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Vertical organisation of small scale farmers

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A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirement for the degree of Master of Business Administration

11 November 2013

Abstract

Small scale farmers represent 80% of all farmers in sub-Saharan Africa and contribute up to 90% of agriculture production. Small scale farming is not without its problems and sub-Saharan Africa has one of the lowest agriculture productivities in the world - this despite ample land and water availability. These problems include inter alia, the fundamental lack of economies of scale and access to market, high transaction costs, and limited access to finance. This is in a global environment, where contract farming is becoming very dominant in agriculture: In 2010, 41% of the North American agriculture output was sold on contract, compared to 11% in the '60's.

The research objective was to evaluate contract farming as a vertical integration mechanism for small scale farmers to take advantage of this growing long term trend. To this end, a hypothesis was proposed that contract farming is a practical model that increases farm income for the small scale farmer. In support of this hypothesis, five propositions were tested, viz: does contract farming provide market linkage, reduce transaction costs, increase rural development, raise production output, and can it be applied across different crops. The research followed a deductive approach and a qualitative data collection method. The propositions were tested using empirical evidence obtained from semi-structured interviews with companies involved in contract farming.

The hypothesis was confirmed by the evidence presented. The individual propositions: market linkage, transaction costs, rural development and different crops were all supported. However the evidence presented that contract farming raises output was inconclusive. These findings are however, subject to solving a number of issues - such as land transfer, mitigating the effect of low economies of scale, controlling side selling, and having a dispensation that increases profits over the long term. Further to the findings, a model framework is proposed to structure a contract farming system. With 60% of the sub-Saharan population involved in agriculture, the ability to increase farm side income presents an enormous opportunity to contribute to rural economic prosperity. This is not only for the benefit of farmer, but also for his community, via the multiplier effect.

Key words: Small scale farming, vertical integration, transaction costs

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirement for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Thomas Steyn

11 November 2013

Acknowledgements

I want to thank the Lord for the opportunity and blessing throughout this research project. To my wife Surita, and my new born baby Dawid, thank you for all the support throughout the process. Then to my supervisor, Mike Holland, thank you for your guidance and assistance, you helped enormously. To all the participants that was willing to set aside their own time to contribute to this research: Johan Roos, Andries Nkosi, Stan Rau, Sherry-Lee Singh, Jaap Engelbrecht, Lance Kennedy, Cliff Ingle, Dave Thomson, Jabu Dlamini, Carol Roskruge, Niel de Smith, Alwyn Prinsloo, Mamphod Aifheli, Eunice Gangashe, Colin Forbes and Goosen Lombard, thank you for your time, openness and your positive contribution. Many of you spend a major part of your career in development farming and your passion for the field is something to aspire to.

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Abbreviations

CBOT – Chicago Board of Trade

DRDLR – Department of Rural Development and Land Reform

EOS – Economies of Scale

FAF – Sugar Association Financial Aid Fund

GDP – Gross domestic product

GWK – Griekwaland-Wes Korporatief

ITC – Identity Theft and Credit Fraud

JSE – Johannesburg Stock Exchange

RADP – Recapitalization and Development Program

RSA – Republic of South Africa

RTO – Right to Operate

RV – Sugar's Relative Value

SAFEX – South African Futures Exchange

SCF – Small scale farming

SSA – Sub-Saharan Africa

UK – United Kingdom

USA – United States of America

Chapter 1 – Introduction

The aim of this research is to evaluate contract farming as a mechanism for vertical integration of small scale farmers into the commercial value chain. This is to take advantage of Africa's natural comparative advantage in farming and the macro trend of backward integration of retailers and agro-processors.

