whether the number of persons in a household influences participation in FFV production and marketing.

5.3.3.1 Household size

The interviewed households in the Gaborone District/Region consist on average of five persons.

5.3.3.2 Education levels of household heads in Botswana

The majority of the farmers interviewed producing FFV in Botswana were well-educated. About 69.2% had attained tertiary level education, 7.7% secondary level and 23.1% primary level (Table 5.24). Owing to the fact that most of these farmers are well-schooled, they are able to negotiate contracts with supermarkets on their own. Most of the farmers interviewed were able to access one or more supermarkets and supply fresh vegetables and fruit.

Table 5.24: Education levels of household heads of sampled farmers in Botswana

	Level of education	Frequency	Percent	Cumulative percent
Supplying supermarkets	Primary	2	20.0	20.0
	Secondary	1	10.0	30.0
	Tertiary	7	70.0	100.0
	Total number	10	100.0	
Supplying traditional markets	Primary	1	33.3	33.3
	Secondary	0	0	33.3
	Tertiary	2	66.7	100.0
	Total number	3	100.0	

5.3.3.3 Income sources of farmers

In Botswana, 69.2% of the farmers involved in producing vegetables for supermarkets and other channels do not depend on farming as their only source of income whereas only 30.8% depend on farming as their only source of income (Table 5.25). Some of these farmers are engaged in farming as a part-time activity as most of them are employed as

civil servants, business people or retired civil servants and teachers (Table 5.25). The farmers involved in non-farm employment tend to delegate the running of the farming enterprise to their wives or hired managers.

Table 5.25: Types of off-farm sources of income for farmers in Botswana

Type of off-farm source of income	Frequency	Percent	Cumulative percent
Civil servants	3	23.1	23.1
Private sector	6	46.2	69.2
Depend on farming only	4	30.8	100.0
Total number	13	100.0	

5.3.3.4 Input use and costs

Input costs of farmers supplying to supermarkets were higher than those of farmers supplying to traditional markets (Table 5.26). This could be because those farmers that supply to supermarkets have to supply high quality products that require the use of more inputs such as fertilisers and pesticides, and they also want to obtain high yields for continuity of supply.

Table 5.26: Input costs of sampled farmers in Botswana (pula)

Place	Sample size (N)	Minimum	Maximum	Mean	Std. deviation
Gaborone (supermarket suppliers)	10	1500	60000	8294.00	18185.775
Gaborone (all farmers)	13	1500	60000	6880.0	15977.351
Gaborone (traditional suppliers)	3	2000	2500	2166.67	288.675

5.3.3.5 Household wealth ranking in Botswana

Just as in Zambia, household wealth ranking was based on enumerator assessment of the farmer's wealth status. Farmers' ownership of a permanent house (iron-roofed and built of stone or bricks), a vehicle or tractor and other assets of production such as larger land

size, higher income and other sources of income apart from farming, were used to classify households into either low, medium or high-wealth households among the sampled farmers in Gaborone District/Region. This is a qualitative measure of household wealth or income. According to the assessments made during the interviews, 32.1% of farmers supplying to supermarkets in Gaborone belong to medium-wealth households and the remaining 76.9% belong to high-wealth households (Table 5.27).

Table 5.27: Wealth ranking of interviewed farmers in Botswana

Place	Household wealth ranking	Frequency	Percent	Cumulative percent
Gaborone (supplying to supermarkets)	Low	0	0	0
	Medium	3	30.0	30.0
	High	7	70.0	100.0
	Total number	10	100.0	
All farmers (Gaborone)	Low	0	0	0
	Medium	3	23.1	23.1
	High	10	76.9	100.0
	Total number	13	100.0	

5.3.3.6 Proximity to the urban centres and FFV markets in Botswana

The majority of the emerging farmers are located near Gaborone city, the furthest being about 80km away. On average farmers supplying fresh vegetables to supermarkets in Gaborone are located 32.5 km from the city (Table 5.28).

Table 5.28: Mean distance from farm to market or urban centre

Farmer type	Distance of farm to major town (km)				
	Sample size (N)	Minimum	Maximum	Mean	Std. deviation
Gaborone (supply to supermarket)	10	5	80	32.50	26.588
Gaborone (supply to all market channels)	13	5	80	30.77	23.87

5.3.4 Farmers' ability to meet supermarket conditions in Botswana

Just as in Zambia, the ability of farmers to supply supermarkets in Botswana may be influenced by transaction costs which are determined by tough contract conditions and high quality requirements imposed by supermarkets on suppliers. This may also influence who and who does not participate in the supermarket channel. These factors are discussed below to show how these conditions may affect farmers' access to supermarkets.

5.3.4.1 Supply arrangements (Contracts)

In Botswana, just like farmers supplying to supermarkets in Zambia, about 80% of farmers supplied on verbal contracts (Table 5.29). Farmers in Gaborone District/Region tend to access the supermarket channel easily because FFV is in high demand and this demand has not yet been met.

Table 5.29: Nature of contracts between supermarkets and farmers in Gaborone Botswana

	Frequency	Percent	Cumulative percent
Verbal contracts	8	80.0	80.0
No response	2	20.0	100.0
Total	10	100.0	

5.3.4.2 Credit period

Approximately 50% of farmers supplying to supermarkets in Botswana received cash on delivery, 20% in 30 days and 30% in 60 days (Table 5.30). When and how the farmers received their payments depended on the conditions set by the supermarket. Supplying farmers had to fit in with this arrangement. These conditions varied from supermarket to supermarket. Some farmers preferred the longer credit period, which enabled them to get a reasonable pay cheque after a month or two, which could be better used in production than would a daily payment.

Table 5.30: Number of days before receiving payment

Credit period*	Frequency	Percent	Cumulative percent
Cash on delivery	5	50.0	50.0
30 days	2	20.0	70.0
60 days	3	30.0	100
Total	10	100	

***** *Number of days before receiving payment after supplying products to supermarkets*

Farmers supplying to chain supermarkets such as Spar had to wait for up to 60 days to receive payment. Some farmers reported that this was a constraint on their production processes and can be a barrier to entry for some farmers who cannot afford to wait that long.

5.3.4.3 Membership to a farmers' group

In Gaborone, 50% of the farmers interviewed belonged to a farmers' group. These farmers belong to a professional farmer group (Horticultural Association of Botswana). Most farmers joined this organisation to socialise and receive information in horticultural production, not for organising marketing. The situation in Botswana is unlike that of Zambia where most farmers were organised in co-operatives that assist them with information on farming, providing subsidised inputs and negotiating access to the supermarket channel.

5.3.5 Mean comparison of farmers supplying to supermarkets and traditional market channels in Botswana

Just as in Zambia, comparison of means for farmers who supply to supermarkets and farmers who supply to the traditional market channel was carried out for sampled farmers in Botswana. A one-way analysis of variance was performed to test for equality of means between these two groups of farmers but there was no significant difference between the two groups in all variables analysed. This could be due to the small sample size in Botswana (10 supplying to supermarkets and three to traditional markets). The number of farmers growing FFV in Botswana is still small as horticulture in Botswana is still in its infancy and therefore the sample could not be increased any further at the time of the research.

5.4 Summary

The results of the analysis of farmer characteristics supplying to supermarkets and traditional markets show that there is an increase in the number of farmers entering into FFV production in both Zambia and Botswana since the early 1990s. The major drivers of these changes are increased government intervention by promoting high-value crops to fulfil development goals such as diversification of the economy, job creation and improvement of rural households' income and welfare in Botswana and Zambia. In the same period there has been rapid expansion of supermarkets in Botswana and Zambia which may have provided a ready market for producers in these countries.

There is evidence that both small-scale and large-scale farmers are able to access and supply to chain supermarkets even though the number of small-scale farmers supplying to supermarkets is still small. Small-scale farmers accessing supermarkets are well-capitalised and generally produce for commercial purposes. The results show that farmers supplying supermarkets are well educated, own significantly more resources such as land, better irrigation systems, sorting/packing shades and used significantly more inputs such as fertilizers, chemicals and labour in an effort to produce high quality products compared to those supplying to traditional markets.

CHAPTER 6

THE DETERMINANTS AND IMPACT OF FARMERS' PARTICIPATION IN THE SUPERMARKETS FFV SUPPLY CHAIN IN THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY

6.1 Introduction

The descriptive results in chapter 5 showed the characteristics of different households involved in the FFV supply chains in Botswana and Zambia. It was evident that the participation of farmers in the supermarket supply chain of FFV in Botswana and Zambia was influenced by various factors such as land, labour and so on as postulated in Chapter 3.

The objective of this chapter is to present empirical results of the model developed in Chapter 3 to determine the factors that influence the choice of participation in the supermarket channel and the impact of this participation on household income. The model attempts to answer research question 4, which is further broken down into two questions:

1. What determines the decision of farmers to participate in the supermarket channel?
2. What is the impact (gain) from this participation on household income?

These two research questions are tackled by empirically estimating the model presented in section 3.5.1.

6.2 Estimating the model

From the descriptive analysis of supermarkets' procurement practices in Chapter 4 and the characteristics of farmers in Chapter 5, it is clear that not all farmers are able to participate in the supermarkets' FFV supply chain in the case-study countries. The estimation model may be susceptible to self-selection in that higher income from FFV may not necessarily be directly attributed to the decision to participate in the supermarket

channel. There may be other unidentified factors (managerial skills and previous experience) that increase both the probability of participating in the supermarket channel and the observed income. Owing to the problem of self-selection, an ordinary least squares (OLS) estimate of the income equation would actually overestimate the impact or gain from participation in the supermarkets' FFV supply chain by farmers. To deal with the problem of self-selection a two-step procedure proposed by Heckman (1979) is used to correct for sample selection bias and then OLS is used to calculate the causal (average treatment) effects. These models have been discussed extensively in Tobin (1958), Heckman (1979), Lalonde (1986), Winship and Mare (1992), Angrist *et al.* (1996), Greene (2000), Imbens (2004) and Wooldridge (2006).

6.2.1 Two-step impact estimation procedure

From section 3.5.1, the model that accounts for farmers' participation or non-participation in supermarket FFV supply chain is

$Y_i = \beta X_i + \delta R_i + \varepsilon_i$; δ is the treatment effect (impact) to be estimated; R_i is a dummy variable indicating whether farmer participates in the supermarket channel or not. The sample selection rule is that Y_i is observed when $R^*_i > 0$

The model of supermarket participation (whether farmer chooses to sell to supermarket channel or not is given by

$R^*_i = w_i z_i + u_i$ defines households that participate in the supermarket channel as

$R_i = 1$ if $R_i^* > 0$, 0 otherwise

$R_i = 0$ if $R_i^* \leq 0$

Step 1

The first step of the procedure involves establishing the probability that a farmer participates in the supermarket channel by estimating a probit model (Greene, 2000; Heckman, 1979).

Y_i is observed when $R_i^* > 0$

u_i and ε_i are distributed such that u_i / ε_i jointly distributed

$u_i \mid X_i) \sim N (0, \sigma^2, \rho)$

Given that $u_i \sim N(0, \sigma^2=1)$

$\Pr (Y_i \text{ observed} \mid X_i, Z_i) = 1- F (-w_i Z_i)$ (7)

$$E(Y_i \mid Y_i \text{ observed}, X_i, Z_i) = \beta X_i + \sigma\lambda_i \quad (8)$$

Where $\lambda_i = E(u_i \mid u_i > -w_i Z_i) = f(-w_i Z_i) / 1-F(-w_i Z_i)$- indicator or inverse Mills ratio which is not observable but can be obtained by estimating a probit choice model and f(.) represents the density and F(.) the cumulative distribution function of a standard normal variable. Then λ_i can be estimated from probit model coefficients obtained by maximum likelihood estimation method.

The equation for estimating the impact of supermarkets on small-scale farmers can be written as: $Y_i = \beta X_i + \delta R_i + \sigma\lambda_i + v_i^*$

Where $_E(v_i^* \mid X_i) = 0$

Step two

To obtain the average treatment effect, δ is estimated by regressing Y_i on X_i , R_i and estimated λ_i by least squares.

6.2.2 Variables in the model

In this section the variables that are included in the two-step treatment model for estimation of supermarkets' impact on small-scale farmers are discussed.

Dependent variables

In Namibia and Botswana, the number of small-scale farmers involved in FFV supplying to the market was small (in Botswana) and almost non-existent in Namibia. Therefore, the analysis was done only for Zambia where a reasonable data set was available. In Namibia and Botswana, the number of small-scale farmers involved in FFV to supply to the market was small (in Botswana) and almost non-existent in Namibia. Therefore, the analysis was done only for Zambia where a reasonable data set was available. To estimate equation 1 and 2 data collected from 78 farmers (20 small-scale farmers who supply FFV to Shoprite in Lusaka and 58 in Chipata and Lusaka who do not supply to Shoprite in Zambia) in 2005 was used. The dependent variable consists of two variables; the probability that a farmer participates in the supermarket supply chain for FFV by selling FFV to Freshmark or directly to Shoprite and the value of sales of vegetables (proxy for income) to the supermarket. This variable assumes 1 for those who participate

in the supermarket supply chain and zero for those who do not (Table 6.1). The products used in the analysis included all the fresh vegetables grown by any farmer in the area and could be sold directly to the supermarket or to the designated buying company. Fresh fruit and vegetables are high-value crops that are being promoted by these governments (Zambia, Botswana and Namibia) and can perhaps contribute to the improvement of the incomes of the households involved in these activities. Also, these products can be sold directly through supermarkets.

Table 6.1: Dependent and independent variables used in the model

Dependent variables	**Model description**
Fresh fruit and vegetable market	• Probability of selling FFV (STSMKT) • Value of products sold (VFFVSALT)
Independent variables	
Household resource endowments (assets)	• Farm size (Ha) • Ownership of tractor or vehicle (yes=1, 0 otherwise)
Household structure	• Labour = Number of household members working on the farm + hired labour (numbers) • Age of household head (years) • Gender of household head (household head is female = 1, 0 otherwise)
Information-accessing variables	• Distance from farm to market or urban centre (km) • Membership in a farmers' organisation (yes = 1, 0 otherwise)

Independent variables

The independent (explanatory variables) are divided into three constructs; household resource endowments (assets), household structure, access to information variables.

Household endowments

Variables included in household endowments are farm size, ownership of tractor/vehicle (transport facilities). Land is a necessary requirement in the production of FFV if there is to be any output marketed. The variable land (FARMSIZE) was documented in hectares (ha). Households accessed land through owning or renting it. Households with more arable land possessed higher potential to produce more FFV and stood a higher chance of participating in FFV market. Ownership of land alone without other inputs may not

necessarily increase the probability of a farmer accessing the supermarket supply chain for FFV.

Ownership of irrigation systems (OWNIRISYS) was presented as a dummy variable, which assumed the value of 1 if a household owned irrigation system, 0 otherwise. Farmers who own irrigation systems are more likely to produce and supply a variety of FFV to various markets. This variable was dropped during preliminary analysis due to the problem of multicollinearity.

Ownership of tractor or vehicle (OWNVEH) could help reduce transaction costs, especially transport costs enabling the household to easily participate in the FFV market. Ownership of transport facilities may help farmers to seek and access distant markets implying these farmers have a better opportunity of supplying to the supermarket channel. This was also a dummy variable assuming the value of 1 if household owned vehicle or tractor and 0 otherwise.

Household structure

This construct consisted of three variables: labour available to households, gender of household head and age of household head.

The total number of people working on the farm (LABOUR), which included the number of household members who work on the farm full-time plus hired workers, may influence the ability of the household to produce for the market. Households with a higher labour supply may be able to devote more labour to the production of FFV, which is a labour-intensive enterprise. These households may be able to produce more and easily participate in the FFV chain. This variable is expected to have a positive impact on participation and on income.

Another variable in this group was gender of household head (GHHD). Generally male-headed households tend to have more resources and access to information for production compared to female-headed households. This variable was presented as a dummy

variable assuming the value of 1 if household was female-headed, zero otherwise. This variable's impact on accessing supermarket supply chain is unknown.

The final variable in this group was the age of household head (HHAGE). This variable is taken as a proxy for experience of the farmer in production of FFV. It was measured in number of years. Older household heads may have more experience in the production of FFV and may have more social capital and networks. On the other hand, older household heads may be more averse to taking risks so that they do not easily adopt new methods of production. Due to the stringent requirements of supermarkets older household heads may find it more risky especially when it comes to rejection of low-quality produce. Many of them may opt not to supply to this market. It follows younger household heads may be more able to adopt risky production systems. Therefore, this variable is expected to have either a positive or a negative impact on participation and income accruing from participation in the FFV supply chain.

Access to information variables

The third group of explanatory variables are related to the ability of households to access information about markets and production. Variables in this group could assist households in reducing the cost of searching for information and hence facilitate the household participation in the marketing channel. This construct consist of two variables, namely distance of farm to the nearest urban centre (DIURBC) and membership of a farmers' organisation (MOFAGRP).

The variable distance of farm to the nearest urban centre (DIURBC) was measured in kilometres. Households near urban centres are near markets and sources of information about market conditions. These households are more likely to participate in FFV markets as these farmers face lower transaction costs especially transport costs. This variable is expected to have a negative impact on participation as well as on income.

Another variable that may improve the ability of farmers to access the FFV markets is their ability to produce a continuous supply of FFV throughout the year. For most small-

scale producers, to achieve this requirement may necessitate joining a co-operative or farmers' group (MOFAGRP). This variable was a dummy variable assuming the value of 1 if a farmer is a member of a farmers' group, zero otherwise. The fact that a farmer joins a farmers' group may not necessarily increase the probability of supplying to supermarkets. The impact of this variable in so far as it influences participation in the supermarket channel and its impact on household income is not known in the context of SADC countries. The expected sign of the coefficient is unknown.

6.2.3 Hypothesis

The model is intended to answer research questions 2 and 3 of the study as presented in section 1.3.3. The model presented in section 6.2.1 aims to test the hypothesis that small-scale farmers growing vegetables and supplying to supermarkets earn higher incomes compared with those supplying to the traditional market channel. The hypothesized relationships between variables, the decision to participate and incomes are shown in Table 6.2.

Table 6.2: Hypothesized relationship of participation with income

Variable description	Variable description	Participation decision	Impact on income
Household endowments (Assets)			
Farm size	FARMSIZE	+	+
Own tractor or vehicle	OWNVEH	+	+
Household structure			
Household head age	HHAGE	- / +	- / +
Gender of household head	GENHD	?	?
Labour	LABOUR	+	+
Information access			
Distance from farm to nearest urban centre or market	DIURBC	-	-
Membership of a farmers' organisation	MOFAGRP	?	?

The participation decision is modelled by the probit model. The probit model aims to identify factors that influence farmers' participation in the FFV markets. A positive sign implies that a unit change in the explanatory variable will result in an increase in the probability to participate in the FFV market. A positive sign in the linear regression model implies that a unit change in the variable leads to a positive change in value of sales (income). On the other hand, a negative sign on the coefficient of the variable implies that a unit change in the variable leads to a decline in the probability of participation in the FFV market as well as a decline in household income.

The probit model is used to generate log likelihood function that is used to generate the inverse Mills ratio, which is used in the second stage to take care of the selectivity bias problem. The treatment effects are obtained by including the supermarket dummy variable and the inverse Mills ratio with the explanatory variable in the ordinary least squares regression. Statistical software Stata version 8.0 (Stata Corporation, 1984) is used in the analysis. The statistical significance of the inverse Mills ratio and supermarket dummy is examined to find out whether selection bias exists between these two groups of farmers and whether participation in the supermarket channel significantly increases income of these households.

6.3 Decision to supply vegetables to supermarkets or the traditional market channel

The model of decisions of farmers to supply to supermarkets is determined by the probit model, which is specified as:

Pr (STSMKT) = f (FARMSIZE OWNVEH HHAGE GENHD LABOUR DIURBC MOFAGRP)

The probability of selling to the supermarket channel is influenced by the explanatory variables specified in the model. Table 6.3 presents the results of the probit estimates of the factors that influence farmers' participation in the supermarket FFV supply chain.

