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.

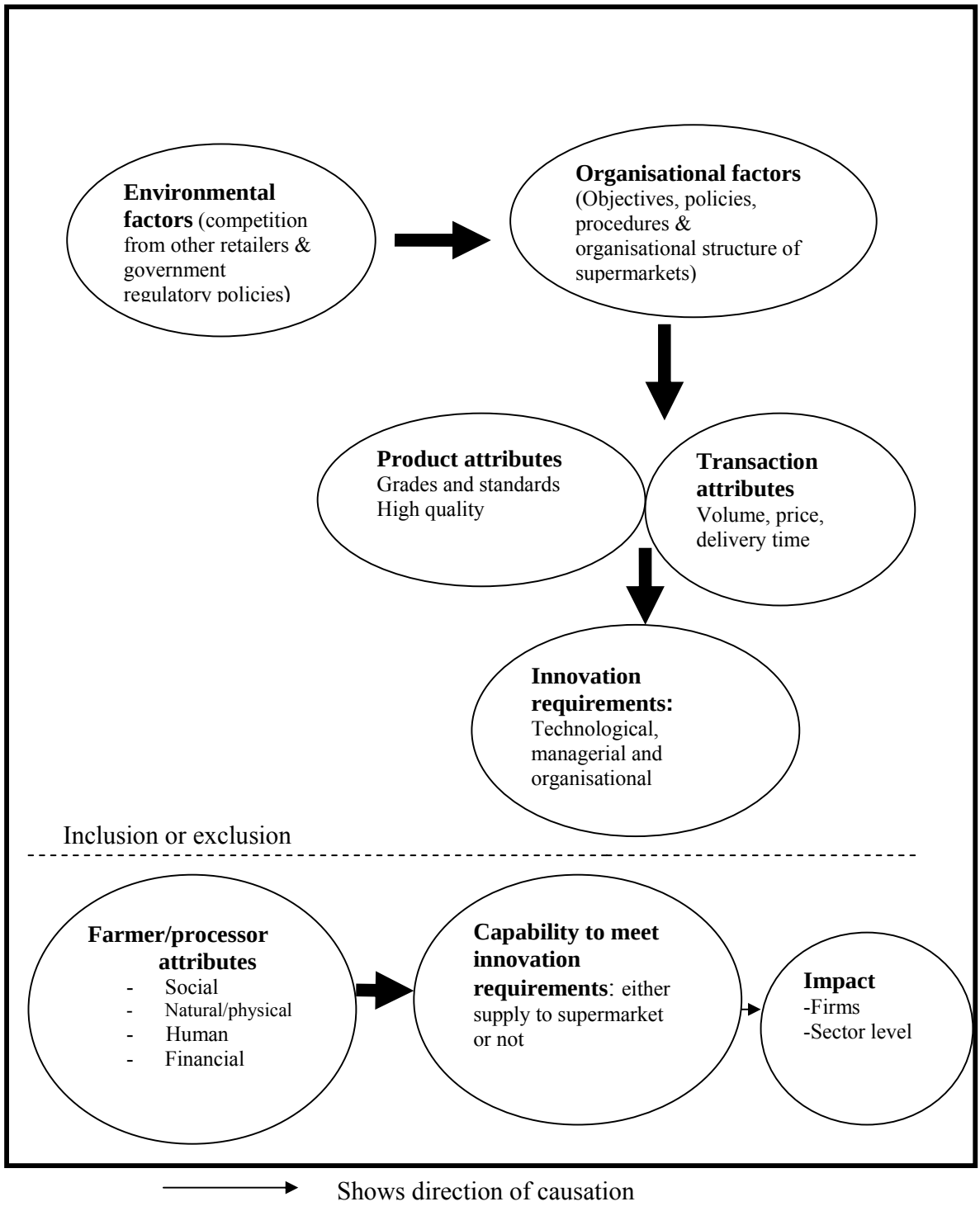

Figure 3.1: Conceptual model explaining supermarkets' procurement decision
Adapted from: Kotler, (1984), and Reardon *et al*., (2004b)

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.