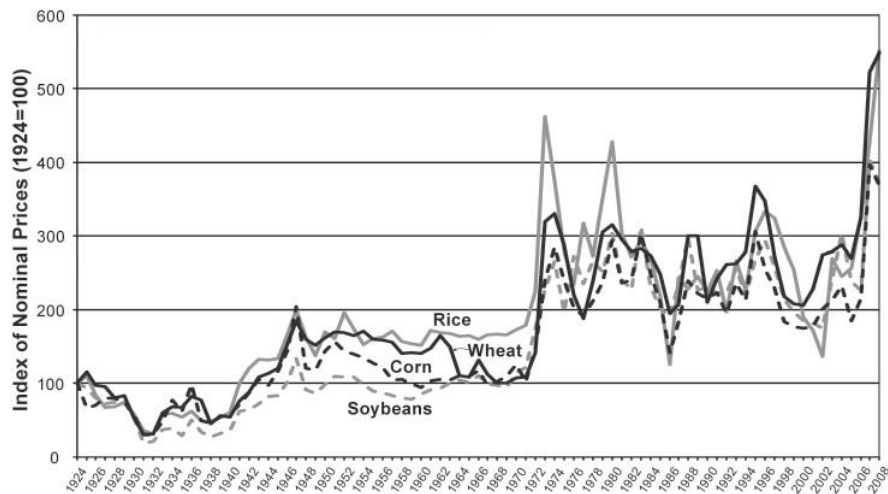
1.1 Global agriculture context

Agriculture has been receiving increasingly more attention as an instrument to achieve growth and rural employment. This is not without foundation, as history shows there are almost no examples since 1700 of a significant reduction in poverty without sharp rises in income from rural farms (Lipton, 2005). In 2010, agriculture comprised of 2.5% of world GDP. For Sub-Saharan Africa (SSA), this looks significantly different, with agriculture and agro-processing contributing on average 45% to GDP (Byerlee, Garcia, Giertz & Palmade, 2013).

In the last 100 years the world has been experiencing a green revolution. With urbanization, farm land became increasingly available and farm productivity rose rapidly. The increased farm size allows for greater economies of scale. This is also very much linked to increased mechanization, improved fertilizers, plant nutrition and the increased usage of hybrid seeds.

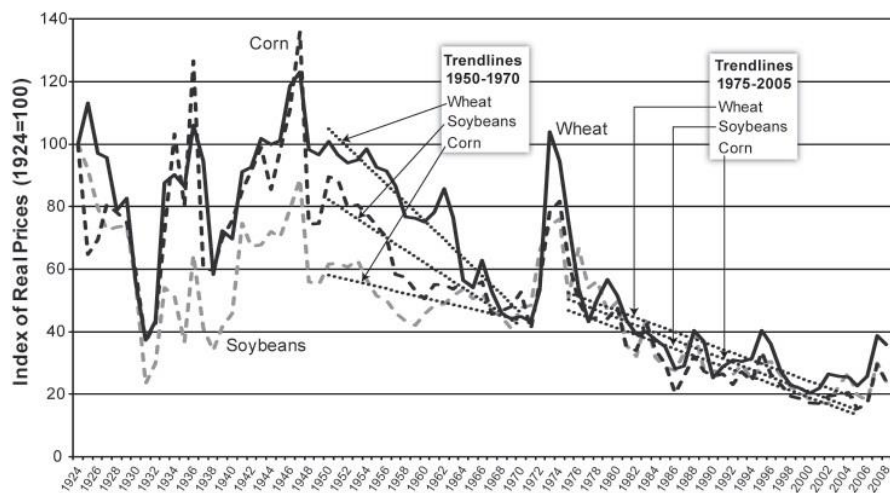
The net results are a century of increased farm productivity, with the associated increase in output. In nominal terms the prices major commodities: corn, wheat, soybean and rice rose five times from the 1920's, with most of the price appreciation happening from 2000 as indicated in Figure 1 (Alston, Beddow & Pardey, 2010).

Figure 1- Nominal US prices of major soft commodities 1924 – 2008 (Alston et al., 2010)



However in real terms, basic commodity food prices have been in a long term downward trend. The more recent price increase in the late 2000's provided a small correction, but real farm gate prices are very far from their historical highs. This has been to the benefit of consumers and intermediate agro-processors, while putting pressure on farm profitability.

Figure 2- Real US prices of soft major commodities 1924 – 2008 (Alston et al., 2010)

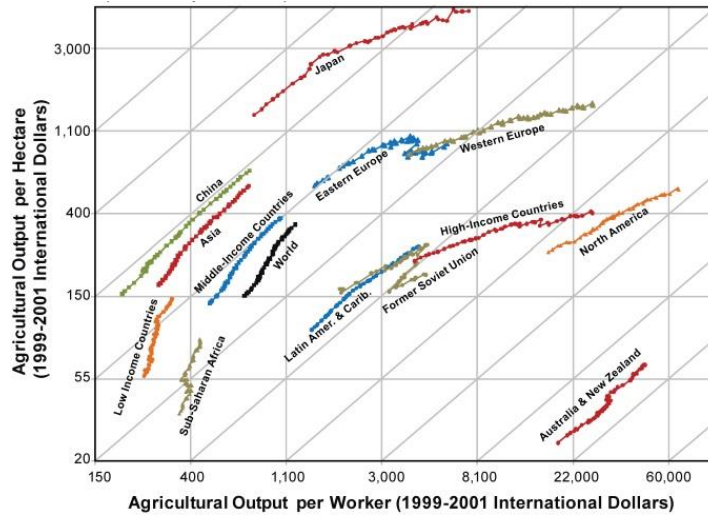


1.2 Agriculture in Africa

While the developed world went through a long term cycle of farming productivity improvement, Africa and Sub-Saharan Africa have been distinctly left behind. Alston *et al.* (2010) in his