Table 6.3: Factors that influence farmers' participation in the supermarket FFV supply chain, probit results

Variable	Coefficient	Std. error	Z-Stat.	P value
Constant	5.343919	3.751057	1.42	0.154
Household endowments				
Farm size (ha)	0.160136	0.150677	1.06	0.288
Owns tractor or vehicle	4.328424	1.810059	2.39	0.017**
Household structure				
Household head age	-0.069235	0.527433	-1.31	0.189
Household head is female	-1.637593	1.058993	-1.55	0.122
Labour	0.490036	0.227575	2.15	0.031**
Information access				
Distance from farm to nearest urban centre	-0.269457	-0.137126	-1.97	0.049**
Membership of a farmers' organisation	-2.429095	1.237532	-1.96	0.050**
% Correctly predicted LR (model) χ^2 N= 74	90 61.22***			
N selling to supermarket = 19				

* 10 % significance level, ** 5% significance level; *** 1% significance level

As shown in Table 6.3, the model is highly significant and correctly predicts 90% of the observed outcomes. The model chi-square of 61.22 is highly significant at 1% significance level. This implies that in total the model identifies factors influencing farmers' participation in the supermarkets FFV supply chain. Four of the seven factors are significantly different from zero. Two of these (ownership of tractor / vehicle and labour) are positively related to participation in the FFV channels whereas two (distance from farm to urban centre and membership of a farmers' organization) is negatively associated with farmers' participation in the FFV markets. This implies that a unit increase in distance away from the urban centre will reduce the probability of the farmer

participating in the FFV market, meaning the closer you are the better. The remaining variables (farm size, gender of household head and age of household head) do not significantly differ from zero.

Membership by farmers of a farmers' organisation was negatively related to participation in the FFV supply chain. This result is contrary to expectation. It is documented that farmers organising into farmers' groups may mitigate the problem of low volumes by helping farmers gain large volumes of produce required by supermarkets and give them power to negotiate better prices. The farmer organisations in Zambia are co-operatives and informal farmers' groups. The co-operatives were still young in that they were still being formed and even though farmers were in a co-operative they sold products as individuals (Emongor *et al*., 2004). The co-operatives are only helping farmers to access inputs and information, not assisting farmers in marketing their produce. This implies that given the current level of farmer group formation in the case-study countries, farmers' membership in a farmers' group does not increase their probability to supply to the supermarket channel or traditional channel. According to the probit results, being a member of a farmer organisation reduces the probability of participating in the FFV market.

6.4 The impact of farmers' participation in the supermarket FFV supply chain on household income

In stage two of the Heckman procedure, an ordinary least-squares regression was estimated to account for selection bias and estimate treatment effect (impact) of farmer participation in the supermarket FFV supply chain on farmer income. The OLS model was specified as:

VFFVSAL = f (FARMSIZE OWNVEH HHAGE GENHD LABOUR DIURBC MOFAGRP STSMKT Mills)

This means that the value of sales of FFV to supermarkets is determined by the above factors in the model. In order to estimate treatment effects (impact), the OLS model

included the dummy for supermarket participation and inverse Mills ratio (Mills). Table 6.4 presents results of the regression model to show the impact of farmers' participation in the supermarket FFV supply chain on household income.

Table 6.4: Impact of farmers' participation in supermarket FFV supply chain, regression results

Variable	Coefficient	Std. error	t-Stat.	p value
Constant	0.767818	1.214656	0.63	0.530
Household endowments				
Farm size (ha)	0.0108219	0.0581635	0.19	0.853
Owns tractor or vehicle	1.226134	0.62706	1.96	0.055
Household structure				
Household head age	-0.0278303	0.126074	-2.21	0.031**
Household head is female	0.0236544	0.2885752	0.08	0.935
Labour	0.1451915	0.540874	2.68	0.009***
Information access				
Distance from farm to nearest urban centre	-0.0571444	0.025957	-2.20	0.031**
Membership of a farmers' organisation	-483265.6	402691.2	-1.20	0.235
Mills	3.391477	1.848337	1.83	0.071*
STSMKT	1.060624	0.474308.7	2.24	0.029* *
F (9, 64) 4.12	4.12 ***			
Probability value	0.0003			
R^2	0.367			
Adjusted R^2	0.278			
N selling to supermarket	19			
Total N	74			

* 10 % significance level ** 5% significance level; *** 1% significance level

The model is highly significant at 1% significance level with an F-statistic of 4.12. Five variables have coefficients that differ significantly from zero. These are "household age",

"labour", "distance from farm to urban centre", "supermarket participation dummy" and "Mills". Participation in the supermarket channel has a positive impact on the farmers' income. By participating in the supermarket FFV supply chain, farmers' increase value of sales by 1.060624 million kwacha (approximately R 1 494).

Among household structure variables, a unit change in household age a negative impact on value of sales of FFV. Increasing household age by a unit would result in the value of sales of FFV declining by 0.0278303 million kwacha (R39.2). On the other hand, if a farmer increases labour by one person it will increase value of sales by 0.1451915 million kwacha (R 204).

Among the information-access variables, distance from the farm to the nearest urban centre has a negative impact on value of sales. If the distance from the farm to nearest urban centre is increased by 1 unit, this will result in a decline in value of sales of 0.057144 million kwacha (R80). Farm size and ownership of tractor or vehicle does not significantly contribute to value of sales. The inverse Mills ratio is significant at 10% significance level in this model. Membership of a farmers' organisation has no impact on income of households.

6.5 Hypothesis testing

In order to test the hypothesis that farmers who supply to supermarkets have higher incomes compared to those who supply to the traditional markets, mean equality tests were carried out on the value of sales (proxy for income) of the two groups of farmers in Botswana and Zambia. The model allows comparison to be made on value of sales by supermarket farmers compared to those who do not supply to supermarkets. The results of the mean income comparisons are shown in Table 6.5.

Farmers who supplied to supermarkets have a higher mean average value of sales (income) compared to those who supply to traditional markets in both Zambia and Botswana (Table 6.5). The difference in mean income for those who supply to

supermarkets and those who supply to traditional markets in Zambia is statistically significant at 5% significance level whereas it is not statistically significant for the Botswana sampled farmers. This then confirms the hypothesis that farmers who supply to supermarkets earn higher incomes compared to those that supply to the traditional channel.

Table 6.5: Mean comparison of value of sales (proxy for income) of farmers supplying to supermarkets and those supplying to traditional markets in Botswana and Zambia

Variable	Least-squares means	t Value	P Value
Botswana			
Value of sales (Pula)			
Supply to supermarkets	P 15807.77	1.54	0.1555
Supply to traditional markets	P 9816.67		
Zambia			
Value of sales (Million Kwacha)			
Supply to supermarkets	K million 2.0701	2.44	0.0252**
Supply to traditional markets	K million 1.1642		

Supply to supermarkets, N=19; Supply to traditional markets, N=55
* 10 % significance level ** 5% significance level; *** 1% significance level

Caveat

While questions to capture data on lagged variables were included in the questionnaire (question 7 and 19) the information collected was not sufficient to allow tests of causality. Due to insufficient responses to those questions on lagged assets, the study did not carry out causality analysis but the analysis carried out in the study used current values of assets, therefore it is not possible to conclude whether supermarkets select asset-endowed small-holder farmers or whether small-holder farmers accrued assets as a result of trading with supermarkets.

It is worth noting that currently, the number of small-scale farmers who access the supermarket channel is still small. For example in Zambia Freshmark sources about 10% of its vegetables from small-scale farmers whose number was about 22 compared to large scale farms who supply 90% of the produce. The reader should also bear in mind that these 22 farmers are drawn out of a large number of small-scale farmers who make up the bulk of farmers in Zambia

6.6 Summary

In this chapter, the factors that influence small-scale farmers' participation in the supermarket FFV supply chain were determined by estimating a probit model in step 1 of Heckman's procedure. The probit model was also used to estimate the inverse Mills ratio, which was incorporated into the second step of the procedure to estimate the income equation. The probability of selling FFV to the supermarket was influenced by factors in the model, that is farm size, ownership of tractor or vehicle, age of household head, gender of the household head, labour, distance from farm to the nearest urban centre and membership of a farmers' organisation. Three of these factors, namely ownership of tractor or vehicle, labour and distance were statistically significant. Labour and ownership of tractor or vehicle influences participation in the supermarkets' FFV supply chain positively, whereas distance from farm to urban centre influence participation negatively. The probit model was highly significant at 1% significance level with a chi-square of 61.22. The model predicted 90% of the outcomes correctly. In the second step of the procedure, the impact of farmers' participation in the supermarket FFV supply chain was estimated using ordinary least-squares regression model. In order to estimate treatment effects (impact), the OLS model included the dummy for supermarket participation and inverse Mills ratio (Mills). The results showed that the model was highly significant at 1% significance level with an F-statistic of 4.12. Four variables had coefficients significantly different from zero. These are the household age, labour, distance from farm to urban centre and supermarket participation dummy. Participation in the supermarket channel has a positive impact on the farmers' income. By participating in the supermarket FFV supply chain, farmers increased income by 1.060624 million kwacha.

This implies that supermarkets may be beneficial to small-scale farmers if they can access them. A widowed farmer in Lusaka said this about supplying to Freshmark "I have been able to earn good income and take my children to school (2 in secondary school), buy food, build a good house and dress myself and my children well. Even though I have not yet been able to purchase a vehicle but all in all my family has been well catered for, we have not lacked."

Another farmer in Luangeni village, Chipata had this to say, "We were trained to produce better quality vegetables by the project for Shoprite. Even though I no longer supply to Shoprite, the conditions in our village has drastically changed. Most people in the village now produce more vegetables and sell in the local market, earn more money than before we were trained. We can now afford to take our children to school, to hospital and some people in the village have purchased iron sheets to build better houses. Generally, the life of the villagers has been changing for the better."

This shows that there is a correlation between supermarkets and the wealth of the farmer. Due to difficulties in apportioning causation due to lack of lagged variables, this association between the ability of the farmer to supply to supermarkets and wealth creation is difficult to prove.

CHAPTER 7

SUPERMARKETS' IMPACT ON AGRICULTURE, MANUFACTURING/ FOOD PROCESSING AND TRADE IN THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY

7.1 Introduction

The impact of South African supermarkets on the host nations' agriculture and food-manufacturing/processing industry is complex in that in some cases it is direct and observable while in others it is indirect and may occur at the macro-economic level. Supermarkets impact directly on consumers, other businesses and local producers. These impacts are as a result of the decisions made by the supermarket to source or procure from suppliers in the host nation where they have invested or source and procure from South Africa or from other countries as discussed in Chapter 3. These impacts may be positive or negative depending on whether local farmers and processors access and sell their products to these multinational supermarkets or not. These impacts may also differ in different sectors depending on the structure of the agrofood systems and regulatory policies in individual countries. The impact on individual small-scale farmers has been estimated in Chapter 6. In this chapter, an attempt is made to determine the impact of supermarkets on agriculture and industrial development by using case studies in the dairy sector and fresh fruit and vegetables (FFV) sector. Impacts in these sectors were analysed by means of a deductive analysis (first a premise, examine the facts and draw conclusions) to determine the general impact on the development of agriculture and industry in the SADC. Due to the limited size of the sample this chapter will only present preliminary results which may generate more hypotheses for future research.

This chapter is organised as follows: Section 7.2 gives a description of the processing firms interviewed in the case-study countries. In section 7.3, the impacts of supermarkets' involvement in the dairy sector are discussed. In section 7.4, the impact of supermarkets on the FFV sector is discussed. The impacts were determined by

interviewing key informants, a survey of farmers who supply FFV to supermarkets and alternative local markets and dairy processors. Triangulation was done by making use of secondary data. In section 7.5 a comparison of perceived impacts in the FFV sector in case-study countries is given. In section 7.6 a description of trade flows in SADC is given and section 7.7 gives the summary of the chapter.

7.2 Impact of supermarkets on the food-processing sector

The impact of supermarkets on the food-processing sector was deduced by carrying out a survey of food processors in the case-study countries for the selected products. The survey was intended to establish profiles of processors' to determine whether small-scale food processors were able to access the supermarket channel in the case-study countries and, if not, to determine whether there were other channels in use by these processors, and to establish the constraints faced by small-scale processors in attempting to sell products to chain supermarkets. A total of 18 firms (excluding those in FFV such as Freshmark and Freshco) involved in food processing (dairy, milling, fresh fruit and vegetables processing, bread making and confectionaries) across the three countries were sampled (sampling and data collection is discussed in section 1.8.2) and analysed to determine the marketing channels of these firms (whether firms supply to supermarkets or not) and the constraints facing them. Table 7.1 shows the profile of firms and products that are processed in the case-study countries.

Table 7.1: Profile of food-processing companies interviewed in Botswana, Namibia and Zambia

Company name	Country/ city/town	Year started operations	Products	Capacity/scale	Number of employees	Market channels	Total annual sales 2-5 years ago	Total annual sales today (time of interview 2005)	Constraints/strengths that hinder or enable them to supply to SA supermarkets located in host countries
Dairying Parmalat (Zambia Ltd)	**Zambia** Lusaka, Kitwe	1996	A B C D H J	120000 l/day (50 000) Large-scale	N/A	20% Shoprite 80% other channels (wholesale, small shops &, independent supermarkets)	N/A	N/A	Have distribution points across the country. Distributes to all Shoprite stores
Dairy King	Lusaka	2001	A B F G	2500 L/day (1000) Small-scale	12	(Small shops, local small supermarkets)	N/A	N/A	Lack of transport Long credit period (Shoprite 30 days) Low capacity
Manyana farms	Chipata	2002	A G K	270 L/day Medium-scale farm	89	Indian shops, own factory outlet and Eastern Dairies	7 million (kwacha)	40 million (kwacha)	Not able to attain high quality demanded by Shoprite. Lack of transport Long credit period (Shoprite 30 days)
Eastern Dairies	Chipata	1996	A B D L	25000L/day Medium-scale	20	Wholesalers Small shops Own factory outlet	120 million (kwacha)	180 million (kwacha)	Lack of transport Long credit period (Shoprite 60 days)
Parmalat (BW Ltd)	**Botswana** Gaborone	1988	M	Large-scale	35	Wholesale 65% Supermarkets	28 million pula	57 million pula	Distributes to all chain supermarket stores

Sally Dairy	Gaborone	1994	A F H	10000 L/day Medium-scale	18	Wholesalers and other 75% Supermarkets 25%	N/A	N/A	Distributes to all chain supermarket stores
Clover (BW Ltd)	Gaborone	1994	A B F H	40000 L/day Large-scale	N/A	Wholesalers and other 60% Supermarkets 35%	N/A	N/A	Distributes to all chain supermarket stores
Milling N.M.C Ltd	Lusaka	N/A	Maize flour, livestock feeds, rice	Large-scale	686	Supermarkets 40% Wholesalers 60%	N/A	N/A	Has logistic capacity and distributes to all Shoprite stores in Zambia
SABCO (Superior) Millers	Lusaka	2000	Maize meal	Medium-scale	30	Wholesalers Small shops	0.5 million (kwacha)	1 million (kwacha)	Lacks transport to supply to all Shoprite stores Long credit period
Kwacha Milling Ltd	Chipata	1999	Maize meal	Medium- scale	38	Wholesalers Local shops Own factory outlet	N/A	N/A	No need. Developed own networks. Long credit period (90 days)
Nyati Milling	Lusaka	1995	Wheat flour	Medium- scale	15	Bakeries Local shops Wholesale	N/A	N/A	No need. Developed own networks. Long credit period (90 days)
Namib Mills	Windhoek	1982	Maize flour Wheat flour Pasta Animal feeds	Large-scale	N/A	Supermarkets 60% Wholesale 30% Small shops 10%	N/A	N/A	Distributes to all chain supermarket stores

Bakery/confectionery									
Jambo Bakery	Chipata	2001	Bread Buns	Medium- Scale	70	Local shops Own outlet	N/A	N/A	Shoprite did not want to buy from them.
Sayah Bakery	Lusaka	2002	Bread Buns	Small-scale	< 10	Local shops Own factory outlet	N/A	N/A	Shoprite does not affect them in any way
Amigo Foods	Lusaka	2001	Potato chips, Cheese curls	Medium- Scale	30	Supermarkets 70% Local shops 30%	2.7 billion (kwacha)	2. 9 Billion (Kwacha)	Distributes to all Shoprite supermarket stores
Capricorn Sweets	Windhoek	1988	Sweets, confectioneries, peanuts	Medium- scale	38	Supermarkets 30% Kiosks Wholesalers	N/A	N/A	Deliver to all Shoprite stores

Key

A =Pasteurised milk
B =Yoghurt
C =Long-life (UHT) milk
D = Butter
E =Cheese
F = Cultured milk
G = Flavoured milk
H = Juices
J = 'Magheu'
K = Raw milk
L =Ice creams
M =distributes products imported from parent company in South Africa
N/A-information not available

In each sub-sector, large, medium and small-scale firms were interviewed. The reason was that by sampling and interviewing all firms it could be possible to establish why some firms accessed the supermarket channel while others did not and also to determine the impact of supermarkets' growth on various firms.

Seventy-five percent of the processing firms interviewed began their operations during the 1990s. This could be due to liberalisation of the economy undertaken by these countries in the early 1990s as already discussed in section 2.9.2. South African companies, including supermarkets, took this opportunity to expand into Africa. This period marked a rapid growth and expansion of supermarkets in the SADC resulting in increased market opportunity for farmers and processors who could access these new markets. Because most of the sampled firms were established after 1994 it is not possible to deduce whether the companies increased in size by supplying to supermarkets. Probably a symbiotic relationship exists between large processing firms and supermarkets. The firms provide the products and supermarkets provide a market for these firms. Both benefit from their relationship. Evidence of upgrading products and increasing size to serve chain supermarkets cannot be established by this study; therefore more research is necessary in the future.

The marketing channels used by food processors in the case-study countries fall into two major categories. The "traditional channels" (wholesale markets, small local independent supermarkets, small shops, agents, kiosks and own factory outlets); and the "modern channels" (this includes chain supermarkets). Large-scale processors used the two channels (supermarkets and traditional). The share of the large processors' output sold through supermarkets varied from country to country depending on the nature of the supply chain (Table 7.2). The large milling companies sell approximately 40% of their output directly to chain supermarkets in Zambia and Botswana and approximately 60% directly through chain supermarkets in Namibia. In the dairy processing sub-sector, approximately 40% of the processors' output is sold through supermarkets and 60% through the traditional channels (wholesale, small local supermarkets and small shops) in Zambia, and approximately 35% of dairy processors' output is sold through supermarkets

in Botswana and approximately 65% is sold through the traditional channels (Table 7.2). Supermarkets baked bread in their in-store bakeries in the three countries, resulting in most companies (large and small) being unable to access the chain South African supermarkets supply chains for bread. In Zambia, no bakery was supplying Shoprite with bread because Shoprite has its own bakery. Nevertheless other bakeries had developed their own supply chains by selling through the traditional marketing channels. In Namibia and Botswana large baking companies are able to access and supply to supermarkets. This implies that local baking companies are in direct competition with supermarkets. The supermarkets sell their bread at lower price than the competitors.

Large-scale processing firms negotiated formal contracts with supermarkets because these firms are able to satisfy the conditions of the chain supermarkets in terms of quantity, quality (grades and standards) and logistics capability. The prices the large-scale processors receive are inclusive of transport costs. Large processors' participation in the supermarkets supply chain has resulted in increased output and annual sales as reported by the managers that were interviewed.

Table 7.2: Share of sampled processors output (%) sold through supermarkets and traditional channels

Food processing sub-sector	**Country/Share* of output sold through various channels by large firms**					
	Botswana		**Namibia**		**Zambia**	
	supermarket	traditional	supermarket	traditional	supermarket	traditional
Milling	40	60	60	40	40	60
Dairy	35	65	60	40	40	60
Bread/confectionery	20	80	20	80	0	100

Source: Survey results, 2004-2005; * *these are estimates by interviewed managers of processing companies in response to questions put to them from the structured questionnaire.*

Small-scale and most medium-scale processing firms in the dairy, milling and bread and confectionery industries were not able to access the supply chains of the chain supermarkets. Small-scale processors who do not produce sufficient products in terms of

quantities and quality and lack logistics capacity, do not access the South African chain supermarkets in host countries. These firms use the alternative traditional market channel to market their products. None of the processors interviewed quoted lack of market access as one of their constraints. Most of the firms interviewed (large, medium and small) have shown an increase in their total annual sales for those firms who were willing to divulge such information. Most firms interviewed declined to give this information citing confidentiality.

Responding to the question: "Why don't you supply to supermarkets?" the small-scale processing firms cited various constraints that make them unable to supply to supermarkets. These included lack of logistics capacity. For example, for a small-scale milling or dairy-processing firm to be able to supply to the chain supermarkets they must be able to supply to all the stores in the country. These stores may be located in distant localities requiring efficient transport systems. Another constraint cited was long credit period (ranging between 30-90 days). Most small-scale processors are cash-strapped and cannot wait that long. Most of these firms prefer to supply to the traditional channels where they receive payment on delivery or where the credit period is at most seven days. The small-scale and medium-scale processing firms have established their own customer base and their market segments. Small-scale and medium-scale processing firms produce products and sell to marketing channels that target low-income groups whereas large processing firms target chain supermarkets that cater for the middle- to high-income consumer groups.