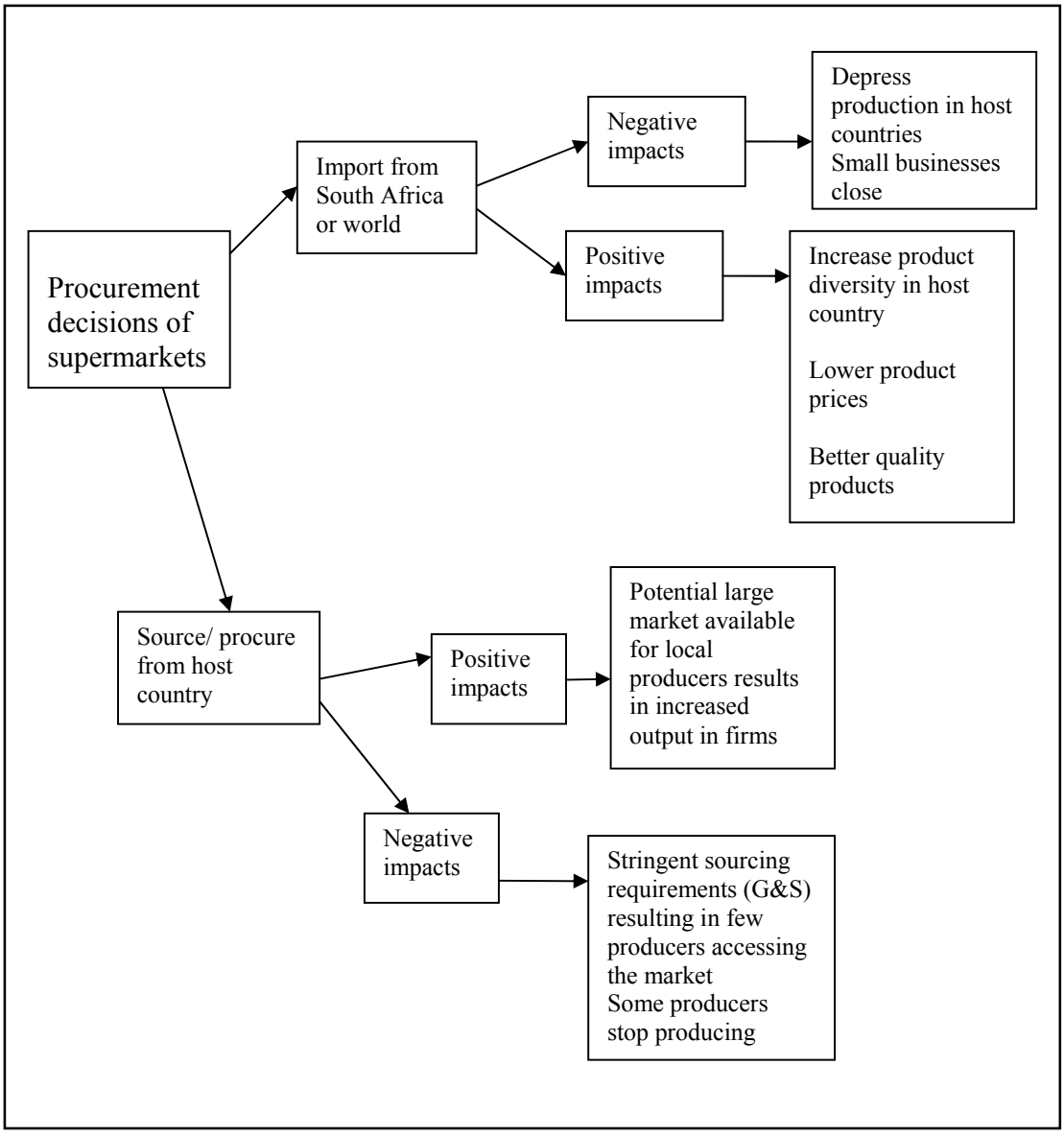

Figure 3.2: Conceptual model of impact of South African supermarkets in SADC countries

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).

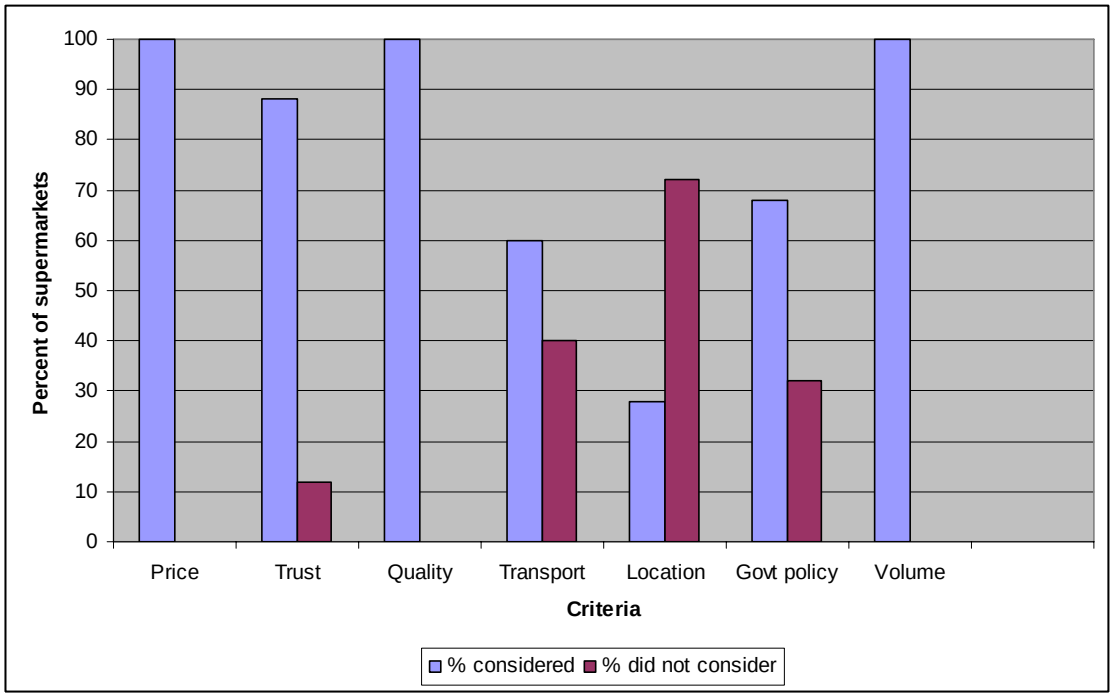

Figure 4.1: Criteria used by supermarkets to source FFV and processed foods
Source: Survey results (2005); Number of chain supermarkets = 12

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.