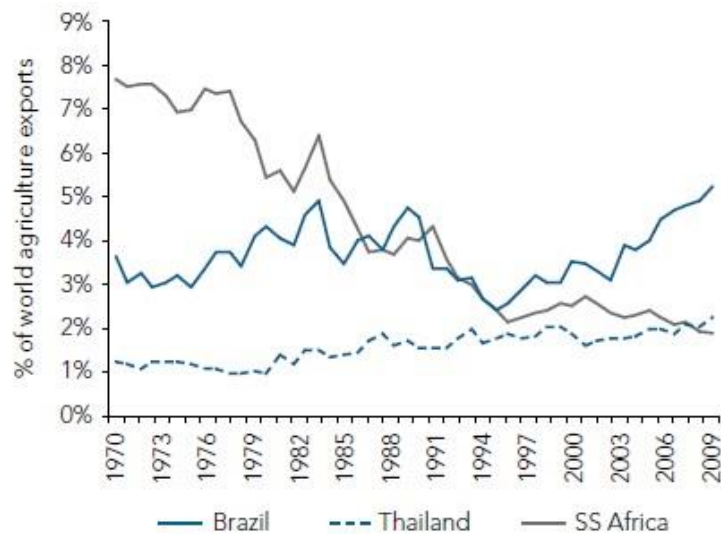
evaluation of a century of agriculture, concluded that Sub-Saharan Africa has one of the lowest agriculture productivities in the world. This is in contrast to the vast amount of arable land and water that is naturally available.

Figure 3 – World agriculture productivity (Alston et al., 2010)



This lower productivity results in poor competitiveness. Including the continuing decline in real prices, the net result has been a declining contribution to world agriculture exports by Sub-Saharan Africa over 30 years. While other developing nations like Brazil and Thailand has managed to increase their world contribution. Internationally, a handful of agricultural nations are responsible for the bulk of international exports: 85% of all food exports are from developed countries. Sub-Saharan Africa contributes 5% to total farm output, compared to a population share of 25%

Figure 4 – Sub-Saharan Africa share of world agriculture exports (Byerlee et al., 2013)



Sub-Saharan Africa’s agriculture is typified by small farmers in remote areas. Small scale farmers represent 80% of all farms in SSA and contribute up to 90% of production in some countries (Livingston, Schonberger & Delaney, 2011). On average, farms employ 62% of the population. A small holding is typically owned by a family or the farm is part of a cession from the tribal chief. Between 50% and 90% of active small scale farmers are women (Livingston *et al.*, 2011).

Small scale farming has unfortunately not been without its problems. Small scale farming in Africa has widely been recognized to be a laggard, compared to other comparable countries in Asia (Pretty, Toulmin & Williams, 2011). Various reasons have been cited, which will be discussed later in the literature study. However, a key issue for small scale farmers is lack of effective integration between small scale farmers and commercial agro value chains (Van Rooyen, 2011).

Many pundits classified the 21st century as Africa’s century. The reality is that very few opportunities exist in the world that can dramatically increase food supply - except in Africa. Africa has significant opportunities to both increase agricultural intensity (productivity), and scope (increasing hectares). These opportunities are coupled with rapid urbanization of Africa, which similar to North America, contributes to the consolidation of land into productive units. Together with urbanization, Africa has as a collective, one of the fastest GDP growth in the world -which contributes to a growing domestic market.

1.3 Trends in vertical integration

Research in agriculture food chains in the United States and Canada indicate an increasing reliance on vertical integration to enable farmers to be effective participants in the food supply chain (Hobbs & Young, 2001). It is estimated that 31% of the American agricultural output is marketed via integrated channels (Vorley, 2001). MacDonald and Korb (2008) put this estimate at 41% a fourfold increase from 11% in 1969. Contracts vary between agricultural industries. For livestock approximately 50% of production is sold on contract, with 20% of the cattle market, 75% of the hog market, 90% of the turkey market and 90% of the egg market. For crops, approximately 25% of all crop production is sold under contract (MacDonald & Korb, 2008). Van Rooyen (2011) further indicated that a lack of such integration is a key driver of failures in land reform and small scale farming projects in South Africa.