7.3 Impact of supermarkets' involvement in the dairy sector in Botswana, Namibia and Zambia

The information below on how South African and local supermarkets have impacted on the dairy sector was collected from a survey of dairy processors, interviews of key informants, and secondary data.

7.3.1 Increase in fresh milk output

According to key informants, the investment by chain supermarkets such as Shoprite in Zambia has extended the cold chain for fresh milk. This has enabled increased fresh milk availability in urban towns in areas remote from Lusaka. Apart from supermarkets availing cold storage for processed fresh milk in their stores, increased involvement of milk processors in the supply chain, especially manufacturing long-life milk, has made it possible for consumers to access milk for domestic use. Large dairy-processing companies deliver fresh pasteurised milk to chain supermarket stores in Lusaka and all major provincial towns. Government policy requiring that fresh milk and other dairy products available locally be procured locally to promote production in Zambia facilitated this. Ready availability of milk in supermarket stores has resulted in increased per capita milk consumption, especially in urban areas such as Lusaka.

The inclusion of large local dairy processors in the supermarkets' dairy supply chain implies that emerging dairy farmers (small-scale dairy farmers) and large-scale commercial dairy farmers access supermarkets. Dairy processors such as Parmalat and Finta in collaboration with other dairy improvement projects have made special arrangements to assist small-scale dairy farmers by purchasing milk from organised groups of farmers at collection centres. Data supplied by Land O' Lakes show that milk collection from organized farmer groups has been increasing. The quantity of milk supplied to dairy processors through collection centres increased from 830 263 litres in 2002 to 1 288 964 litres in 2004. At the same time the number of small-scale dairy farmers delivering milk to dairy processors through collection centres increased from 222 in 2002 to 557 in 2004 (Land O' Lakes, 2004). In general through the developing supply chain, there has been an increase in the amount of milk produced in the country (Table 7.3).

There has also been an increase in the quantity of milk processed and marketed by these dairy firms. For example, Parmalat Zambia sold 20 million litres in 2002 and this increased to 24 million litres in 2003 (Valeta, 2004). Survey results show that Eastern Dairies increased its annual sales from K120 million in 2002, to K180 million in 2005.

Table 7.3: Milk production and consumption statistics in Zambia (1998 – 2003)

Year	Volume produced (litres)	Estimated milk consumption (litres)	*Deficit/Surplus (litres)*
1998	138,000,000	169,000,000	-31,700,000
1999	141,000,000	174,000,000	-33,000,000
2000	135,000,000	166,900,000	-31,900,000
2001	139,000,000	171,000,000	-32,000,000
2002	147,000,000	181,800,000	-34,800,000
2003	190,000,000	235,000,000	-45,000,000

Source: Valeta (2004)

Manyana farm increased its annual sales from K7 million in 2002 to K40 million in 2005 (Table 7.1). Data on output was difficult to obtain as most firms indicated that the information was private and confidential; nevertheless many processing firms interviewed reported increased production and annual sales. The increase in milk production and processing in the firms that were surveyed cannot conclusively be attributed to supermarkets involvement in the dairy supply chain alone in Zambia, but one can confidently conclude that the involvement of supermarkets in the dairy supply chain has not resulted in reduction in milk production in Zambia.

There are three main dairy processors in Botswana who process raw fresh milk into pasteurised fresh milk and other dairy products such as yoghurts and milk drink juices. These are Clover Botswana Ltd, Sally Dairy Ltd and Parmalat Botswana Ltd (Table 7.1). A fourth dairy processor, Dairy King located in Lobatse, started operations in 2003. It is fairly small compared to the others. Currently only Clover, Sally Dairy and Dairy King process fresh milk. According to the managing director, Parmalat Botswana does not process fresh milk because of high costs. Parmalat Botswana acts as an agent of the parent company, which has four processing plants in South Africa. Parmalat Botswana receives processed milk products (UHT milk, cheese and yoghurt) imported from Parmalat factories in South Africa for distribution in the Botswana market. These four dairy processors supply dairy products to all supermarkets (international and national) such as Spar, Pick 'n Pay, Shoprite/Checkers, Payless and Choppies. Apart from these two major dairy processors, there are other smaller dairies on farms that pasteurise milk. These do not access supermarkets but sell their milk directly to consumers and other institutions such as schools.

Just as in Zambia, the involvement of dairy processors and supermarkets in the dairy supply chain has resulted in increased fresh milk output. According to the dairy processors interviewed in Botswana who process fresh milk (Clover Botswana and Sally Dairy), there has been a tremendous increase in the quantity of milk they process and sell since the coming of the chain supermarkets. The processors have also increased the number of workers in their factories. For example, when Sally Dairy started in 1994, there were nine workers but since the coming of the multiple chain supermarkets, the number of workers increased to 18. The company bought new equipment to increase capacity, therefore more workers were hired.

There is one main dairy processor in Namibia, namely Namibia Dairies, which was formed in 1997 through the merger of Bonmilk and Rietfontein Dairies. Namibia Dairies have processing plants in Windhoek and Rietfontein in the north. Dairy production is mainly carried out on large-scale farms. Dairy production is still in its infancy in Namibia and therefore still protected under the Infant Industries Protection Act. Under this Act importation of fresh milk was banned even though domestic milk production is insufficient to meet domestic demand and in excess of 25 000 milk equivalents are imported annually (Republic of Namibia, 2002). Supermarkets do import other processed milk products such as long-life milk, cheese and yoghurt.

7.3.2 Improvement in milk quality

The quality of milk sold to consumers has improved with the arrival of the large South African supermarket chains because supermarkets procure from local large dairy-processing companies such as Parmalat, Finta and large farms. These dairy companies maintain high standards, which at the same time satisfy supermarket private grades and standards requirements. To attain high quality processed milk products, processors need good quality fresh milk from milk suppliers. This means that quality has to be maintained from the farm level to the processing plants. To improve milk quality at farm level making sure processors access better grades of milk for processing has required collaboration of all stakeholders to educate dairy farmers, especially small-scale

emerging dairy farmers, in better, improved and safe production methods. Collaboration between dairy processors, the Zambian government and other stakeholders such as Land O' lakes and Zambia Agribusiness Training Assistance Centre, has facilitated the inclusion of small-scale dairy farmers in the dairy supply chain of processors and hence supermarkets. This has been achieved by training farmers on issues of quality, formation of dairy farmer groups and provision of inputs that farmers need to assist them to produce more milk and supply to dairy processors. For farmers to meet the quality and quantity requirements and reduce transaction costs, the government and non-governmental organizations have promoted the formation of dairy farmer co-operatives.

In Botswana, the quality of milk has also improved probably because supermarkets demand high quality milk. The processors are responsible for delivering the required high quality milk to supermarket stores. Before a processor can access the supermarkets' supply chain the processor is audited (for example Pick 'n Pay visits the processing company and carries out an audit of its processes to determine whether they meet the set standards). In response to the demands of supermarkets, dairy-processing firms ensure that the milk supplied to consumers in these stores is of high quality and meet national and international standards. To achieve high quality milk standards dairy processors in turn set and enforce standards based on somatic cell counts and other tests such as acid test, freezing point test and HACCP. When the farmer delivers milk, a sample is taken and tests carried out to determine its suitability for processing. Dairy farmers in Botswana are paid according to the grade of milk supplied as shown in Table 7.4

Table 7.4: Milk grades and producer pricing in Botswana

Milk grade	Somatic cell count (SCC)	Producer price (pula) 2003	2004
A	≤ 200, 000	1.82	2.10
B	201,000 ≤ 300,000	1.65	1.82
C	301, 000 ≤ 400,000	1.30	1.65
D	≥ 500,000	1	1.30

Source: BCA farm (2005)*

** BCA farm supplies fresh milk to clover Botswana. These are the standards that all farmers have to meet to supply to clover Botswana Ltd.*

Grade A is preferred for processing. Most small-scale farmers in Botswana achieve grades B and C. These grades are normally accepted but are used to make fermented products such as yoghurt and sour milk. This could be because hygiene and facilities required for high quality milk production are lacking on these farms according to the processors interviewed. The processors maintain the standards of milk by rejecting milk that does not meet the set standards. The high standard of fresh milk demanded by supermarkets puts pressure on small producers to improve quality.

In Namibia just like in Botswana and Zambia, quality of milk available to consumers may have improved as supermarkets source fresh milk from the two large local dairy processors.

7.3.3 Increased dairy product exports and imports

Zambia is deficient in milk production (Table 7.3). Processed dairy products such as powder milk, condensed milk and cheese among others are imported from South Africa, the SADC and other parts of the world. There has been increased importation of dairy products to meet domestic demand for domestic consumption and reprocessing by dairy firms (Table 7.5). Dairy product imports into Zambia have grown by 77% between 1998 and 2003.

Table 7.5: Imports and exports of dairy products in Zambia from 1998 to 2003

Year	1998	1999	2000	2001	2002	2003
Total imports Value ($US)	3,362,001	4,147,024	4,237,172	5,602,062	5,434,403	5,956,409
Total export Value ($US)	88,743	89,490	2,315,452*	201,463	211,492	610,194

*Source: Valeta (2004) *re-export of imported milk products to Malawi*

Some companies such as Finta import milk powder from South Africa to process into other products, such as long-life (UHT) milk, which are sold on the local market and also exported to neighbouring countries such as Malawi and the Democratic Republic of Congo. Owing to these reprocessing activities, there has been an increase in the amount of UHT milk exports to neighbouring countries such as Malawi and the DRC. In general, there has been an increase of milk exports from Zambia (Table 7.5).

The opening up of export markets should also contribute to increased milk production in Zambia. Finta uses both fresh and powder milk. As more fresh milk becomes available in Zambia there will be less reliance on imported milk powders. Owing to the increasing availability of markets for milk, dairy farmers have increased milk production on their farms. Milk production is bound to continue increasing in order to meet expanded demand in the future. Therefore, processors and supermarkets have generally had a positive impact on the dairy sector in Zambia.

In Botswana, the impact of supermarkets on the livelihood of small-scale dairy producers is still small. This is because most of the fresh milk processed in the country is sourced from South Africa. The reason for this sourcing pattern is the under-development of the dairy sector in general. Dairy farming is still in its infancy in Botswana (Republic of Botswana, 2004b). At present, Botswana is deficient in fresh milk production. According to the Ministry of Agriculture, 44% of the fresh milk consumed in the country is produced in Botswana; the rest is imported from South Africa. Statistics provided by the two major dairy processors showed that 86% of milk processed by these companies in 2003 was imported from South Africa (Table 7.6).

Table 7.6: Local production and fresh milk imports (from SA) in Botswana (2003)

Processing company	Imported fresh milk (litres)	Local production (litres)
Clover Botswana	4 465 741	1 087 729
Sally Dairy	2 708 273	59 596
Total	7 174 014	1 147 325
% of total	86	14

Source: Ministry of Agriculture: Dairy section annual report 2003/2004

The government is encouraging dairy production in the country to substitute for fresh milk imports. This has been achieved by formulating policies that encourage dairy processing firms to source from local producers. The policy guiding the sourcing and procurement of dairy products was formulated and gazetted in the year 2000 and is still in force to date. Importation of fresh milk is regulated via licensing which the Ministry of

Agriculture controls. The two major companies that process fresh milk (Clover and Sally Dairy) have to obtain import licences from the Ministry of Agriculture. Each company is given a certain quota (number of tonnes to import), which is reviewed quarterly. The quantity of milk each company imports is pegged to the amount of milk produced by local producers in the review period.

A law that requires dairy farmers to pasteurise milk before selling to consumers hinders small-scale dairy farmers who cannot afford to purchase pasteurising equipment. This requirement makes it difficult for small-scale emerging dairy farmers to exploit this channel (selling directly to consumers). Despite this legislation some dairy farmers interviewed reported selling raw fresh milk to their neighbours at a price of P3.50 per litre which is much higher compared to P2.10 per litre for grade A fresh milk sold to dairy processors. This is because some consumers prefer raw fresh milk over processed milk. Obviously, this trade is illegal. This finding is similar to the results from Zambia which show that small-scale farmers selling milk directly to consumers obtained higher returns (Emongor *et al*., 2004). Small-scale dairy farmers in Zambia preferred to use both channels. The dairy processor was useful in periods of excess production when direct sale to consumers could not absorb all the milk produced. But during the period of low production farmers who had contracts to supply to the dairy processors had to meet their obligation before disposing the rest directly to consumers (Emongor *et al*., 2004). Therefore, in the case of Botswana, direct selling of milk to consumers by emerging dairy farmers could be allowed to encourage more production.

In Namibia, the trends in the quantity of animal products and vegetables imported from South Africa to satisfy domestic demand varies (Table 7.7). This could probably be explained by the reigning policies of banning importation of fresh milk and quotas imposed on supermarkets to source locally which may be diverting trade as already explained in section 2.9.

Even though these policies are in place, Namibia is still not self-sufficient in the production of dairy and FFV products. All supermarkets (local and South African) import

other dairy and FFV products from South Africa using their parent companies in South Africa or importing agents.

Table 7.7: Namibian imports globally, the SADC and South Africa (1999 to 2003)

Year	All commodities (Million $US)			Vegetables (Million $ US)			Live animals and animal products (million $US)		
	World	SADC	SA	World	SADC	SA	World	SADC	SA
1999	1520.0	1258.1	1241.4 (98.7)*	65.9	51.9	51.7 (99.6)	63.3	44.9	44.7 (99.5)
2000	1428.5	1243.8	1231.5 (99.1)	51.5	40.7	40.3 (99.1)	57.2	47.1	42.5 (90.2)
2001	1456.9	1256.4	1247.0 (99.3)	45.4	33.7	33.6 (99.7)	44.0	39.7	39.1 (98.5)
2002	1288.9	1007.7	996.8 (98.9)	46.3	32.9	32.8 (99.7)	30.0	26.3	26.1 (99.2)
2003	1402.6	1156.1	1127.9 (97.6)	51.3	38.1	37.7 (99)	37.4	30.7	30.6 (99.6)

Source: SADC Trade data (2006) ******* *Figures in brackets represent the percentage of Namibia imports from South Africa compared to total SADC imports.*

7.4 Impact of supermarket activity on the fresh fruit and vegetables sector

The impact of supermarkets' procurement strategies on the domestic FFV sector in the case-study countries was felt in a number of areas. Analysis was carried out for direct and measurable impacts as discussed below, based on the perceptions of farmers who supply to supermarkets and from key informant interviews.

7.4.1 Increased farm output and household income

Farmers who access the supermarkets (for example Shoprite) supply chain for FFV are assured of a continuous large market for their produce and earn higher incomes as shown by the results of the treatment effect model estimated for Zambia in chapter six. Ninety-five percent of farmers supplying to supermarkets reported having increased output and income on their farms (Table 7.8).

Apart from increases of output and income on both large and small-scale farms, the entrance in Zambia of foreign food-processing companies such as Foodcorp should also lead to an increased demand for fresh produce such as tomatoes and potatoes for processing. This may ultimately translate into increased production, higher income levels for farmers and increased availability of raw materials for processing.

Box 2: Foodcorp in Zambia

Foodcorp a leading South African food manufacturer/Processor entered Zambia in 2004 by purchasing 100% shares owned by the government of Zambia representing Zambia Horticultural Products Limited (Zamhort) Lusaka operation for a total of US$ 3565000.

Foodcorp a leading South African food manufacturer has strong brands such as Simba, Enterprise, Nola, Green Giant and Harvestime. Foodcorp also a major supplier to many large South African supermarkets such Shoprite, Pick 'n Pay and Spar. It has a total turnover over US$ 1.8 billion. It owns factories in South Africa and South America.

The entry of Foodcorp into Zambia implies that some brands that were exported from South Africa to Zambia would now be made locally saving foreign exchange. The Zamhort plant in industrial area in Lusaka has the capacity for processing fruit and vegetables, canning and bottling. It can make products such as fruit juices, soft drinks, tomato paste, ketchup, corned beef, canned beef, jams and marmalade.

Foodcorp will also explore export markets for its products made in Zambia. Generally it is expected that local farmers (small-scale and large-scale) would gain by supplying raw materials such as tomatoes, potatoes etc the factory in Lusaka. It is expected that production at the farm level would also go up hence earning farmers' income.

The actual impact of Foodcorp in Zambia could not be elucidated by this study because by the time of this study in 2004 and 2005 Foodcorp had not yet started operating in Zambia despite having acquired Zamhort as narrated above.

Table 7.8: Percentage of farmers who have increased output and income in Zambia

Increased output and income since started supplying to supermarkets	**Percent**
Increased income and output	95
Income and output remained the same	5
Total N=20	100

Source: Survey results, 2005

Just as in Zambia, increased production of high value crops (fruit and vegetables) offers an opportunity for farmers to increase their income. Most farmers interviewed in

Botswana reported having increased output and income since they started supplying to supermarkets.

Production has gone up generally and this may not necessarily be due to supermarkets per se but the emphasis by the government and other stakeholders in promoting horticultural production in the country. The availability of a ready market for produce is a strong incentive for farmers to increase production. Farmers had access to the supermarkets and to the alternative market (vendors). Street vendors purchase their produce from farmers at farm gate and offer higher prices compared to supermarkets. According to the interviewed farmers, farmers prefer the supermarkets because they provide a large continuous market.

7.4.2 Increased input use

Farmers that supply to supermarkets use more inputs in their production process, which translates into higher input costs as already discussed in section 5.2.5. These farmers use more inputs such as fertilisers, chemicals and may engage in some value-adding activities to meet product specifications of supermarkets. Farmers supplying supermarkets use more labour (family and hired) compared to those who supply to traditional markets (Table 7.9).

These activities may have a multiplier effect on the agricultural sector in that more jobs could be created at farm level as well as at non-farm level thus increasing income and well-being of people in urban and rural households.

Table 7.9: Input use on farms producing FFV in Zambia

Type of farmer	Mean labour (number of people employed)	Mean input cost (kwacha)
Farmers selling to the supermarket channel N=20	8	67 2781
Farmers selling to the traditional channel N=58	4	291 423

Source: Survey results, 2005

Approximately 75% of the farmers supplying to supermarkets have increased the number of permanent and casual workers on their farms in Botswana and Zambia. The increase in the number of workers could be because these farmers have to supply a specific quantity of produce to the supermarket several days per week, which requires more labour. The labour requirement goes up due to the various tasks that need to be accomplished on time therefore necessitating hiring of extra workers. Farmers who do not access the supermarkets (who are the majority) sell their produce through the traditional wholesale and retail markets and mainly use family labour in their production process. The problem of the traditional markets is the fluctuation of prices due to produce seasonally flooding the markets. This is because the horticultural produce produced under rainfed agriculture matures at the same time. There is need to improve the traditional FFV markets as most of the produce (75%) is sold through these channels (Emongor *et al*, 2004).

Just as in Zambia, small-scale farmers supplying to supermarkets in Botswana employ more labour and use more inputs (have higher input costs) compared to those who produce for the traditional market channels (Table 7.10).

Table 7.10: Input use on farms producing FFV in Botswana

Type of farmer	Mean labour (number of people employed)	Mean input cost (Pula)
Farmers selling to the supermarket channel N=10	10	2 548
Farmers selling to the traditional channel N=3	7	2 167

Source: Survey results (2005)

Horticultural production is generally labour-intensive, especially when harvesting and preparing these crops for the market. The specification of quality by supermarkets, which sometimes includes packaging of the produce, increases the labour requirement resulting in increased labour use hence more employment of farm workers.

7.4.3 Increased availability of FFV imports.

When Shoprite started operations in Zambia in 1995, all FFV was imported from South Africa but now up to 80% of some fresh vegetables are procured from local farmers (Key

informant interviews, 2004). This implies that supermarkets such as Shoprite source and procure fresh vegetables from local producers. In cases where local production does not satisfy local demand, imports have filled the gap availing these products to consumers. Despite supermarkets' sourcing fresh vegetables from local producers, there has been an increase in imports of fruit and vegetables in the last five years (Table 7.11). This is because Zambia is not self-sufficient in the production of some vegetables such as Irish potatoes, onions and cauliflower. In the case of fruit, Zambia is not self-sufficient in the production of temperate fruits (such as apples, pears and plums), citrus fruit, bananas and mangoes. All these are imported from South Africa, which is the reason why imports seem to be increasing despite supermarkets sourcing some fresh produce (mainly) vegetables locally.

Table 7.11: Value of FFV exported by South Africa to Zambia (2000 to 2005)

Year	Edible fruits (HS 08) Value in US$	Edible vegetables, roots and tubers (HS 07), Value in US$
2000	1 015 825	928 249
2001	1 265 534	1 429 685
2002	1 340 364	1 110 606
2003	1 014 066	1 065 140
2004	1 443 957	1 150 431
2005	1 330 106	1 274 649

Source: United Nations Comtrade (2006)

The horticultural industry is still in its infancy in Botswana. Botswana produces about 15-20% of all its horticultural product requirements with the rest being imported (Republic of Botswana, 2004a). Imports play a major role in the FFV supply chain and small-scale producers' contribution to domestic production is still small (Table 7.12). This could probably be because most small-scale producers are involved with subsistence crop production. The major crops grown for subsistence are sorghum (70% of total output), millet and maize. Most of these farmers produce subsistence crops under rainfed conditions. Crop yields are low and most rural households producing on small plots, the

size of which averages about 2.3 ha, do not produce enough to satisfy their own needs and have to purchase food from shops.

Table 7.12: Local production and importation of FFV in Botswana (2000 to 2002)

Year	2000		2001		2002	
	Production (MT)	Imports (MT)	Production (MT)	Imports (MT)	Production (MT)	Imports (MT)
Vegetables	4,702	48,549	4,712	66,953	5,284	59,098
Fruit	6,278	27752	5,940	29,700	6,514	34,536
Total	10,980	76,301	10,652	96,653	11,798	93,634

Source: Ministry of Agriculture (2004)

There is a large deficit in production of subsistence crops (maize and sorghum) and horticultural crops (Table 7.12). Given this scenario, chain supermarkets that import fresh and frozen vegetables and fruit may be beneficial to consumers in Botswana by making these products available.

There is a move by government to diversify the economy away from reliance on mining (Republic of Botswana, 2004a). Agriculture is seen as a sector that may play a big role in the diversification of the economy and an effort is being made to improve agriculture to create employment for the people. The government is promoting horticultural and dairy production under irrigation and controlled environment such as green-houses and hydroponics.

Through these efforts, there is an emerging group of small-scale horticultural producers who are now beginning to produce for the market. They started their farming enterprises in the mid nineties and started selling to supermarkets from 2000 onwards (see Chapter 5, section 5.3). This finding concurs with that of Seleka *et al*. (2002) who found that 75% of all horticultural projects in Botswana were established from 1991 to 2001 and were mainly funded through the Financial Assistance Policy a free grant from government to farmers to start horticultural projects. With the help of the Ministry of Agriculture and other stakeholders, farmers are beginning to produce for commercial purposes.

Just as in Botswana, the horticultural industry in Namibia is still in its infancy. Namibia produces 18% of its horticultural produce requirements, the remaining 82% being imported (Table 7.13).

Table 7.13: Consumption, imports and local production of horticultural produce in Namibia (2003)

	Value N$000	% of consumption	Mass (tons)	% of consumption
Imports	160141	82	69442	75
Local production	35327	18	23495	25
Consumption	195468	100	92937	100

Source: Republic of Namibia, 2004

The sourcing and procurement pattern could be because of adverse climatic conditions, which result in most crop production being limited to areas with reasonable average rainfall (300-700mm) in the northern and southern parts of the country. These areas are prone to unreliable rainfall patterns leading to low yields of field crops such as millet (mahangu), maize and sorghum that can be produced without irrigation.

Production under rainfed conditions is highly erratic. Under the current crop production systems, most small-scale horticultural producers cannot attain the quality standards and quantities demanded by supermarkets. Therefore, small-scale farmers in Namibia are automatically excluded from the supermarket supply chain. Therefore, small-scale farmers in Namibia are automatically excluded from the supermarket supply chain. The FFV supply chain of most supermarkets was through wholesalers (both traditional and specialised) such as Freshmark sourcing for Shoprite and Freshco sourcing for Pick 'n Pay. The wholesalers import their products from South Africa and when sourcing is done locally, procurement is from large producers who can supply produce throughout the year. For example, Freshmark sources 95% of the FFV from South Africa, and thus only five percent from Namibia. Given the current state of the supply chain of fruit and vegetables in Namibia, supermarkets have minimal impact on local small-scale farmers.

These impacts are not even possible to quantify, as most of these farmers do not access supermarkets to sell their produce.

7.5 Comparison of perceived impact of supermarkets on the FFV sector

Since the growth in FFV sales and production can also be related to a host of other factors it is difficult to attribute all the growth in sales and production to the supermarkets. From the analysis and arguments presented earlier it is clear that the growth in supermarkets at least did not have a negative impact. This is reflected in the increasing numbers of farmers entering the FFV sector in the 1990s. But this is perhaps related to the fact that in all three countries, governments are involved in promoting production of FFV to diversify their economies and have put in place policies to achieve these objectives (Table 7.14).

Operating within the limits of environmental constraints (whether farmers are producing a given product or not) and policy limitations, supermarkets (meeting the requirements of policies regulating business), both South African and local supermarkets are developing their supply chains and including local producers in case countries. Even though the number of small-scale farmers accessing the supermarket FFV supply chain is currently still small there is room for improvement as all stakeholders collaborate to enable development of efficient commodity chains in the region. Collaboration and willingness from all stakeholders should result in more producers getting access to these lucrative urban markets.

Table 7.14: Comparison of impacts in case countries

Type of impacts	Country		
	Botswana	**Namibia**	**Zambia**
Number of farmers entering into the FFV sector	Increasing	Increasing	Increasing
Effect on household income	+	-	+
Effect on labour employment	+	-	+
Effect on input as reflected in input costs	+	-	+
Policies[17] to encourage supermarkets to procure from local producers	In place	In place	In place
Government involvement	Yes	Yes	Yes

Source: Survey results (2005) and author's deduction; Legend: + positive impact – could not be quantified.

7.6 Trade flows in the SADC

The involvement of South African retail firms (supermarkets) in SADC countries may have led to increased trade in the region. Increased trade flows in various countries may be the result of other global factors such as trade liberalisation, globalisation and regional integration which are key drivers in the supermarket growth and expansion as already discussed in Chapter 2. This implies that the expansion of South African supermarkets into SADC countries may have contributed to increased trade flows in many SADC countries as discussed below.

7.6.1 Trade flows between South Africa and the case-study countries

There is generally an increasing trend in trade flow in food products especially in processed food worldwide owing to globalization (Bowen *et al*., 1998; Rae & Josling, 2003). For the SADC region, Table 7.15 shows that the trend of trade flows (both imports and exports) between South Africa and the case-study countries (Zambia, Botswana and

[17] These policies varied in the case-study countries. In Namibia, the government has set a quota, i.e. every organisation (supermarkets, wholesalers and caterers), involved in buying fresh produce must source 5% from local producers as discussed in section 4.3.3. In Botswana, farmers can apply to the Ministry of Agriculture to close borders to certain farm produce if Botswana farmers have produced sufficient quantities. The borders remain closed until domestic produce is exhausted then borders re-open to imports. In Zambia, non-tariff barriers such as licensing limit the amount of fresh produce such as potatoes entering the country.

Namibia) has been increasing. Generally, imports from South Africa to these case countries have increased more rapidly than exports, resulting in a negative trade balance between these countries and South Africa. This trade imbalance could be attributed to various factors such as increased importation of goods and services not currently produced in the SADC host nations as discussed in Chapter 4. Although there may be many factors (e.g. trade liberalisation, globalisation), contributing to the increasing trend of trade flows between South Africa and the case-study countries, the introduction of supermarkets looms large among those factors. For example data for Zambia shows that there was acceleration in the growth of imports after the introduction of supermarkets in 1995. In the period 1992 to 1994 (period before supermarkets in Zambia), annual average growth rate of imports was 1.4%, whereas average annual growth rate of exports was 58.1 % in the same period. From 1995-1999 (period after South African supermarkets entered Zambia), annual average growth rate of imports was 16.4%, whereas annual average growth rate of exports was 23%, which means growth in imports rose by more than 100 times whereas exports in the same period, was lower than the previous period. In the period 2000-2003, the annual average growth rate of imports for Zambia was about -3.9 %, whereas annual average growth rate of exports was 24% as shown in Table 7.15. The annual growth of imports supports the findings of the Regoverning markets project that the use of centralised procurement systems may pull imports into the country of FDI which later declines as supermarkets develop supplier base in host country as discussed in section 2.10. Imports may begin to rise again should the centralization of procurement involve regional and global supply chains (Vorley *et al*., 2007). This result corroborates the results of the procurement practices in Chapter 4 which showed that supermarkets both local and South African source and procure products from local producers, and these are further corroborated by the declining share of South African imports in Zambia's imports as discussed below. Due to lack of data on the amounts of imports brought into case countries by supermarkets, this study could not estimate the percentage growth of imports that are specifically attributed to supermarkets.

Table 7.15: Trade between RSA the case countries (Botswana, Namibia and Zambia) (1992 to 2003)

	Zambia			Botswana			Namibia		
Year	Total Imports (M) from RSA to Zambia million US$	Total Exports (X) from Zambia to RSA million US$	Trade balance (X-M)	Total Imports (M) from RSA to Botswana million US$	Total Exports (X) from Botswana to RSA million US$	Trade balance (X-M)	Total Imports (M) from RSA to Namibia million US$	Total Exports (X) from Namibia to RSA million **US$**	Trade balance (X-M)
1992	163	6	-157						
1993	193	11	-182						
1994	170	15	-156						
1995	189	14	-175						
1996	254	24	-230						
1997	314	25	-289						
1998	305	33	-272						
1999	347	32	-315						
2000	652	43	-609	1525	180	-1345	1237	337	-900
2001	703	60	-643	1404	162	-1241	1336	433	-902
2002	792	111	-680	2695	249	-2446	1013	326	-687
2003	578	82	-497	3363	285	-3078	1525	285	-1239
Average annual growth (1992-1994)	1.4 %	58.1%							
Average annual growth (1995-1999)	16.4%	23%							
Average annual growth (2000-2003)	-3.9%	24%		30%	16.5%		7.2%	-5.4%	

Source: RSA. Department of Trade and Industry (2006) and UN Comtrade (2006)
Data for the period 1992 to 1999 was only available for Zambia.

7.6.2 Trend in the share of South African exports in imports of SADC countries

The share of South African exports in imports of SADC countries is high for some countries such as Mozambique, Zambia, Malawi and Angola (Table 7.16). The share of South African exports in the imports of these countries grew rapidly from 1993 to 2000 but has begun to decline since then.

Table 7.16: Share of South Africa's exports in the imports of SADC countries (1993 - 2004)

Year	Mozambique	Zambia	Malawi	Zimbabwe	Tanzania	Mauritius	Angola	Seychelles	DRC
1993	43.98	50.89	37.21	31.43	2.00	9.84	6.10	10.56	2.84
1996	69.87	49.07	32.36	40.92	8.71	9.41	11.41	9.94	1.12
1999	58.48	48.25	35.30	39.80	11.02	9.03	6.73	8.10	1.71
2000	62.17	64.88	45.34	37.92	12.46	13.69	6.50	8.90	2.52
2001	64.14	44.04	39.29	37.09	10.53	12.19	9.65	5.40	4.28
2002	48.77	42.30	32.79	28.33	11.48	11.79	11.18	8.68	3.39
2003	58.97	35.81	32.06	29.87	11.43	11.59	11.04	9.08	2.76
2004	44.86	44.35	32.93	32.28	14.00	10.08	9.78	7.66	2.13
Average share	56.40	47.50	35.90	34.70	10.20	10.90	9.00	8.54	2.60
Average growth (1993-1996)	16.5%	-1.2%	-4.5%	9.1%	162.5%	-1.4%	22.9%	-2%	-26.4%
Average growth (1999-2004)	-5.2%	-1.7%	-1.4%	-4.1%	4.9%	11.6%	57.8%	-1.1%	-3%

Source: RSA. Department of Trade and Industry (2006). Website: http://www.dti.gov.za

Further analysis of trends of the share of South African exports in the imports of some SADC countries shows that the average annual growth rate of the share of South African exports in imports of most countries such as Mozambique, Zambia, Malawi, Zimbabwe, Seychelles and DRC has been negative for the period 1999-2004 (Table 7.16). This is further corroborated by the share of South African exports in these countries' imports which rose dramatically from 1993 to 1999 and began to decline in most countries from 2000 to 2004 (Figure 7.4). It should be noted that South African supermarkets and other South African firms have a large presence in these countries such as Mozambique, Zambia, Malawi and Zimbabwe. In countries where the presence of South African supermarkets has been small such as Tanzania and DRC the share of South African exports in the imports of these two countries is quite small.

From the analysis above, one can correlate the increased share of South African exports in SADC countries' imports with the high presence of chain supermarkets such as Shoprite, Pick 'n Pay, Spar and Woolworths in these countries.

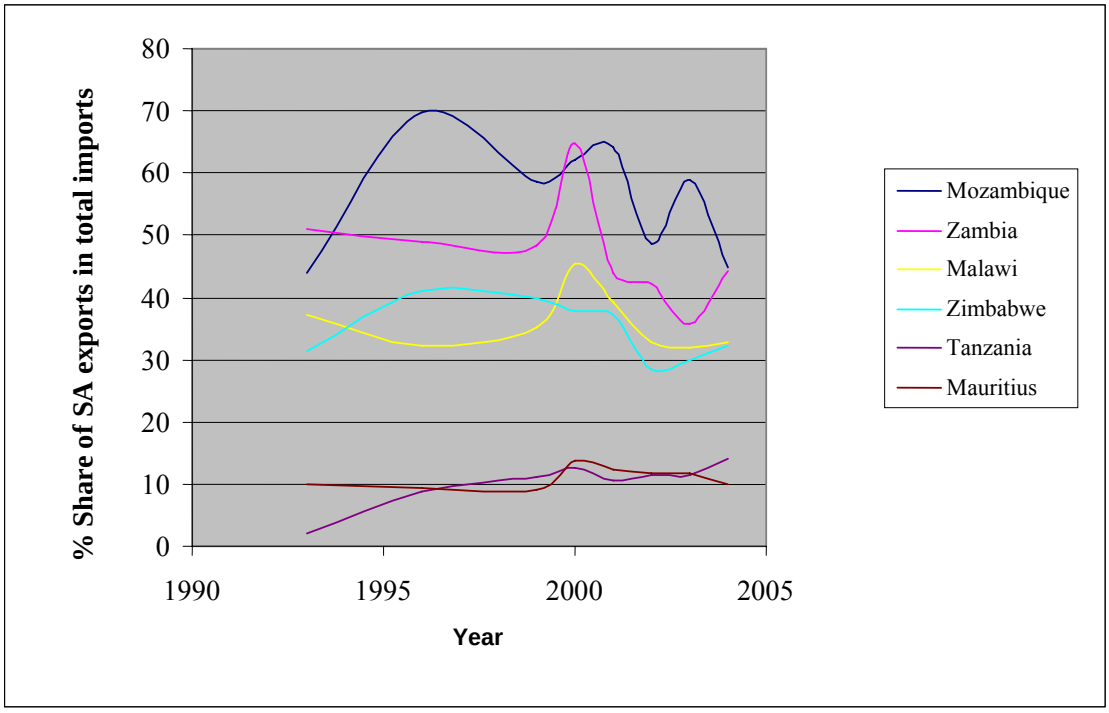

Figure 7.4: Trend of the share of South African exports in selected SADC countries' imports (1993-2004)

In the first few years of these supermarkets investing in other SADC countries, they continued to use their distribution centres in South Africa. The case to note is when Shoprite first moved to Zambia in 1995, nearly all the products including fresh produce was imported from South Africa as shown by the increasing share of South African imports into Zambia from 1993 to 2000 when it reached a peak and then began to decline. This could be because some supply chains for products such as fresh vegetables had now been developed and sourcing could take place locally. But despite this improvement more goods have continued to be exported into these countries by South African firms.

Generally, both imports of goods from South Africa to Zambia have increased as well as exports even though imports have increased more rapidly compared to exports. Generally there is a negative trade balance between these two countries. This trade imbalance could be attributed to various factors such as increased importation of goods and services not currently produced in the SADC host nations such as Zambia already discussed in

Chapter 4. Trade is making available goods and services to consumers in the case-study countries. The impact of these imports on the agricultural and manufacturing sectors is not easy to determine as there are many factors responsible for non-production of these goods such as lack of processing capacity and environmental constraint among others.

7.7 Summary

In this chapter, an analysis of the impact of the of supermarkets (South African and local) in the SADC was done taking case studies of FFV and food processing/manufacturing industries in Botswana, Namibia and Zambia using survey and qualitative data. In the FFV sector, the activities of supermarkets in Botswana and Zambia have been positive. Farmers supplying to supermarkets have increased output and income, increased use of inputs such as fertilisers and increased use of labour, especially hired labour, compared to farmers supplying to the traditional channels. Supermarkets also import FFV not produced in host countries such as apples and bananas; and those produced in low quantities such as oranges and mangoes. This information corroborates at the national level by increased FFV imports into the case-study countries in the last five years. In the food processing/manufacturing industries; the case-study of firms in dairy processing, milling, bakery/confectioneries in case-study countries shows that the entrance of chain supermarkets such as Shoprite, Spar and Pick ’n Pay in some SADC countries has resulted in increases in processing output and sales for the large companies that accessed supermarkets supply chains.

CHAPTER 8

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

8.1 Summary

The increased foreign direct investment by South African supermarkets into other African countries has been facilitated by globalisation, trade liberalisation, favourable policies (liberalization of foreign direct investment policies) in host countries. This increased investment by South African supermarkets is of concern to those involved in development because supermarkets are important markets for farmers and processors, but there is the present threat of potential exclusion of small farmers and processors from the supply chain of supermarkets. Due to the fact that African countries depend on agriculture as the backbone of their economies and small farmers being the majority, exclusion of these farmers is a real threat to livelihoods, poverty alleviation and more so to rural development in general. The major issues of concern are the strategies used by supermarkets in the sourcing and procurement of products. This may have a negative impact on small farmers and small processing firms by excluding them.

The broad objective of the study was to determine the impact of South African supermarkets on agriculture and food-manufacturing/processing development in SADC countries using Botswana, Namibia and Zambia as case studies by answering the stated research questions.

The study focused on the sourcing and procurement decisions and practices of supermarkets in selected supply chains to deduce the impact of supermarkets on individual producers, the agricultural sector and the industrial sectors in case-study countries. Supply chain management posits that there are transaction costs in transacting business along a supply or value chain. In an effort to reduce transaction costs and increase efficiency, supermarkets make sourcing and procurement decisions that impact on participants in the supply chain, which may have a spill-over effect into the agriculture and manufacturing sectors and the economy as a whole. To understand these sourcing

and procurement processes and the resulting impacts required an analysis of the supply chain and related sectors.

A number of researchers have attempted to address the issue of the rise of supermarkets and their impact on agrofood systems in developing countries. These mainly built upon the work of Reardon *et al.* (2002) in Latin America and Weatherspoon and Reardon (2003) in Africa. Since these two papers were written, more research has been carried out in Latin America, Asia and Africa. Noticeable among these is the output of the Regoverning Markets Project, which commenced in 2004. The results of phase one showed that among the many changes occurring in agrofood systems included an increased involvement of supermarkets and large processing firms in the agrofood systems of many developing countries.

The growth and expansion of supermarkets outside South Africa is a "recent occurrence". On a continent where the majority of the population depend on agriculture, the changes occurring in the agrofood systems of the continent have implications for the poor. The dramatic increase in the number of supermarkets involved in food retail has been spearheaded by South African supermarkets. There is thus a major question about the impact of these supermarkets on agriculture and industry in host countries, because many people tend to look at these investments in a negative way. For example, many observers and reporters in local print media allude to the fact that investment by South African supermarkets in SADC countries and Africa results in stifling of agriculture and industrial production in the host countries.

This study is the first of its kind in the SADC region in attempting to quantify quantitatively and qualitatively the impact of South African supermarkets expanding into the SADC by using a case-study approach. The study developed a conceptual framework and constructs of how the sourcing and procurement decisions might impact on the region. These concepts were validated by selecting three countries, namely Botswana, Namibia and Zambia, and selecting two supply chains (FFV and dairy). In order to determine the impact of supermarkets in the region, data were collected along the supply

chain: from supermarkets, wholesalers, traditional markets and local shops, farmers, processors, and key informants.

To elucidate these impacts the study used both qualitative and quantitative methods in collecting data used in this study. A survey of 12 supermarkets, 42 local shops, 18 food processors, 30 farmers supplying FFV to chain supermarkets and 61 farmers supplying to the traditional fresh fruit and vegetables markets and dairy processors was carried out in Zambia, Namibia, and Botswana in 2004, 2005 and 2007 using questionnaires and checklists. These data were augmented with secondary data. By applying the conceptual framework developed in Chapter 3 of the study, the impacts of supermarkets on small-scale farmers, processors and agriculture and the food processing industry were elucidated. By applying the two-step treatment model, both the factors that influence small-scale farmers' choice to supply to either the supermarket or traditional market channel and the effects (impact) of participation in the supermarket supply chain by small-scale farmers were determined in this study.