Santorius and Kirsten (2007) did a case study in the sugar and timber industry, specifically in the structuring of small scale operations in a developing country context. The results were positive, and highlighted the need to investigate a wider range of commodity diversity in the context of small scale organizational structure. Barrett's (2007) research into market structures underlined the need for further investigation into understanding contract arrangements as a possible solution to improve market access for small scale farming.

1.4 Research objectives

In Africa two thirds of all full time employment is subsistence-farming related (Pretty *et al.*, 2011). This also relates to South Africa: The South African economic growth path of 2010 has the ultimate goal of creating 5 million jobs. 500'000 of these jobs are attributed to employment increases in rural agricultural development (RSA New Growth Path, 2010).

Against the back drop of the numerous issues with small scale farming, the aim of this research is to evaluate contract farming as a mechanism to vertical integrate small scale farmers into the commercial value chain. This is to take advantage of Africa's natural comparative advantage in farming and the macro trend of backward integration of retailers and agro-processors. This solution will address the institutional deficiencies characterising small scale farming systems, and provide a mechanism to reduce transaction costs for small scale farmers.

Ultimately this is to enable economic activation and contribute to macro social objectives such as job creation, rural development and economic empowerment. A massive number of small enterprises will can be economically activated and in turn contribute enormously to the community, country and region via the multiplier effect.

1.5 Research scope

The scope of this research is based on Southern Africa and specifically, South Africa. The study will focus on crop farming in various cultivars, for example maize, wheat, sunflower and tobacco in the small scale farming size unit. The research will focus primarily on the integrated relationship between a producer and a processor. Any livestock production is specifically excluded.

The issue of land availability and land title is entwined in any agricultural environment. This research project reasons from the perspective that a small scale farmer already has a piece of land that he is cultivating. It is however recognised that land title has a significant bearing on small scale farming systems and the implications thereof are discussed.

1.6 Definitions

For the purposes of this research document small scale farming (SCF) is defined as an individual or family with between 1 and 50 hectares of arable land available for crop cultivation, with the median being 5 hectares. Typically farming will be the primary occupation of the individual, who is also responsible for the majority of household income.

Contract farming is defined as a relationship where at its essence an entity guarantees that it will buy the product from the farmer. The buying entity is the contractor or company, and the supply entity is the farmer or producer. Contractors can take various forms, for example private entities, sub-division of agro- processors or retailers, not for profit entities, or potentially a consolidated farm scheme that forward integrates.

In literature small scale farming is also referred to as small growers, small holder farms, small holder agriculture, subsistence farming, developing farming and emerging farmers.

Chapter 2 – Literature Review

The literature study is clustered around three main topics: Firstly, the various challenges for small scale farmers are discussed. This is followed by a discussion on integration models, specifically horizontal integration and vertical integration. An important factor of integration models is the various drivers that set long term trends towards different models. The third component is focusing specifically on contract farming as a mechanism of vertical integration.

2.1 Challenges with small scale farming

2.1.1 Price stability

The reasons for small scale farming problems are ample. The primary cited inhibitor to small scale farming development is commodity price stability on a local level (Barrett, 2007). The primary market for a small scale farmer is his immediate community. In community he can take advantage of local networks and have a comparative transport advantage - compared to an inbound distribution model. A study in Kenya indicated that 65% of small scale farmers that have surplus product sells product after the harvest and then buys product back again later in the same season. A lack of storage space, immediate cash flow needs and often a lack of long term planning is cited as the main reasons (Fischer & Qaim, 2012).

The implication is that most small scale farmers are price negative; thus they sell when prices are low, and buy when prices are high. Ironically, high commodity prices have, instead of providing the economic incentive to produce more, actually caused a net poverty increase (Jayne, Mather & Mghenyi, 2010).

2.1.2 Institutional and physical infrastructure

Institutions establish the rules of society under which individuals undertake their economic decisions. Institutions play a key part in determining the transaction costs in an economic environment. Typical examples are the enforcement of property rights using contracts,

monitoring mechanisms and enforcement agencies. The institutional support, which is commonly taken for granted in developed countries, is very seldom realised on a small scale farm level. This institutional support includes contract enforcement, market channels and property rights for collateral requirements (Barrett, 2007).

With simple barter transactions, the institutional framework is set by the local community, and transactions are relatively frictionless. As transactions increase in complexity, scope and frequency, this institutional framework of the state becomes paramount to ensure frictionless systems (North, 1987). This has significant costs, but per transaction this is very small. The greater the support institutions, the more economically complex transactions can be. In turn more complex markets allows for greater labour division and specialization. And increased specialization allows for greater economic growth potential (North, 1987).