The results show that the number of supermarkets has increased in SADC. Supermarkets have been in existence in South Africa for some 60 years and therefore supermarkets are not a new phenomenon in South Africa. Supermarkets growth in SADC has been gradual but increased rapidly in the mid-1990s. The growth was achieved through franchising, mergers and buy-outs of other smaller supermarkets by larger supermarkets. Since 1994, major South African supermarket chains (Shoprite, Pick 'n Pay, Spar and Woolworths) have a presence in one or more African countries. Apart from South African supermarkets, there are local chain and independent supermarkets involved in retailing food and industrial products in Botswana, Namibia and Zambia.

Supermarkets have spread from their urban niche markets to smaller towns and rural townships. Most of the supermarkets operating in the SADC have their major operations in South Africa. Currently, supermarkets account for about 50 to 60% of the total food retail market in South Africa. In other SADC countries, the market share of supermarkets in food retailing varies from 0 to 10% (DRC Congo, Angola) and 50 to 60% (Botswana).

Supermarkets operate in an environment of tough competition mainly from other supermarkets and an expanding informal sector (hawkers, street vendors and kiosks) in South Africa and the SADC.

Different supermarket chains were dominant in retailing in the three countries. Shoprite was the most expansive supermarket chain in Zambia, followed by Mellisa. In Namibia, Shoprite was also the most expansive supermarket chain followed by Pick 'n Pay in terms of retail sales. Whereas in Botswana, Spar was the most expansive supermarket chain followed by Score supermarkets. Both South African and local supermarket chains were gaining importance in retailing food and non-food products in Botswana, Namibia and Zambia.

Supermarkets (both local and South African) traded in large quantities of food, especially in urban areas. The proportion of food sales to total sales in most supermarkets was about 90% for Spar and Pick 'n Pay and varied between 62 to 90% for Shoprite in Zambia, Botswana and Namibia, respectively. The proportion of non-food sales to total sales varied between supermarkets but was in the range of 10 to 38% in the case-study countries. This implies that supermarkets were gaining importance in the marketing of food and other industrial products in the case-study countries. Most of the supermarkets handled both fresh and processed foods. Supermarkets might have impact on the food systems and industry in these countries even though supermarkets mainly cater for high- to medium-income segments of the population in Zambia and almost all segments of the population in Botswana and Namibia.

Each supermarket has its own sourcing and procurement systems, though in some cases there were similarities. Several types of sourcing and procurement practices for FFV were observed among the supermarkets in Botswana, Namibia and Zambia. These include: 1) supermarkets use specialised sourcing and procurement companies; 2) farmers deliver produce directly to supermarket stores; 3) farmers deliver produce to distribution centres; 4) supermarkets use specialised FFV wholesalers, and 5) outsourcing. Imports are important in the food supply chain of Botswana and Namibia and fairly important for

Zambia. This is due to unfavourable environmental conditions making it difficult to produce horticultural crops in these countries. In Namibia and Botswana, the horticultural industry is still in its infancy and as a result most fresh and processed food products in these countries are still imported from South Africa. In Zambia, most of the fresh vegetables are produced locally but certain fruits and processed foods (80%) are sourced from South Africa and other countries. For processed products and groceries, most supermarkets operate distribution centres through which these products are procured and distributed to their stores. The supermarkets use various methods to import these products into case-study countries such as the use of their own distribution centres located in South Africa and in some cases the use of local agents in the host country. Local supermarkets use local importing companies or agents in South Africa to import these products.

The importation of fresh produce and processed products from South Africa takes place because the manufacturing sector in South Africa is well developed and overshadows the size of the industry in the other countries. Also, the South African supermarkets operating in Botswana, Namibia and Zambia already have well-established sourcing and procurement systems in South Africa. With improvements in logistics and transportation systems, these firms use their distribution centres in South Africa to supply their stores in the SADC and other African countries. For SACU countries such as Botswana and Namibia, favourable trade arrangements and proximity to South Africa in the case of Botswana probably make it easier to import cheaply from South Africa.

The most important criteria used by supermarkets in Botswana, Namibia and Zambia in making sourcing and procurement decisions are price, volume (consistency of supply), quality and trust, respectively. The least considered criteria are location, followed by transport. Location and transport may not be an important factor in determining sourcing and procurement decisions of supermarkets because of globalisation, trade liberalisation and improvements in communication and information technology. These changes have made it possible for many multinational supermarkets to develop regional supply chains which imply that products can be sourced from anywhere in the region. The sourcing and

procurement decisions and practices of supermarkets in SADC follow similar trends occurring globally.

Most supermarket chains use centralised procurement systems or are leaning towards centralised procurement systems. Shoprite achieved complete centralisation of its procurement system for fresh fruit and vegetables in Zambia. This implies that all sourcing and procurement are done through Freshmark in Lusaka and the produce is distributed to all firm's stores in Zambia. This led to farmers in Chipata who used to supply directly to the Shoprite store in Chipata to fall off the supply chain of Shoprite because these farmers could not transport fresh vegetables to Lusaka. Fortunately for these farmers the traditional wholesale and retail markets for fresh produce were operational in Chipata making it possible for these farmers to still sell their fresh produce.

The sourcing and procurement decisions are influenced by three factors, namely environmental factors (availability of products locally, government policy and competition from other retailers), supermarkets' organisational factors (objectives of supermarkets and competitive strategy, product attributes such as quality, grades and standards and transactional attributes such as volume, price and delivery times) and farmer factors such as social capital, land and capital, for example irrigation systems and transport facilities. Owing to these factors, small-scale farmers producing under rainfed conditions and small-scale processors in the case-study countries are excluded from the supermarket supply chain. In most countries, these producers accessed other markets such as traditional wholesale markets, small shops, own factory outlets and small independent supermarkets.

To facilitate access by small-scale farmers and processors to supermarkets and other modern produce markets, government involvement in the supply chain in terms of setting policies and regulatory frameworks are necessary in facilitating the development of efficient supply chains that include local producers. In all the three case-study countries, governments are involved in varying degrees. There are trade regulations aimed at protecting infant industries such as dairy and milling industries in Botswana, Namibia

and Zambia. In the case of FFV and the dairy sector, chain supermarkets are required to source and procure products locally if the products are available locally. These policies have played a substantial role in ensuring that local producers access the supply chain of all supermarkets operating in the case-study countries.

The impact resulting from South African supermarkets' activities on host nations' agriculture, manufacturing and processing sectors are complex in that some are direct and observable while others are indirect and may occur at the level of the whole economy. Supermarkets impact directly on consumers, other businesses and local producers. These impacts are a result of the decisions made by the supermarkets to source or procure from suppliers in the host nation where they have invested or source and procure from South Africa or from other countries. Assuming that these impacts depend solely on the procurement decisions made by supermarkets, the impacts will be felt at consumer, producer and industry levels. To deduce impacts in the agriculture and industry sectors two sub-sectors, that is the FFV sector representing agriculture, and dairy sector representing food manufacturing and / or food processing, were studied.

Dualism exists in the FFV sector in the case-study countries. There are large-scale and small-scale farmers. Large-scale farmers mainly produce for commercial purposes whereas small-scale farmers mainly produce for subsistence and market surplus to local markets. Large-scale farmers may easily access supermarkets as they have the capability in terms of quantities and quality demanded by supermarkets, as some of these farms are already exporting produce to other markets such as the European Union.

Amongst small-scale farmers in the case-study countries we have those who are commercialised and produce for the supermarkets and traditional existing markets. Small-scale farmers who predominantly produce for subsistence rely on rainfall to produce crops, use family labour and use minimum modern inputs such as fertilisers and improved seed. These groups produce FFV for home consumption and sell the surplus in local traditional markets. These groups of farmers are automatically excluded from the supermarkets' FFV supply chain as they do not attain the quantities and quality of

products demanded by supermarkets. Most of these small-scale farmers are involved in the production of staple crops such as maize and sorghum, which are not sold directly through supermarkets. Furthermore, these farmers are not yet integrated into the commercial production system for FFV. These types of small-scale farmers are the majority in the case-study countries.

On the other hand, there are small-scale commercial farmers who produce FFV specifically for the market. Some of these farmers have been able to negotiate contracts individually or as groups and supply to supermarkets. These farmers decide whether to supply to supermarkets or to the traditional channel as posited in the conceptual and theoretical framework developed in Chapter 3. The choice of the channel (supermarkets or traditional markets) is a function of the set of incentives (embodied in the product and transactional attributes determined by the supermarket). In a liberalised economy, farmers and processors are free to make a choice of the channel in order to maximise utility and/or profits. To determine the factors that influence the choice made by farmers to participate in the supermarket-marketing channel and the effects (impact) of this participation was analysed using a two-step treatment regression model. In the first step a probit model was estimated and then an ordinary least-squares regression model was estimated.

The results of the probit model show that the probability of selling FFV to the supermarket is influenced mainly by ownership of tractor or vehicle, labour and distance which are all statistically significant. Labour and ownership of tractor or vehicle influence participation in the supermarket FFV positively whereas distance from farm to urban centre influences participation negatively. The probit model was highly significant at 1% significance level with a chi-square of 61.22. The model predicted 90% of the outcomes correctly.

The impact of farmer participation in the supermarket FFV supply chain on household income was estimated using an ordinary least-squares regression model in the second step of the treatment effects model. In order to estimate treatment effects (impact), the OLS

model included the dummy for supermarket participation and inverse Mill's ratio (Mills). The results showed that the model was highly significant at 1% significance level with an F statistic of 4.12. Four variables had coefficients significantly different from zero. These are the household head age, labour, distance from farm to urban centre and supermarket participation dummy. Participation in the supermarket channel has a positive impact on the farmers' income. By participating in the supermarket FFV supply chain farmers' increase income by 1060624 kwacha. Mean equality tests showed that farmers supplying to supermarkets in Zambia earned higher incomes compared to those who supply traditional markets.

The impact of supermarkets on the FFV sector has been positive for those farmers who have managed to negotiate contracts and supply to supermarkets. Ninety-five percent of these farmers in Botswana and Zambia report having increased their household incomes. These farmers also report increased use of inputs as portrayed by the high input costs compared to those who supply to the traditional markets. Farmers supplying to supermarkets also use more labour (hired and family). The total sum of effects of increased output at farm level could stimulate multiplier effects in the non-agricultural sectors by increasing the purchasing power of rural people, which may result in the improvement in welfare of both urban and rural people.

The impact of supermarkets on the dairy sector in the three countries has been positive. Both small-scale emerging dairy farmers and large-scale farmers accessed supermarkets through the dairy processors. The dairy processing companies have increased the volume of milk processed and sold since the entrance of the South African supermarket chains into the case-study countries. The increased demand for milk has also led to increased production at farm level. Availability of long life milk and the extension of the cold chain for fresh milk have led to increased milk consumption at household level. Milk quality may also have gone up especially as supermarkets set high quality standards for milk supplied to their stores, which the processors ensure by adhering to high local and international standards when processing milk. These standards are passed down to the farmers in the supply chain. For more small-scale farmers to participate in the dairy

supply chain requires that stakeholders (governments, private sector, non-governmental organisations and dairy producers) work in collaboration and partnerships.

There has also been an increasing trend in trade flows between South Africa and countries in the SADC. Total exports and imports have grown phenomenally in South Africa, Botswana, Namibia and Zambia. The share of South African exports in the imports of the SADC countries increased from the mid-1990s and reached a peak in 2000. From 2000 up to 2004, there has been a marked drop in the share of South African exports in the imports of the SADC countries. For example, the share of South African exports in Zambia's imports grew to a record high of 65% of total Zambian imports in 2000 but since then it has been declining and reached a low of 36% in 2003. This may easily be tied to the fact that South African supermarket chains such as Shoprite are sourcing close to 95% of fresh vegetables from Zambian producers.

8.2 Conclusions

Conclusions from this study are drawn by taking account of the hypotheses and research questions of the study, the results of the descriptive analysis, and the two-step treatment effects model and impact analysis of output and income, and trade flows between South Africa and SADC countries.

8.2.1 Supermarkets' growth and expansion in the SADC

Supermarkets have been in existence in South Africa for some 60 years but the growth and expansion of supermarkets in the rest of Africa is a "recent phenomenon". The growth of supermarkets is variable across various African countries. The drivers of supermarkets growth and expansion in SADC and the rest of Africa is due to globalisation, trade liberalisation, privatisation policies, favourable political and policy environments in SADC countries, changes in technology, urbanisation and changes in consumer preferences and shopping behaviour which is similar to other developing countries. The impact of the growth strategies of chain South African supermarkets such as the use of franchising similar to the fast food models of growth and wholesaling to small-retail shops in host nations may result in outcomes which may be different to those of the other developing countries in Latin America and Asia. This may imply that the

above growth strategies in SADC countries may result in positive impacts on the host nations. Many studies show that the traditional retail markets are resilient and adjust to the onslaught of supermarkets and continue trading alongside supermarkets. In the light of this the findings of Weatherspoon & Reardon (2003) need to be re-examined as the impact of chain supermarkets in host nations may not be wholesale negative as implied in the Weatherspoon & Reardon (2003) paper.

The proportion of food sales to total sales of supermarkets is in the range of between 62 and 90% in all supermarkets in the case-study countries. This indicates that supermarkets handle large quantities of food in urban areas and are important markets for farmers in Botswana and Namibia. In the rural areas and poor urban areas local shops, general dealers and traditional wholesale and retail markets for fresh produce are more important in Zambia and Botswana. At present, supermarkets mainly cater for the middle- and upper-income segments of the population in urban areas.

The growth and expansion of supermarkets is variable in different African countries. The growth and consolidation of the food retail market is high for South Africa, Botswana and Namibia which are middle income countries, with supermarkets accounting for between 50-75 % of the food and grocery retail market. In other less developed SADC countries the growth is slow and the share of supermarkets in the food retail market may be between 10-20%. Therefore the supermarkets share in retailing food is surpassed by the traditional sector in low income SADC countries for example Tanzania, Zambia, DRC Congo, Malawi, Mozambique and Angola. These results are concurring with the results of the Regoverning Markets Project for Kenya and Uganda. In the low income countries supermarkets exist side by side with traditional wholesale and retail food markets. The traditional markets are important to small-scale farmers who produce under rain fed conditions. In the light of these findings it would be prudent that governments in the less developed SADC countries encourage the development and improvement of the traditional food wholesale and retail markets alongside supermarkets if the welfare of the small-producers is to be improved in the SADC region.

Weatherspoon and Reardon (2003) advocated formation of farmer groups to mitigate the constraints of size so that farmers could be able to supply to supermarkets but the results of this study shows that a farmer belonging to a farmer group does not increase the chances of supplying to supermarkets. The finding recommending small-farmers forming groups to supply to supermarkets needs to be re-examined to ensure that the groups formed will actually assist farmers in accessing markets both local and export. More research in the ways small-scale farmers can be linked to modern food markets (supermarkets and food processors) need to be carried out in the region.

8.2.2 Sourcing and procurement practices

The analysis of the sourcing and procurement practices of South African supermarkets in case-study countries confirms the first hypothesis of the study.

The study concludes that economic (SCM) and non-economic (trust) factors guide supermarkets' sourcing and procurement practices. The criteria used by supermarkets in sourcing both fresh and processed goods were price, volume of products (continuous) supply, quality (which includes private grades and standards) and trust.

Supermarkets (South African and local) in the case-study countries sourced a large share of their stocks from South Africa. The incidence of global sourcing for food products was also observed but it is still on a small scale in the case-study countries. Over 80% and in some cases 100% of products scanned on supermarket shelves are sourced from South Africa except for staples such as grain-milled products, sugar and some dairy products such as pasteurised fresh milk. The explanation for this procurement trend can largely be attributed to the larger and more sophisticated scale of the agro-processing sector in South Africa compared to the case-study countries. In addition the three case-study countries are deficient in the production of FFV and dairy products necessitating importation. Given this scenario, supermarkets were instrumental in importing products from South Africa and thus making available products, which are not produced in these countries. In this process supermarkets provided a greater diversity of products at lower prices to consumers and thereby increasing consumer welfare dramatically.

Fresh fruit such as apples are not produced in case-study countries. These are mainly imported from South Africa. Other fruit such as oranges and mangoes are not produced in sufficient quantities in Botswana, Namibia and Zambia. To satisfy domestic demand imports play an important role in the food supply chain in these countries. Imports help bridge the gap and provide people with high quality fresh produce. In this instance, supermarkets and other importers are beneficial to these countries. The prices of imported fresh products are higher in importing countries compared to South Africa. All supermarkets (local or South African) exhibit similar sourcing and procurement patterns.

In the case of FFV, supermarkets source from both small-scale farmers and large-scale farms in Zambia and Botswana but the bulk of these products come from large farms as there are very few small-scale farmers participating on a commercial scale in the supermarket supply chain for FFV. In Namibia, supermarkets source from the few large producers who are currently producing. The sourcing pattern is influenced by environmental factors and the production systems that exist in individual countries. Farmers who produce FFV under rainfed conditions and mainly for subsistence are automatically excluded. For these types of farmers to be included in supermarkets' supply chain for FFV, farmers will have to become commercialised first.

In the processing sector, there are distinctively different channels used in marketing products. In the dairy sector between 20-35% of all products go through the supermarket outlets. In the milling sector, large-scale millers in the case-study countries supply supermarkets. Small-scale millers mainly sell to traditional channels such as wholesalers; small shops, independent supermarkets and some use their own distribution systems including agents. In the dairy sector, most small-scale and medium processors sell their products through wholesalers, small local shops and own factory outlets. For all the firms interviewed, none cited lack of market as one of their constraints. Most of these firms do not access supermarkets because of constraints such as lack of transport and long credit periods (60-90 days) before receiving payment for goods supplied. But the fact that

small-scale millers and dairy processors do not access the chain supermarkets has not had an adverse effect on these firms.

Despite the fact that the small-scale processing firms do not access the supermarket supply chain for the products they process (such as milk, yoghurt, maize, wheat flour and bread), most firms have developed their own market segments and continue to thrive in liberalised economies.

8.2.3 Impact of supermarkets on the FFV and dairy sectors

This section presents conclusions drawn from the FFV and dairy sector case studies.

8.2.3.1 Impact on individual small-scale farmers

Small-scale farmers who supply FFV to the supermarket channel earn significantly higher income compared to small-scale farmers who supply to the traditional markets channel. The study did not explore causality due to insufficient data on lagged assets.

8.2.3.2 Impact in the FFV sector

Increased number of farmers joining production of FFV

In the FFV sector, there has been an increase in the number of farmers taking up FFV production in case-study countries since the mid-1990s as deduced from the year when interviewed farmers in Botswana and Zambia started growing FFV. This could be because of increased government intervention in promoting the production of high-value crops such as fruit and vegetables to create employment for rural people and the availability of markets as supermarkets expanded into these countries.

Impact on household output and income

Participation by farmers in Botswana and Zambia in the supermarkets' FFV supply chain increases their income. Farmers who supply supermarkets have significantly higher value of sales compared to those who supply FFV to traditional market channels. Ninety-five percent of farmers supplying to supermarkets have increased their output and income since they started supplying to supermarkets.

Impact on input use

Farmers supplying to supermarkets use twice as much inputs compared to those supplying to traditional markets. Farmers supplying to supermarkets hire twice as much labour compared to those who supply to traditional markets. Also, farmers supplying to supermarkets use twice as much fertilisers and chemicals in order to produce high quality products.

Increased imports of FFV

In the three case-study countries, there is an increase in imports of fruit and vegetables to satisfy domestic demand. These include imports of products not produced in these countries and those not produced in sufficient quantities. Imports increase the choice of FFV products available to consumers. In this regard supermarkets may be beneficial in these countries.

8.2.3.1 Impact in the dairy sector

Increased availability of milk for household use

The increased involvement of dairy processors and supermarkets in the dairy sector in case-study countries has resulted in a positive impact in the dairy sector in the three countries studied. South African supermarkets' investment in case countries has expanded the cold chain for fresh milk, which has increased milk availability to consumers. Milk processing into long-life (UHT) milk products has also increased access to milk by consumers in these countries, which may have resulted in increased per capita milk consumption.

Increased milk production and processing

Dairy farmers sell milk to processors who in turn supply supermarkets. More small-scale dairy farmers are becoming involved in commercial milk production. Processors make special arrangements to enable small-scale dairy producers to participate in the supply chain. Owing to the increased involvement of large-scale processors who supply to supermarkets more milk is being produced and processed in case-study countries.

Increased milk imports to neighbouring countries

This has happened in Zambia. Companies process milk into long-life milk products, which are exported to neighbouring countries such as DRC. Milk exports from Zambia to neighbouring countries have increased in the last five years.

8.2.4 Impact on trade

The share of South African exports in the imports of SADC countries has been increasing (Republic of South Africa, 2006). The share of South African exports in some SADC countries has been on average 56% for Angola, 47.5% for Zambia, 35.9% for Malawi and 35% for Zimbabwe in the last 11 years. The share of South African exports in the imports of SADC countries has been declining. For example, since the year 2000 when the share of South African exports in Zambia's imports reached a record high of 65%, it has been falling and reached the lowest level of 36% in 2003. This may indeed corroborate the fact that imports of fresh vegetables by supermarkets such as Shoprite have declined as these supermarkets source and procure from local producers in Zambia.

8.2.5 The Role/direction of public policy

There was evidence of increased chain supermarket sourcing from local producers as a result of trade policy interventions by governments in the case-study countries. Procurement from local firms may have resulted in increased production at the firm level, but this gain may have come at a cost to society. Different policy instruments used such as tariff or local content requirement may yield different benefits and losses to producers, consumers and government. Therefore, the various policy options need to be assessed in line with the existing WTO rules to determine the true impact of these policies on different stakeholders. The research into these issues would result in adjustment of policies to only those that yield maximum benefits.

Apart from the use of trade policies other forms of cooperation among supermarkets, farmers, government and other development partners could be forged to enable dialogue

and subsequent increased sourcing/procurement from local producers which may benefit local producers and supermarkets as well.

8.3 Recommendations

The research results confirm that South African supermarket chains, local chains and independent supermarkets are growing and expanding in South Africa, in the SADC and other parts of Africa. The rate at which these firms are growing and expanding implies that these firms are going to be here for a long time. So what does this mean? It means that supermarkets will remain part of the retail landscape of many countries in SADC and Africa as a whole especially given that these countries are continuously becoming more urbanised. Supermarkets may continue to grow and increase their market share in different SADC countries and Africa if the current drivers of globalisation, trade liberalisation, urbanisation, changing technology and consumer tastes continue.

Given this scenario, it would be useful for all stakeholders involved in the development process to put their heads together to ensure that all people in SADC and Africa benefit from these changes that are unfolding in front of us.

8.3.1 Inclusion of small-scale farmers and processors in markets

The results of the study confirm that in the FFV sector, both small-scale and large-scale farmers are accessing the chain supermarkets supply chain for vegetables. Small-scale farmers who supply to supermarkets earn a significantly higher income compared to those who supply to traditional markets. These farmers (supplying to supermarkets) use more inputs such as labour and fertilisers, better seeds and irrigation systems. This implies that small-scale farmers can and are able to access the supermarket channel. Increasing the numbers of farmers who participate in the supermarket channel can lead to increased output in the agricultural sector resulting in improvement of household incomes as people obtain employment on farms supplying to supermarkets. There could be spill-over and multiplier effects related to increased off-farm activities such as increasing sale of inputs such as fertilizers, chemicals and increased use of inputs used in processing on-farm. However, the number of farmers supplying to supermarkets in SADC countries is

still small compared to those who are left out. This is a matter of concern which requires to be addressed and urgently as well.

Ways should be sought on how to increase the participation of small-scale currently subsistence farmers and small-scale processors in the supply chain of these highly sophisticated supply chains of supermarkets. This is an arduous task but not impossible. To attain this will require participation by all stakeholders. The recommendations below suggest ways on how to address this issue.

- Formulation of public policy that regulates the sourcing/procurement of supermarkets that ensures local producers are included in the developing supply chains of supermarkets in the case-study countries should be monitored and evaluated to ensure that they achieve the desired outcomes.
- Providing incentives that encourage small-scale subsistence type farmers to adopt FFV production that is marketed through supermarkets in case-study countries.
- Capital either in form of grants or loans should be provided to small-scale farmers to enable them purchase inputs of production such as irrigation systems, purchase inputs such as fertilizer, improved seed and chemicals. This will encourage them to produce high quality and large volumes of produce to meet the requirements of supermarket buyers.
- The results of the probit model show that membership of farmers' organizations may significantly reduce participation in the supermarket channel. Nevertheless the role of farmer organizations such as co-operatives in assisting farmers to access the supermarkets should be further evaluated in SADC countries to determine constraints in these organizations and ways to improve the organizations so that they may offer a comprehensive package including better marketing services than those that are being provided currently.
- The traditional markets for FFV products and processed products should also be improved and developed as these are easily accessed by producers in case-study countries. This will ensure that these markets continue serving more especially small-scale farmers and processors, and are also important to low-income

consumers in these countries. The fresh-produce markets such as Soweto in Zambia should be improved in terms of hygiene and flow of information to participant farmers and consumers alike.

8.3.2 Impact of supermarkets on agricultural and industrial development in SADC region

At sector level, there appears to be increases in output on farms producing fresh milk and FFV as well as increased output in manufacturing/food processing firms in dairy, milling, baking and confectionery products in case-study countries. This implies that production sectors have not been affected negatively as many observers would imagine. From these results, it is necessary to approach the supermarkets and their related impacts with care because some of the impacts have been shown to be positive especially on producers who access the supermarkets while some have been negative especially on small businesses. To estimate the total impact of supermarkets in the agrofood system and economy of case-study countries needs a more robust impact model (such as general equilibrium models). Presently, owing to the unavailability of data this impact has not been exhaustively determined in this study because it uses a partial model. Based on the preliminary results generated this study recommends the following:

- It is necessary to assess the various products each country produces and imports to find out whether an individual country has comparative advantage. This will enable countries to develop, improve and strengthen the products and services for which a country has comparative advantage having taken into account environmental and other economic factors.
- There is need to carry out research to evaluate the impacts of trade policies which have been set up to ensure that supermarket source and procure from local producers in case-study countries.
- To foster co-operation and good will the citizens should be educated about the role that multinational firms play in the supply chain of various products in the region.

8.3.3 Recommendation for further research

As the research results relate only to the three case-study countries and used partial analysis (not all sectors covered), caution should be taken in the application of these results to other countries. Therefore the recommendations for further research are as follows:

- As data become available it will be necessary to carry out more research on the impact of supermarkets on the economies of these countries. General equilibrium type of analysis (GE modelling) would provide a more holistic analysis of these impacts to households, firms, trade and the economy as a whole.
- Research on the models of small-scale farmer and processor participation in the supermarket channel should be carried out and those found working well could be applied in other regions.
- More research on the practices of supermarkets in their role as oligopsonists in the region should be done.

REFERENCES

Angrist, J. D., Imbens, G. W. & Rubin, B. D 1996. Identification of causal effects using instrumental variables. *Journal of the American Statistical Association* 91: 444-455

Arda, M. 2006. *Food retailing, supermarkets and food security*. United Nations University, World Institute for Development Economics Research (UNU-WIDER). Research paper No. 2006/107, Helsinki, Finland.

Asediu, E. 2003. Foreign direct investment to Africa: The role of government policy, governance and political instability. University of Kansas. Department of Economics.

Balsevich, F., Berdegué, J. A., Flores, L., Mainville, D. & Reardon, T. 2003. Supermarkets and produce quality standards in Latin America. *American Journal of Agricultural Economics,* 85 (5):1147-1154.

Barret, H. R., Libery, B. W., Browne, A. W. & Binns, T. 1999. Global supply and the changing networks of food supply: The importation of fresh horticultural produce from Kenya into the UK. *Annals of Geography*: 159-173.

Barrientos, S., Kritzinger, A., Muller, G., Rossouw, H., Termine, P., Tregurtha, N. & Vink, N. 2005. The global value chain and changing employment relations in South Africa fruit: Summary of findings. Globalisation and Poverty. Available online: http://www.gapresearch.org, [Accessed: 25 August 2006).

Basu, A. & Srinivasan, K. 2002. *Foreign direct investment in Africa. Some case studies.* IMF Working Paper Number WP/02/61, Washington DC: IMF

Berdegué, J., Reardon, T., Balsevic, F., Flores, L., Schüts, P., Hernándes, R. Jano, P., Péres, E. & Lundy, M. 2004. Supermarkets and agrofood systems in Latin America: An overview. Paper presented at the Workshop and International Seminar "Regoverning markets-securing small producer participation in restructured national and regional agrofood systems" Amsterdam, The Netherlands, 14-19 November.

Berdegué, J., Balsevic, F., Flores, L. & Reardon, T. 2005. South American supermarkets' private standards of quality and safety in procurement of fresh fruits and vegetables. *Food Policy*, 30 (2005): 254-269.

Bergés-Sennou, F., Bontems, P. & Réquillart, V. 2004. Economics of private labels: A survey of literature. *Journal of Agricultural & Food Industrial Organization*, 2 (3):1-23.

Boehlje, M. 1999. Structural changes in the agricultural industries: How do we measure, analyse and understand them? *American Journal of Agricultural Economics*; Proceedings, 81 (5): 1028-1043.

Botha, E. 1997. Shoprite buys OK Bazaars for R1. *Dispatch online*, 4 November: 1. Available online:http://www.dispatch.co.za/1997/04.htm, [Accessed: 17 November 2006].

Bowen, H. P, Hollander, A. and Viene, J. 1998. *Applied international trade analysis*, Basingstoke: Macmillan Press Ltd.

Brown, O. 2005. *Supermarket buying power, global commodity chains and smallholder farmers un the developing world.* Occasional paper. Human Development Report. UNDP.

Business Times, 2002. African safari brings the lure of prize game for Shoprite. 9 December. Available online: www.eprop.co.za/news/articles/aspx, [Accessed: 14 November 2006).

Chen, K., Shepherd, W., & Da Silva, C. 2005. *Changes in food retailing in Asia: implications of supermarket procurement practices for farmers and traditional marketing systems.* AGSF Occasional paper. Rome: Food and Agriculture Organisation of the United Nations.

Choe, Y.B. 2002. *A needed paradigm shift for agricultural marketing in Asia. The agrofood new marketing network*. Seoul, Korea.

Colla, E. 2003. International expansion and strategies of discount grocery retailers: the winning models. *International Journal of Retail and Distribution Management*, 31(1):55-66.

Cooper, D. 2002. Findings from the Competition Commission's inquiry into supermarkets. *Journal of Agricultural Economics* Volume, 54 (1): 127-143.

Copestake, J. G. 1997. Encouraging smallholder agriculture in Zambia. Agricultural services reform in southern Africa, R6452 CA. Bath: Centre for Development Studies, University of Bath & Environment and Development Consultancy Ltd.

Daniel, J., Naidoo, V. & Naidu, S. 2003. Post-apartheid South Africa's corporate expansion in Africa. *Traders*: *African Business Journal*, August-November, Issue 15.

DBSA, 2003. *Financing Africa's Development*: *Enhancing the role of private financing*, Development Report 2003. South Africa: Development Bank of Southern Africa, Halfway House: 108-118.

De Janvry, Fafchamps, M. & Sadoulet, E. 1991. Peasant household behaviour with missing markets: Some paradoxes explained. *The Economic Journal*, 101(November): 1400-1417.

Devenish, A. & Skinner, C. 2004. Organising workers in the informal economy: The experiences of the self employed women's union, 1994-2004. School of Development Studies, University of KwaZulu-Natal. Republic of South Africa.

D'Hease, M. & Van Huylenbroeck, G. 2005. The rise of supermarkets and changing expenditure patterns of poor rural households: A case study in the Transkei area, South Africa. *Food Policy*, 30: 97-113.

Dobson, P. W. & Waterson, M. 1997. Countervailing power and consumer prices. *The Economic Journal*, 107 (March): 418-430.

Dobson, P. W., Waterson, M. & Davies, S. W. 2003. The patterns and implications of increasing concentration in European food retailing. *Journal of Agricultural Economics*. 54 (1): 111-125

Dolan, C. & Humphrey, J. 2000. Governance and trade in fresh vegetables: The impact of UK supermarkets on the African horticulture industry. *Journal of Development Studies,* 37(2): 147-176.

Dries, L. & Swinnen, J. F. M. 2004. Foreign direct investment, vertical integration, and local suppliers: Evidence from the Polish dairy sector. *World Development,* 32 (9):1525-1544.

Dries, L., Reardon, T. & Swinnen, J. 2004. The rapid rise of supermarkets in central and eastern Europe: Implications for the agrifood sector and rural development. *Development Policy Review*, 22 (5) September: 525-556.

Drucker, P. 1958. Marketing and economic development. *Journal of Marketing*, 22 (January): 252-259.

Du Toit, J. 2000. Southern African Development Community: An economic profile. The SA Financial Sector Forum, Rivonia. Website: http//www.absa.co.za.

Economist, 2004. A survey of sub- Saharan Africa. *The Economist (The magazine),* 17 January: 12-13.

Economic and Social Research Foundation (ESRF), 2003. Trade policies and agricultural trade in the SADC region: Challenges and implications. Regional synthesis report: South Africa. ESRF

Economic Intelligence Unit, 2004. Country Report: South Africa. Available on: www.eb.eiu.com. [Accessed: 26 April 2004].

Emongor, R. A., Louw, A. & Kirsten, J. F. 2004. Zambia country report. In: *Regoverning markets-securing small producer participation in restructured national and regional agrofood systems*. Available online: http://www.regoverningmarkets.org

FAOSTAT. 2004. Food and Agriculture Organization, statistical database. Available online: http://www.faostat.fao.org, [Accessed 22 June 2005].

Freidberg, S. 2003. The contradictions of clean: Supermarket ethical trade and African horticulture: International Institute for Environment and Development. Gatekeeper series (109): 1-18.

Games, D. 2003. The experience of South African firms doing business in Africa. A preliminary survey and analysis. *The South African Institute of International affairs*. SAIIA Report No. 37.

Ghezan, G., Mateos, M. & Viteri, L. 2002. Impact of supermarkets and fast-food chains on horticulture supply chain in Argentina. *Development Policy Review*, 20 (4): 389-408.

Giovannucci, D. P., Sterns, P. A., Eustrom, M. & Haantuba, H. 2001. *The Impact of improved grades and standards for agricultural products in Zambia.* PFID-F&V Report No.3 East Lansing, MI: Michigan State University and United States Agency for International Development.

Gohin, A. & Guyomard, H. 2000. Measuring market power for food retail activities: French evidence. *Journal of Agricultural Economics*, 51(2):181-1995.

Goldstein, A. E. 2003. Regional integration, FDI, and competitiveness: The case of SADC. OECD Development Centre, Africa Investment Roundtable, Johannesburg, South Africa, 19th November.

Greene, W.H. 2000. *Econometric analysis*. Fourth edition. Englewood Cliffs, NJ: Prentice Hall.

Gutman, G.E. 2002. Impact of the rapid rise of supermarkets on dairy products systems in Argentina. *Development Policy Review*, 20 (4): 409-427.

Haantuba H. 2003. Linkages between smallholder farm producers and supermarkets in Zambia. Consultancy report for Food and Agriculture organisation, Draft 3.

Hagen, J.M. 2003. *Agri-food innovation in developing countries: The role of retailers*. Paper Submitted for IAMA – Cancun. New York: Department of Applied Economics and Management, Cornell University Ithaca.

Heckman, J. J. 1979. Sample selection bias as a specification error. *Econometrica* 47: 153-161.

Hernandez, R., Reardon, T. & Berdegué, J. 2007. Supermarkets, wholesalers, and tomato growers in Guatemala. *Agricultural Economics*, 36(3):1-29.

Howell, D. 2000. Formidable format's expansion accelerates market share gains - Wal-Mart Stores Inc. DSN Retailing Today, 5th June.

Hudson, D. 2000. Contracting in agriculture: A primer for farm leaders. Department of Agricultural Economics. Research Report 2000-007: United States: Mississippi State University.

IFAD, 2002. Rural poverty report 2001- The challenge of ending rural poverty: Assessment of rural poverty in eastern and southern Africa. Rome, Italy. Available online: www.ifad.org/poverty, [Accessed: 15 November 2006].

ILO, 2003. Street traders and their organizations in South Africa. Geneva, Switzerland.

Imani Development Limited, 2000a. *Small-scale food processing in South Africa*. CTA Working Document Number 8014. South Africa: Imani Ltd.

Imani Development Limited, 2000b. *Small-Scale food processing in Zambia*. CTA Working Document Number 8015. South Africa: Imani Ltd.

Imbens, G. W. 2004. Nonparametric estimation of average treatment effects under exogeneity: A review. *The Review of Economics and Statistics*, 86(1):4-29.

Jaffe, S., Kopicki, R., Labatse, P., and Christie, I. 2003. *Modernising Africa's agro-food systems: Analytical framework and implications for operations*. Africa

Region Working Paper Series No. 44. Washington: World Bank.

Kandiero, T. & Chitiga, M. 2003. Trade openness and foreign direct investment in Africa. Paper prepared for the Economic Society of Southern Africa 2003 Annual Conference, Cape Town, South Africa.

Kauffman, R.G. 1994. Influences on industrial buyers' choice of products: Effects of product application, product type, and buying environment. *International Journal of Purchasing and Materials Management*, (Spring): 29-38.

Kotler, P. 1984. *Marketing management: Analysis, planning, and control.* 5th edition. Englewood Cliffs, NJ: Prentice-Hall.

Lalonde, R.J. 1986. Evaluating the econometric evaluations of employment and training programs with experimental data. *American Economic Review*, 76:604-620.

Land O' Lakes, 2004. Zambia Dairy Enterprises Initiative. Grant No. GDG-G-00-01-00015-00. Quarterly Report, January-March 2004.

Lang, T. 2003. Food industrialisation and food power: Implications for food governance. *Development Policy Review*, 21(5-6): 555- 568.

Levy, M. & Grewel, G. 2000. Supply chain management in a networked economy. *Journal of Retailing,* 76 (4): 415-429.

Lewis, J. D. 2001. Reform and opportunity: *The changing role and patterns of trade in South Africa and SADC.* Africa Region Working Paper Series No.14. Washington. The World Bank.

Lewis, J. D., Robinson, S. & Thierfelder, K. 2002. *Free trade agreements and the SADC economies*. Africa Region Working paper series No. 27. The World Bank. Available online: http:// www. Worldbank.org/afr/wps/index.html, [Accessed: 10 July 2004].

Louw, A. & Emongor, R. A. 2004. *Report 1: Overview*. In: Regoverning markets-securing small producer participation in restructured national and regional agrifood systems. Available online: http://www.regoverningmarkets.org

Mainville, D. Y., Zylbersztajn, D., Farina, E. M. M. Q. & Reardon, T. 2005. Determinants of retailers' decision to use public or private grades and standards: Evidence from the fresh produce market of Sao Paulo, Brazil. *Food Policy,* 30:334-353.

Makhura, M.T. 2001. *Overcoming transaction costs barriers to market participation of smallholder farmers in Northern Province of South Africa*. Unpublished PhD thesis. Pretoria: University of Pretoria.

Manalili, N.M. 2004. *Overview, South East Asia*. Paper presented at the Workshop and International Seminar: "Regoverning markets-securing small producer participation in restructured national and regional agrifood systems" Amsterdam, The Netherlands, 14-19 November.

Minten, B., Randrianarian, L. & Swinnen, J. F. M. 2005. *Supermarkets, international trade and farmers in developing countries: Evidence from Madagascar*. *SAGA* Working Paper, September.

Muradzikwa, S. 2002. Foreign investment in SADC. Working paper 02/67. Cape Town: Development Policy Research Unit, University of Cape Town.

Namibia Economist, 2001-2004. New MD at Namibia Dairies. Available online: http://www.economist.com, [Accessed 20 November 2006].

Narayanan, S. & Gulati, A. 2002. Globalisation and the smallholders: A review of issues, approaches, and implications. MSSD discussion paper No. 50. Markets and Structural Studies Division. International Food Policy Research Institute & The World Bank. Available online: http://www.cgiar.org/ifpri/divs/mssd/d.htm, [Accessed: 22 March 2004].

Neven, D. & Reardon, T. 2004. The rise of Kenyan supermarkets and the evolution of their horticulture product procurement systems. *Development Policy Review*, 22 (6): 669-699.

Nicholson, W. 2005. *Microeconomic theory: Basic Principles and Extensions*. 9th Edition. Mason: Thomson/South-Western.

North, D. C. 1990. Institutions, institutional change and economic performance. Cambridge: Cambridge University Press.

Ntloedibe, M. N. 2004a. The South African market is booming. AgExporter, April Available online: http:// www.allbusiness.com/sales/155486-2.html, [Accessed 12 November 2006].

Ntloedibe, M. N. 2004b. *HRI Food Service Sector Report.* GAIN Report number SF 4006. USDA Foreign Agriculture Service, United States Embassy, Pretoria, South Africa.

Nyoro, J.K., Ariga, J. & Komo, K. 2004. Kenya Case study on fresh fruits, vegetables and dairy products. In: Regoverning markets-securing small producer participation in restructured national and regional agrifood systems. Available online: http://www. Regoverningmarkets.org, [Accessed: 25

November 2004].

Peberdy, S. 2002. Hurdles to trade? South Africa's immigration policy and informal sector cross-border traders in the SADC. Paper presented at SAMP/LHR/HSRC workshop on regional integration, poverty and South Africa's proposed migration policy, Pretoria, 23rd April

Pick 'n Pay Stores Ltd, 2002. Annual Report. Available online: http:// www. Picknpay.co.za, [Accessed: 10 March 2004].

Pick 'n Pay Stores Ltd, 2006. Annual Report. Available online: http:// www. Picknpay.co.za, [Accessed: 25 October 2006].

Pimbert, M. P., Thompson, J. & Vorley, W. T. 2001. *Global restructuring, agri-food systems and livelihoods*: International Institute for Environment and Development. Gatekeeper series (100): 1- 24.

Planet retail, 2004**.** Shoprite, Pick 'n Pay, Spar, Woolworths and MetCash in South Africa. Supermarkets retail database. Available online: http://www.planetretail.net, [Accessed: 15 July 2004].

Rae, A. & Josling, T. 2003. Processed food trade and developing countries: Protection and trade liberalization. *Food Policy*, 28:147-166.

Randenković-Jocić, D. 2002. Franchising - An advancement form of enterprises' economic efficiency. *Facta Universitatis*. Series: Economics and Organization, 1 (10): 47-56.

Reardon, T. & Berdegué, J. 2002. The rapid rise of supermarkets in Latin America: Challenges and opportunities for development. *Development Policy Review*, 20(4): 371- 388.

Reardon, T., Berdegué, J. & Farrington, J. 2002. Supermarkets and farming in Latin America: Pointing directions for elsewhere? *Natural Resource Perspectives.* ODI, 81(December): 1-6.

Reardon, T. & Barret, C. B. 2000. Agroindustrialisation, globalisation and international development: An overview of issues, patterns and determinants. *Agricultural Economics*, 23:195-205.

Reardon, T., Timmer, P., Barret, C. & Berdegué, J. 2003. The rise of supermarkets in Africa, Asia and Latin America. *American Journal of Economics,* 85 (5): 1140-1146.

Reardon, T., Timmer P. & Berdegué, J. 2004a. The rapid rise of supermarkets in developing countries: Induced organisational, institutional, and technological change in agrifood systems. Paper presented at the meeting of the International Society for New Institutional Economics, Tucson, Arizona.

Reardon, T., Berdegué, J., Timmer, P. C., Cabot, T., Mainville, D., Flores, L., Hernándes, R. Neven, D. & Balsevich, F. 2005. Links among supermarkets, wholesalers and small farmers in developing countries: Conceptualization and emerging evidence. In: The future of small farms. Proceedings of a research workshop. Wye, UK. 26-29 June: 45-73.

Reardon, T., J. Berdegué, M. Lundy, P. Schüts, F. Balsevich, R. Hernándes, E. Péres, P. Jano, & G. Escobar, 2004b. Supermarkets and rural livelihoods: A research method. A paper presented at the Workshop and International Seminar "Regoverning markets-securing small producer participation in restructured national and regional agrifood systems" Amsterdam, The Netherlands, 14 - 19 November.

Reardon, T., Henson, S. & Berdegué, J. 2007. 'Proactive fast-tracking' diffusion of supermarkets in developing countries: Implications for market institution and trade. *Journal of Economic Geography,* 7 (4). In Press

Regmi, A. & Gehlhar, 2005. Trade pressured by evolving global supply chains. *Amberwaves*, 3(1): 1-8.

Regoverning Markets Project, 2004. "Regoverning markets-securing small producer participation in restructured national and regional agrifood systems". Available online: http://www.regoverningmarkets.org, [Accessed: 25 November 2004].

Republic of Botswana, Central Statistics Office. 1997. *External trade statistics 1997*. Gaborone: Department of Printing and Publishing Services.

Republic of Botswana. Central Statistics Office. 2004a. *Statistical Bulletin*, 26 (4) and 27 (1-4). Gaborone, Botswana: Department of Printing and Publishing Services.

Republic of Botswana. Ministry of Agriculture. 2004b. *Dairy section annual report*. Gaborone, Botswana: Government Printer.

Republic of Botswana. Ministry of finance and development planning. 2003. *National development plan (2003/04-2008/09)*. Gaborone, Botswana: Government printer.

Republic of Kenya, 1989. Ministry of Planning and National Development, Central Bureau of statistics, *Statistical Abstract*. Nairobi, Kenya: Government printer.

Republic of Namibia, 2002. *Second national development plan (NDP2), 2001/2002 – 2005/2006. Volume one. Macroeconomic, sectoral and cross-sectoral policies.*

Windhoek: National Planning Commission.

Republic of Namibia. *National Industrial Statistics. 2003. Report on the survey of the manufacturing industries.* Windhoek: Ministry of Trade and Industry.

Republic of Namibia, 2004. *National Horticulture Development Initiative*. Feasibility study into the development of Infrastructure for the marketing of horticultural produce in Namibia: consultancy report. Prepared by International Development Consultancy, Agritel and MBB consulting engineers for the Ministry of Agriculture, Water and Rural Development, Windhoek, Namibia.

Republic of South Africa. The Department of Trade and Industry. 2006. South Africa Trade Statistics. Available online: http:// www.dti.gov.za. [Accessed: 28 October 2006].

Republic of Zambia, 2002. *Transitional National Development Plan 2002- 2005*. Lusaka, Zambia: Ministry of Finance and Planning.

Republic of Zambia. Central Statistics Office. 2004a. *National accounts.* Lusaka, Zambia. Ministry of Finance and National Planning

Republic of Zambia. Ministry of Finance and National Planning 2004b. *Economic report 2003*. Lusaka, Zambia.

Robbins, P. & Ferris, R. S. 2002. *The Impact of globalisation on the agricultural sectors of east and central African countries*. CMIS and Foodnet. ASARECA/IITA Monograph. International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria

Rubin, D. 1974. Estimating causal effects of treatments in randomised and non-randomised studies. *Journal of Educational Psychology,* 66: 688-701.

SADC. 2003. SADC Trade, industry and investment Review*:* The comparative advantages of SADC as an investment destination. Available online: http://sadc.org. [Accessed: 25 may 2004]

SADC, 2006. SADC trade data. Available online: http://www.sadctrade.org, [Accessed on 27/10/2006]

SAS Institute (1999-2000). SAS® User's Guide version 8.1. Cary, NC: SAS Institute.

Schade, K., Kalili, N. & Simpson, R. 2000. *A survey of subsistence farmers in Ohangwena region*. The Namibian Economic Policy Research Unit. NEPRU research report No. 19. Windhoek.

Seleka, T. B., Malope, P. & Madisa, M. E. 2002. Initiative for development and equity in African agriculture. Situational analysis on tomato production, marketing and post harvest activities in Botswana. Gaborone: Botswana College of Agriculture.

Senauer, B. & Venturini, L. 2004. The globalization of food systems: A conceptual framework and empirical patterns. Italian/Minnesota Conference, August.

Seria, N. 2004. Supermarkets can give farmers a leg up: Food retail chains offer steady profits to those farmers who meet quality standards. *Business Day*, 1st edition, 30 March. Available online: http://www.bday.co.za. [Accessed: 15 April 2004].

Shepherd, A.W. 2005. The implications of supermarket development for horticultural farmers and traditional marketing systems in Asia. Agricultural management, marketing and financial services. Rome: Food and Agriculture Organisation of the United Nations.

Shoprite Holdings Ltd, 2002. Annual report. South Africa. Available online: http://www. shoprite.co.za. [Accessed: 21 June 2003].

Shoprite Holdings Ltd, 2003. Annual report. South Africa. Available online: http://www.shoprite.co.za. [Accessed: 21 June 2003].

Shoprite Holdings Ltd, 2006. Annual Report. Available online: http://www.Shoprite.co.za. [Accessed: 10 August 2006].

Shoprite Holdings Ltd, 2007. Annual Report. Available online: http://www.Shoprite.co.za. [Accessed: 10 April 2007].

Snedecor, G.W. & Cochran, W. G. 1989. *Statistical methods*. Eighth edition. Iowa State University Press/Ames

Spar Ltd, 2003. Annual report. Available online: http://www.spar.co.za. [Accessed: 15 July 2004].

Spar Ltd, 2007. Annual report. Available online: http://www.spar.co.za. [Accessed: 10 April 2007].

Statistical Corporation, 1984. Statistical Software Stata Version 8. Website: http://www.stata.com.

Statistics South Africa, 2003. *Retail trade sales*. Statistical release B6242.1. October.

Steel, R.G.D & Torrie, J. H. 1981. *Principles and procedures of statistics: A biometrical approach.* 2nd Edition. Singapore: McGraw Hill International Book Company.

Strydom, J. 1989. The slumbering retail giant: OK Bazaars. In: Van der Walt, A. (ed.) *Marketing success stories: Cases and readings*. South Africa: Southern Publishers.

Syndicated Information Services Proprietary Limited, 1982. *Trade Opinion Panel.* South Africa: Southern Publishers.

Thomas, W. 2004. South Africa's FDI in Africa: Catalytic kingpin in the Nepad process? Unpublished draft. University of Cape Town.

Timmer, P. C. 2004. Food policy in the era of supermarkets: What's different? *Electronic Journal of Agricultural and Development Economics*. Agricultural and Development Economics Division (ESA) FAO. 1(2):50-67. Available online: http//www. Fao.org/es/esa/eJADE. [Accessed: 20 March 2006].

Tobin, J. 1958. Estimation of relationships for limited dependent variables. *Econometrica*, 26 (1958): 24-36.

Tustin, D.H. 2003. *Forecast of economic indicators and formal retail sales by group for 2003*. Research report No. 312. Bureau of Market Research. Pretoria: Unisa.

United States Department of Agriculture, 2003. *Check out "Cash and Carry" in South Africa*. Available online: http://www.usda.gov/info/agexporter/1998/October%201998/checkout.html, [Accessed: 20 June 2004].

UNIDO, 2003. Foreign Direct Investor Perceptions in sub-Saharan Africa survey report. Industrial Promotion and Technology Branch Vienna International Centre. Available online: www.unido.org, [Accessed: 20 June 2004].

United Nations, 2003. *World urbanisation prospectus:* The 2003 revision. New York: Department of Economic and Social affairs/Population Division.

United Nations, 2006. United Nations commodity trade database. Available online: http://unstats.un.org/unsd/comtrade. [Accessed: 28 November 2006].

United Nations, 2006. The millennium development indicators. Available online: http://www.un.org/millenniumgoals/ [Accessed: 28 November 2006].

United Nations, 1999. Foreign direct investment in Africa: Performance and potential. United Nations Conference On Trade and Development (UNCTAD), New York and Geneva. UNCTAD/ITE/IIT/Misc.15

University of Cape Town, 2000. *What are the major trends and determinants of foreign direct investment in SADC countries?* Development Policy Research Unit. DPRU Policy Brief No. 00/P2, July 2000. Industrial Strategy Project (Regional integration, Economic cooperation in Southern Africa). University of Cape Town. South Africa.

University of Zambia, 2004: *How rural producer organisations are influenced by economic and agricultural policy environment and how they work to influence this.* Institute of Economic and Social Research, Consultancy report prepared for the Norwegian Institute for Urban and Regional Research, February.

Valeta, A.A. 2004. *Zambia dairy sector study report*. Chemonics International Inc. - Regional Agricultural Trade Expansion Program (RATES). Lusaka.

Van Roekel, J., Willems, S. & Boselie, D. M. 2002. *Agri-supply chain management: To stimulate cross-border trade in developing countries and emerging economies.* World Bank papers:1-28. Washington D.C.

Vorley, B., Fearne, A. and Ray, D. (Editors). 2007. Regoverning Markets: A place for small-scale producers in modern agri-food chains? Hampshire: Gower Publishing Limited.

Weatherspoon, D. D. & Reardon, T. 2003. The rise of supermarkets in Africa: Implications for agrifood systems and the rural Poor. *Development Policy Review*, 21(3): 333-355.

Whiteoak, P., 1994. The realities of quick response in the grocery sector: A supplier viewpoint. *International Journal of Physical Distribution and Logistics Management*. 24 (10): 33-39.

Wigley, N., Coe, N.M. & Curah, A. 2005. Globalizing retail: Conceptualizing the Distribution-Based Transnational Corporation (TNC), *Progress in Human Geography*, 29(4):437-457.

Williamson, O. 1975. *Markets and hierarchies: Analysis and antirust implications*, New York: The Free Press.

Winship, C. and Mare, D.R. 1992. Models for sample selection. *Annual Review of Sociology,* 18: 327-50.

WIPO Magazine, 2003. Starting a new company: Consider franchising as an option. IP and Business. Available online, Website: http//www.wipo.int/sme/

Wooldridge, J. M. 2006. *Introductory econometrics*, 3rd ed. Mason: Thomson South Western.

Woolworths Holdings Ltd, 2006. Annual report. Available online: http://www.woolworths.co.za. [Accessed 25 October 2006].

Woolworths Holdings Ltd, 2007. Annual report. Available online: http://www.woolworths.co.za. [Accessed 14 April 2007].

World Bank, 2006. *World development report*. Washington, D.C: World Bank.

Xiang, Bi, Xiaoxia D., Huang, J., Dinghuan, H. and Roselle, S. 2004. China country report. A paper presented at the workshop and International seminar "Regoverning markets-securing small producer participation in restructured national and regional agrifood systems" Amsterdam, The Netherlands, 14 - 19 November.

APPENDICES

Appendix 1: List of people interviewed

ZAMBIA- Lusaka			
Person interviewed	**Position**	**Organization**	**Date of interview**
Stefan Kranz	General Manager	Shoprite/Checkers	08/06/2004
Obed Mushiko	Manager	Spar Zambia	11/06/2004
M.M. Vallah	Manager	Melisa supermarket	
Muyenga Atanga	Director (Consumer Welfare & Education)	Zambia Competition Commission (ZCC)	5/07/2004
Ndambo E. M. Ndambo	Liaison Officer	Zambia National Farmers' Union (ZNFU)	10/06/2004
Geoffrey Hope	Manager	Freshmark Africa (Zambia) Ltd.	08/06/2004
Felix Chizhuka	Project Manager	NORAD Support to Farmers Association Project	9/06/2004
Brian Mwanamambo	Associate Field Manager	Zambia Agribusiness Technical Assistance Centre (ZATAC) Limited	9/06/2004
Tim Durgan	Country Coordinator-International Development	Land O' Lakes, Inc	10/06/2004
D. E. Daka	Chief Animal Production Specialist	Ministry of Agriculture and Cooperatives	14/06/2004
Martin Njovu	Quality Manager	Parmalat Zambia Limited	11/06/2004
Mike Jones	Managing Director	Enterprises Limited	15/06/2004
Hyde Haantuba	Deputy Director (Market Development)	Ministry of Agriculture and Cooperatives	14/06/2004
Sandress Nyirenda	Marketing Manager	Parmalat Zambia Limited	11/06/2004
Asif Essa	Director	Dairy King	15/06/2004
Martin Muolewa	Factory Manager	Dairy King	15/06/2004
Ben Zimba	Board Secretary	Coffee Board of Zambia	
Brenda Kachapulula	Assistant Technical Manager	Agriflora	15/06/2004
John Henderson	Technical Manager	York farm	04/07/2004
J. J. Shawa	Deputy Director (Planning and Policy)	Ministry of Agriculture and Cooperative	08/06/2004

Lillian S. Bwalya	Senior Economist	Ministry of Commerce, Trade and Industry	11/06/2004
K. Muwina	Manager	National Milling Company	11/06/2004
	Manager	Nyati Milling	05/08/2005
Mr. Biraddy	Financial Controller	SABCO (Superior) Millers	09/06/2004
Trevor Muyunda	Depot Liaison Officer	Makeni Cooperative	19/06/2004
Mr. Nyangulu	Personnel Officer	Agriflora	15/06/2004
A. G. Bobat	Sales Manager	Amigo Foods Ltd	18/06/2004
Mr. Divecha	Dairy farmer	Lusaka West	21/06/2004
Mrs Mukutu	Dairy farmer	Palambana Dairy Cooperative	21/06/2004
Focus-group 1	8- Cooperative members and officials	Chamba Valley Cooperative	20/06/2004
Focus-group 2	5- Cooperative members and officials	Buteko Cooperative /Outgrower Scheme	22/06/2004
Focus-group 3	6-Cooperative members and officials	Panjira Cooperative Society	22/06/2004
Zambia-Chipata (Eastern Province- 600km from Lusaka)			
G. Jere	Crops officer	Ministry of Agriculture and Cooperatives	25/07/2005
Mr Nkhuwa	Manager	Shoprite store – Chipata Zambia	26/07/2005
P. Phiri	Planning officer	Ministry of Finance – Chipata office	27/07/2005
Elison. Phiri	Area Camp Extension officer	Luangeni village	28/07/2005
Interviewed traders	Saturday Market (traditional fresh produce market)	Chipata	27/07/2005
Focus-group 1 in Chipata	7 farmers	Small-scale farmers in Kaluba village producing vegetables for Shoprite and traditional markets	28/07/2005
Focus-group 2 in Chipata	23 farmers and cooperative officials (15 male and 8 female)	Luangeni Multipurpose Cooperative	29/07/2005
Mr. Daya	Director	Eastern Dairies	1/08/2005
Daka Masauso	Assistant Manager	Manyana Farm	30/07/2005
Ibrahim Sundi	Manager	Jambo Bakery	28/07/05
	General Manager	Kwacha Milling	28/07/2005

Namibia			
Kobus van Graan	Managing Director	Namib Mills (Pty) Ltd	25/04/2004
Sartorious von Bach	Livestock farmer/tourism	Kamanjab-500km from Windhoek (interviewed in Windhoek)	11/09/2005
Tom Oyieke	Rural Enterprise Development & Finance Advisor	National Agricultural Support Services Programme-Windhoek	12/09/2005
Namene Kalili	Horticulture Officer	Namibia Agronomic Board	15/09/2005
	Manager	Fruit and Veg City (Windhoek Branch)	21/09/2005
	Buying Manager	Woerman & Brock Supermarkets	30/09/2005
Ute Kressler	Marketing and Sales Manager	Capricorn Sweets-(Whindhoek)	20/09/2005
Vee Maharaj	Windhoek Branch Manager	Namibia Chamber of Commerce & Industry	21/09/2005
	Manager	Freshmark Namibia	26/09/2005
	Manager	Freshco Namibia	26/09/2005
Botswana			
Abel Katse	Dairy farmer	Tlokweng-Gaborone	11/10/2004
P. Gabarongwe	Dairy farmer	Mosinki –Molopolole (60 km from Gaborone)	11/10/2004
Mr. Majale	Farm manager- BCA Farm (Dairy section)	Notwane -Gaborone	20/10/2004
Mr. Gobotswang	Dairy farmer/farm input merchant	Molopolole (60 km from Gaborone)	25/10/2004
Mr. Motlgodi	Dairy farmer	Tlokweng-Gaborone	12/10/2004
Naval Sparrow	General Manager	MetCash-Gaborone	23/09/2004
	Marketing Officer	Ministry of Agriculture	
Dave Mitchel	Production Manager	Clover Botswana Ltd	15/09/2004
Mr. Obvious	Assistant Manager	Score Supermarkets (Bus rank) -Botswana	24/09/2004
Mr. Patrick	Production Manager	Sally Dairy Ltd	10/09/2004
J. C. Willems	Director	Parmalat Botswana Ltd	7/09/2004
Mr. H. Kochar	Director	Mr. Veg, FFV wholesaler-Gaborone	3/08/2004
Mr. Knight	Manager	Lulu Bananas FFV Wholesalers Gaborone	4/08/2004
Julian van der Nat	Manager-owner	Tony's Café (FFV Wholesale) Gaborone	5/08/2004
J. Henni	General Manager-Distribution Centre	Payless Supermarkets	8/09/2004

Johnson Anthony	Warehouse Manager-Choppies Distribution Centre	Choppies Superstores	06/09/2004
Mr. de Klerk	Manager	Pick ' n Pay Family Supermarket (Molapo Crossing) Gaborone	05/10/2004
Mr. S. Mosiele	Principal Scientific Officer	Department of Animal Production, Ministry of Agriculture	03/08/2004
	Manager	OK Foods (Westgate Mall)	03/08/2004
Mr. Dlamini	Chairman	Botswana Horticultural Council (telephone conversation)	30/08/2004
South Africa			
Rob de Vos	Retail Operations Director	Spar North Rand Distribution Centre-Olfantsfontein	04/05/2004
Gawie du Toit	Manager	Freshmark Distribution Centre-Centurion	8/05/2004
Dr. Johan van Deventer	CEO	Freshmark / Shoprite	31/07/2004

Appendix 2: Checklists

Checklist for farmer focus groups (FFV and dairy farmers)

1. How large are your farms?
2. What products do you produce?
3. Why do you produce these products?
4. Where do you market produce?
5. Do you carry out any processing on farm?
6. Are there processing firms for the commodities you produce?
7. What constraints do you face in accessing supermarkets and other markets?
8. If farmers are members of a group, e.g cooperative, how has supermarkets affected members' livelihoods, and other farmers in the area?
9. What benefits do you get as members for joining the cooperative or out grower scheme?
10. How do you influence policy?
11. Any other issues as arose during discussions.

Checklist for large farms and processors

1. When did your company start operations in Zambia/Botswana/ Namibia?
2. What products do you produce
    - for export market
    - for domestic market
3. Do you buy from small –scale producers?
4. Do you sell to local supermarkets/sourcing companies?
5. When did you start selling to South African supermarkets and other supermarkets?
6. How has your production changed since you started supplying to supermarkets?
7. What is your involvement with small-scale out grower schemes?
8. What grades and standards do you and out grower farmers have to meet?
9. What Constraints do you face in the input and output markets?
10. Other issues arising as discussion proceeds.

Checklist for impacts (Key informants)

1. What has been the effect of the shoprite in Zambia/Botswana/Namibia?

a) Household level

- income
- more children going to school
- household food security
- more consumption of food produced in other countries (more varieties available)

b) Retail and wholesale business

- has there been closure of small businesses?

- has there been transfer of skills (management) to local entrepreneurs?
- improvements in local supermarkets as copied from multinational SA supermarkets
- effect on wholesalers
-impact on supply chain of FFV and dairy products
-development of grades and standards to help small farmers and processors meet the requirements of supermarkets
- are prices in Shoprite lower than other retail outlets?

c) Impact on agriculture and processing/manufacturing sector

- has the production of some crops been reduced due to imports?
- has the processing of some products been reduced due to imports?
- has there been the establishment of new processing factories to meet the new demand for these products by supermarkets?

Appendix 3: Product lists

SUPERMARKET ---------- TOWN----------
PRODUCT CATEGORY: PROCESSED PRODUCTS

DATA COMPILED BY: ---------- DATE: ----------

DAIRY PRODUCTS----------

BRAND NAME	QUANTITY	PRICE	COMPANY/TOWN/COUNTRY
1	a.		
	b.		
	c.		
	d.		
	e.		
2	a.		
	b.		
	c.		
	d.		
	e.		
3	a.		
	b.		
	c.		
	d.		
	e.		
4	a.		
	b.		
	c.		
	d.		
	e.		
5	a.		
	b.		
	c.		
	d.		
	e.		

Appendix 4: Supermarkets' questionnaire

Introduction of the study

The University of Pretoria, Department of Agricultural Economics, Extension and Rural Development is carrying out this study in order to assess how supermarkets impact on producers and other traders in the region. The information gathered will be used to complete a PhD study and also make a contribution to show how markets and supply chains for agricultural products have been changing. This will assist in policy formulation for the benefit of all. Your participation is very important for this project. Your participation is voluntary and the information you give will be held in strict confidentiality. Thanks in advance for your participation.
If you have any questions please contact the following:

Johann Kirsten, Professor and Head of Department
Department of Agricultural Economics, Extension and Rural Development.
Phone: (+27-12) 420 3248
Fax: (+27-12) 420 3247
E-Mail: jkirsten@up.ac.za

A. Identification

Name of supermarket---------- Date----------

Name of interviewee ---------- Position ----------

Address---------- Tel. ----------

E-mail address----------

B. Company profile (growth and expansion):

1. When was your company established (Year when started operations in this country) ----------

2. Where was it located then ---------- Has it moved to other locations? --------

3. Is this supermarket an independent store or is it part of chain?
Independent ☐ Chain ☐

4. If it is part of a chain how many branches or chains does it have in this country?

C: Procurement/Sourcing/supplier

5. What food products do you sell?

Own labels ☐ Manufacturer's brands ☐ both ☐

6. How is the procurement of the products organised?

Buying Centre / company ☐ source from producers directly ☐ both ☐

7. From whom/where do you source the following products?

Product	Name and source of product suppliers (Get a list if possible)			Why do you source from this sources (Reason)
	SA	SADC	Globally	
Potatoes				
Tomatoes				
Onions				
Cabbage				
Milled products • Maize meal • Wheat flour • Pasta products				
Processed Fruits & vegetables • Canned vegetables • Canned fruits • Juices				
Dairy products • Fresh milk • Cheese • Processed milk • other				

13. What sourcing arrangements do you make with your suppliers?

Contract ☐ Other ☐

14. If you buy by contracting with suppliers, what types of contracts are entered into with suppliers?

Formal ☐ (Written) Non-formal ☐ (Verbal)

15. How long do you take before payment is made to supplier after delivery of products?

30 days ☐ s 60days ☐ ☐

16. What type of support do you give to your suppliers? ----------
---

E: Quality, grades and standards:

17. Does quality play an important role in your sourcing decisions? Yes ☐ No ☐

18 If yes what quality attributes for the following products do your suppliers have to meet?

Product	Quality attributes	Type of grades and standards	Comments
Tomatoes			
Potatoes			
Onions			
Cabbages			
Dairy products (Fresh milk)			
Flour products			

19. How do you ensure compliance?

Private grades and standards

Public grades and standards

---

20. Which kinds of suppliers meet these grades and standards? ----------
---

---

21. Could you say that the enforcement of grades and standards has made it difficult for suppliers (small scale farmers and processors) to supply to your supermarket? ----------

F: Criteria influencing sourcing and procurement decisions

22. What listed criteria do you consider when sourcing food products and how important are they?

Product	**Criteria**	**Considered Yes or no**	**Ranked according to importance** (1= fairly important, 2=important, 3= Very important)
Fresh fruits and vegetables	Price		
	Location where produced		
	Transport cost		
	Volume of product		
	Credit period		
	Formed relationship of trust		
	Government policies		
	Other		
Dairy products (Fresh milk)	Price		
	Location where produced		
	Transport cost		
	Volume of product		
	Credit period		
	Formed relationship of trust		
	Government policies		
	Other		
Milled products	Price		
	Location where produced		
	Transport cost		
	Volume of product		
	Credit period		
	Formed relationship of trust		
	Government policies		
	Other		
Processed Fruit and vegetables	Price		
	Location where produced		
	Transport cost		

	Volume of product		
	Credit period		
	Formed relationship of trust		
	Government policies		
	Other		

23. What prohibits you from sourcing from small-scale producers? ----------
---

---

24. What are the constraints in your sourcing strategy? ----------
---

---

25. What are your main competitors?
Small retailers ☐ other chain supermarkets ☐ hawkers ☐ other ☐

26. If other please specify ----------

---

27. Do you source from local producers? Yes ☐ No ☐

28. If no, why do you not source from local producers? ----------
---

---
29. What role do processors play in the supply chain? ----------
---
---
30. What is the role of the cold chain? ----------

Thanks for your participation!!!

Appendix 5: The agro-industry (food processors) questionnaire

Introduction of the study

The University of Pretoria, Department of Agricultural Economics, Extension and Rural Development is carrying out this study in order to assess how supermarkets impact on the producers and other traders in the region. The information gathered will be used to complete a PhD study and also make a contribution to show how markets and supply chains for agricultural products have been changing. This will assist in policy formulation for the benefit of all. Your participation is very important for this project. Your participation is voluntary and the information you give will be held in strict confidentiality. Thanks in advance for your participation.
If you have any questions please contact the following:

Johann Kirsten, Professor and Head of Department
Department of Agricultural Economics, Extension and Rural Development.
Phone: (+27-12) 420 3248
Fax: (+27-12) 420 3247
E-Mail: jkirsten@up.ac.za

A. Identification

Name of company---------- Date of interview----------

Name of interviewee ---------- Position ----------

Address---------- Tel. ----------

E-mail address----------

B. Company profile (growth and expansion):

1. When was your company established (Year when started operations) ----------

2. What products do you process/package? ----------

---

3. Type of company (based on work force)

Small-scale ☐ Medium-scale ☐ Large-scale ☐

4. What type of ownership?

Sole trader ☐ Limited company ☐ Co-operation ☐ other ☐

5. What are your total sales last year? ----------
6. What were your total sales 2-3 years ago? ----------

7. Total number of workers: Permanent Casual
a) This year -------- a) this year ----------
b) 2-3 years ago ------ b) 2-3 years ago -------
8. How much products do you produce per day
Name product ----------
Amount per day ----------

C. Sourcing and procurement of raw materials:

9. What raw material do you use in the processing? ----------
---

---

10. Do you produce your own fruits/vegetables/milk for processing? Ye☐ No ☐

11. If yes, do you produce all your requirements? Yes ☐ No ☐

If no,

12. From whom/where do you source your raw materials?

Local ☐ South Africa ☐ Other SADC countries ☐ Global ☐

And why do you source from this source? ----------

---

13. From the local suppliers, what% do you source from large and small-scale producers?
Large-scale ☐ Small scale ☐ both ☐

14. Do you give support to your suppliers?
Yes ☐ No ☐

If yes,

15. What kind of support do you give them?

Credit ☐ Extension services ☐ transport of produce to factory ☐

Contracts ☐ Organise farmers in groups ☐

16. What kinds of suppliers are able to meet your criteria?

Large scale ☐ small-scale ☐ both ☐

17. Do you enforce any Quality standards in your sourcing?
Yes ☐ No ☐

If yes,
18. What grades and standards do you expect your suppliers to meet? ----------
---

---
19. By enforcing this grades and standards, how does this affect your business? ----------
---

---
20. What effect does it have on small-scale producers that supply your firm? ----------
---

D: Marketing of products.

21. Where do you market your produce?
Export market ☐ Local market ☐ both ☐

22. In the domestic market, where do you sell your products?

Type of market	% Of total product sold	Comments
Supermarkets		
Wholesalers		
Small shops		
Street vendors		
Other		

23. If you sell to supermarkets, when did you start selling to supermarkets ----------
---

24. Which supermarkets do you supply to? ----------

-----
25. What products do you supply to the named supermarkets----------
---
---

26. How has your production changed since you started supplying to supermarkets ? ------
---

---

27. How have your sales changed since you started supplying to supermarkets? ----------
---

---

28. What changes have occurred in your employment since you started supplying to supermarkets? ----------
---
---

29. If do not sell to supermarkets, why don't you sell to supermarkets?

Low volume ☐ Long credit period ☐ Lack of transport ☐ cannot meet

quality standards ☐ Lack cash to upgrade facilities ☐ other ☐

30. If other please explain ----------
---

31. If processors were to gain more from supermarkets, what role should the government play? ----------
---

-

32. What constraints do you face when selling supermarkets? ----------
---

Thanks for your participation!!!

Appendix 6: Farmer questionnaire

Introduction of the study

The University of Pretoria, Department of Agricultural Economics, Extension and Rural Development is carrying out this study; to assess how supermarkets are impacting on producers and other traders in the region. The information gathered will be used to complete a PhD study and also make a contribution to show how markets and supply chains for agricultural products have been changing. This will assist in policy formulation for the benefit of all. So your participation is very important for this project. Your participation is voluntary and the information you give will be held in strict confidentiality. Thanks in advance for your participation.
If you have any questions please contact the following:

Johann Kirsten, Professor and Head of Department
Department of Agricultural Economics, Extension and Rural Development.
Phone: (+27-12) 420 3248
Fax: (+27-12) 420 3247
E-Mail: jkirsten@up.ac.za

A. Identification

Name of farm (farmer) ----------

Location of farm---------- Nearest town---------- Distance from farm------Km

Name of interviewee---------- Relationship to farmer ----------
Address---------- Tel. ----------

B. Farm enterprise

1. What is the size of your farm? Hectares ☐ Acres ☐

2. When did you start farming on your farm? Year ----------
3. How did you acquire this farm? ----------
4. Who owns the farm? ----------

Title deed……Freehold---------- Communal----------
Traditional……..Other----------

5. Level of education: Primary ☐ Secondary ☐ College/University ☐

None ☐

6. Have you received any training in agriculture? ----------

Is farming your only source of income? Yes No

☐ ☐ ☐

If no what is your employment? Teacher Civil servant private sector

Retired ☐ other ☐

7. What type of assets do you possess on your farm?

Type of capital asset	**Number**	**Date of purchase**	**Value**	**Comments**
Oxen-drawn implements				
Tractor				
Pick-up				
Sprayers				
Sorting/packaging shade				
Greenhouse				
Irrigation system				
Other				

8. Household head age ----------

9. Gender of household head
10. Total number of people leaving in household? ----------

11. Total number of adults --------- Number working on the farm ---------- Number working off-farm ----------

12. Total number of children ---------- Number working on the firm ----------

13. Total number of hired farm workers: Permanent Casual
a) This year ---------- a) this year ----------
b) 5 years ago -------- b) 5 years ago -------
14. Who manages tomato/cabbage/spinach/ rape? ----------

C. Inputs and costs

15. What inputs do you use in producing tomatoes

Tomatoes	Varieties grown/ type of input	Quantity used bags /litres / number	Land under crop (HA)	Unit cost	Total cost
Seed or seedlings					
Fertilisers					
Chemicals					
Labour	**Casual** Ploughing Weeding Harvesting Sorting and grading Marketing				
Labour	**Permanent** Land preparation Weeding Spraying Harvesting Sorting and grading Marketing				
Total labour	Casual Permanent				
Transport costs					
Other					

D. Access to markets

16. Where do you sell your tomatoes/cabbage/spinach or rape?

Supermarket ☐ Farm gate ☐ local market ☐ other ☐

17. If other explain----------

If supermarkets, go to question 18 and if local markets, go to question 40

18 Which supermarket do you supply to? ----------
---

19. When did you start supplying to the named supermarket? (Year) ----------

20. What quantities of produce do you supply to the supermarket per week or per month?

Type of product	Quantity supplied per week/month	Price per unit	Do you supply directly to supermarket or to distribution centre	Comments

21. How many kilograms did you supply to channel (supermarket or traditional) per week or month?

a) Last season ---------- b) 3-5 years ago ----------

22. Total kilograms supplied to the channel (supermarket or traditional)

a) Last season ---------- b) 3-5 years ago----------

23. What changes have occurred in your output and income since you started supplying to supermarkets?

Increased ☐ No change ☐ decreased ☐

24. Since you started supplying to supermarkets, have you increased the number of workers on your farm?
Yes ☐ No ☐

If yes, go to question 19, if no go to question 20

25. Changes in workers and wages

Year	Number of workers employed		wages	
	Permanent	Casual	Permanent	Casual

26. Why has the number of workers remained the same or decreased? ----------
---

---

27. What benefits have you obtained since you started supplying to the named supermarket/s? ----------
---

E. Terms and Conditions

28. What conditions do you have to meet in order to supply to the supermarket?

Sign contract ☐ meet certain quality standards ☐ grant credit period ☐

Formed relationships of trust ☐ other ☐

29. Do you supply on contract?

Yes ☐ No ☐

30. If yes, what kind of contract do you have with the supermarket?

Verbal ☐ formal ☐ other ☐

31. Who negotiated the contract for you?

Myself ☐ Farmer Association/group ☐ NGO ☐ other ☐

32. How long does it take for you to receive your payments after supplying to the supermarket?

30 days ☐ 45 days ☐ 60 days ☐ 90 days ☐ other ☐ (specify)

33. What grades/standards do you have to meet in order to supply to channel? ----------
---
---
34. What cost do you incur in meeting this grades and standards? ----------
---

F. Relationships/partnerships

35. Have you formed any relationships with supermarket/ traditional buyer of your product?

Yes ☐ No ☐

36. What level of trust have you formed? None ☐ fairly good ☐ good ☐ very good ☐

37. What benefits have you received due to this relationships ----------
---

Transport

38. How do you transport your produce to the supermarket / distribution centre?----------
---

-----
39. How much does it cost you to use the mode of transport you have mentioned----------
---
---
40. What are the major constraints in transporting your produce to the supermarket/distribution centre? ----------
---

Grades and standards

41. What grades/standards do you have to meet in order to supply to supermarkets? -------
---

---
42. What cost do you incur in meeting this grades and standards? ----------
---

---
43. Who meets these costs? ----------

---

44. What problems/constraints have you experienced in adhering to these grades and standards? ----------
---

Local or other markets

45. Do you sell on other local markets?

Yes ☐ No ☐

46. If yes, which ones?

Name of market	Number of km from farm	village/town

K. Provision of services

47. Do you receive any assistance from the supermarket you supply to?

Yes ☐ No ☐

48. If yes, what kind of assistance do you receive? ----------
---

---

49. Did you get credit in your production?

Yes ☐ No ☐

50. From which source?

Bank ☐ co-operative ☐ informal lenders ☐ other ☐

51. What is your source of information for farming?

Radio ☐ Government extension ☐ NGO ☐ Co-operative ☐ other ☐

52. Please compare, which market is better, the supermarket or the traditional market -----
---

L. Household Income

53. What are the sources of your income?

Sources of income	Amount per month	Total per year
Sale of crops		
Sale of livestock		
Off-farm employment		
Wages – working on other peoples farms		
Remittances		
Other		

54. Household wealth ranking (**enumerator to assess and assign**)

Low ☐ Middle ☐ high ☐

Thank you for your time!!!

Appendix 7: Calculation of z for frozen vegetables in Botswana

	Product source/country of origin				
Supermarket	South Africa	Zimbabwe	Botswana	ROW	Number of brands
OK Foods	McCain 82.6%	McGregor 17.4 %	0	0	23
Checkers	McCain 100%	0	0	0	30
Metsef	McCain 85.2%	14.8%	0	0	27
Shoprite	McCain 100%	0	0	0	25
Spar (BBS Mall)	McCain 81%	McGregor 19%	0	0	47
Spar (Game City)	McCain 100%	0	0	0	34
Pick 'n Pay	McCain 85%	McGregor 15 %	0	0	26
Total	633.8%	66.2	0	0	212
Average	90.5%	9.5	0	0	30

Source: Survey results, 2004; ROW = rest of the world

Appendix 8: Sampled supermarkets in Botswana, Namibia, Zambia and South Africa

Supermarket	Location	Country	Position of person interviewed	Remarks
Shoprite Manda Hill	Lusaka	Zambia	General Manager Procurement manager	Headquarters for all Shoprite stores in Zambia
Shoprite Chipata	Major Provincial town for Eastern Province	Zambia	Manager	Only one Shoprite store
Spar Arcade	Lusaka	Zambia	Manager	Only Spar store during interview. One year old.
Melissa Kabulonga	Lusaka	Zambia	Manager	3 stores in Zambia. All located in Lusaka
Woerman & Brock Independence Avenue	Windhoek	Namibia	Buying manager	Headquarters of the 15 stores in Namibia
Fruit & Veg City	Windhoek	Namibia	General Manager	3 stores in Namibia
Shoprite/Freshmark	Windhoek	Namibia	Manager	Sources FFV for 48 stores
Pick' n Pay/Freshco	Windhoek	Namibia	Manager	Sources FFV for 19 stores
Payless Commerce Park	Gaborone	Botswana	General manager	Distribution centre for 4 stores all located in Gaborone
MS Veg BBS Mall	Gaborone	Botswana	Director	Franchise of Mr. Veg
Score supermarket	Bus Rank & Molopolole	Botswana	Assistant manager Manager	16 stores in Botswana. Part of Pick 'n Pay
METSEF	Head Office	Botswana	General manger	Part of Metro
Choppies	DC Commerce Park Gaborone	Botswana	Warehouse manager	Sources for 27 Choppies stores in Botswana
Ok Foods Westgate Mall	Gaborone	Botswana	General manager	Franchise of Shoprite
Pick' n Pay Molapo crossing	Gaborone	Botswana	Manager	Franchise of Pick' n Pay. 3stores in Botswana
Shoprite	Freshmark DC Centurion	South Africa	CEO	FFV procurement
Spar North Rand DC	olfafortein	South Africa	Retail operations manager	Supervises Spar Namibia and Botswana