As part of institutional support, trade credit is also cited as a major inhibitor of any productivity growth (Jayne, Mather & Mghenyi, 2010). Carter and Olinto (2003) found that for a small scale farmer with less than 15 hectares the availability of credit is almost none existent. If it is available, the transaction and finance costs are prohibitively expensive.

Commonly cited are the physical infrastructural problems in a small scale farming environment. Barrett (2007), Ortmann and King (2007), Fischer and Qaim, (2012) and Jayne, Mather and Mghenyi, (2010) cited lack of infrastructure as having a significant bearing on transactional cost of getting product to markets, especially in rural environments.

2.1.3 Property rights

Key to institutions is the institution of property rights. The economic theory is well versed: at a fundamental level individuals invest capital and time into something where they can have the freedom to profit or use it. This ability to profit, or utilize, is contained within the property right institutions of society. Investment allows for accumulation of capital which results in increasing output over the long term driving long term economic growth. The lack of these rights limits the long term growth of a society because there is limited incentive to invest in an asset (Angeles, 2011). From a land perspective, property rights are categorised primarily on the extent of the

right to use the land. Typical categories include: no property rights or open access, communal property, private property and state property (Feder & Feeny, 1991).

Bellemare (2013) summarized three main reasons why property rights will increase productivity for land owners, all else being equal:

1. It allows landowners to lease or sell land, firstly generating an income for the owner, but also from an economic efficiency perspective, allowing land to be utilized by more productive parties.
2. Property rights allow for strong incentives for owners to maintain and develop their land.
3. Legal title can be used as collateral to obtain loans, which can be used to finance farm inputs or infrastructure.

On financing, the ability of a legal title used as collateral heavily depends on the certainty of rights: The lender has to be assured that the land owner has effective right to dispose or transfer his rights of his property. This is especially relevant in communal or tribal land where although land could be transferred, it creates cultural conflict and land transfer in practice is very limited (Feder & Feeny, 1991). It is also noted that typically the availability of credit is linked more to relatively bigger small scale farmers that tend to benefit more by secure property rights (Carter & Olinto, 2003).

Property rights as the foundation of economic growth have been empirically proven and fit comfortably into neo-classical economics. It is however highlighted that the importance of institutions tends to be overstated, and one should not expect the strong correlation between economic growth and institutions to be universally the same (Angeles, 2011). The ability to formalize rights is also only effective when the marginal benefit to enforce rights exceeds the marginal cost. This is especially relevant in rural environments where infrastructure and other supporting institutions, such as legislative and policing, are limited (Feder & Feeny, 1991). Carter and Olinto (2003) also found that in small scale farming secure property rights are only able to enhance growth if it is in conjunction with formal credit markets and if customary tenure institutions are weak.

2.1.4 Market access

Market access is a key component of institutional support that is lacking for a small scale farmer (Barrett, 2007). Typical in developed economies, transparent, low cost trading systems such as SAFEX or CBOT are easily accessible to commercial farmers. For a small scale farmer in rural Africa these institutions do not exist.

From a marketing perspective selling of product is problematic. 85% of small scale farmers indicate that they sell their product locally (Fischer & Qaim, 2012). This is very far removed from any international commodity pricing market and often local monopolistic traders are the market creators to the detriment of the local farmer (Barrett, 2007). Any surplus production is competing against a communities' existing business, as opposed to making the pie bigger by finding additional markets. Thus the small scale farmer has a limited incentive to increase production above his immediate market requirements.

2.1.5 Transaction costs

In neo-classical economics, perfect supply and demand assumes frictionless trade, and thus zero transaction costs. Modern economists accept however that exchange is not frictionless. Transaction costs are the costs of the linkage between two firms - typically a producer and a consumer (Besanko, Dranove, Shanley & Schaefer, 2010). For both parties there are transaction costs. Typically transaction costs include search time, costs to write and enforce contracts, specifying product quality, gathering price information, negotiating costs, monitoring costs and enforcement of costs (Hobbs & Young, 2000). Transaction costs also include more subtle costs such as risk of opportunistic behaviour by a counter party, uncertainty in demand and supply, hold-up costs and internalization costs (Frank & Henderson, 1992). A key component of transaction costs is the ability to measure the performance of the alternate party. This also speaks to incomplete contracts and the execution of these contracts (North, 1987). The more complex transactions allows for greater labour division and specialization which in turn drives economic growth. Complex transactions however also introduce greater transaction costs, which if too large, inhibit the ability to efficiently conduct business. So the challenge is to perform complex transactions with very low transaction costs in order to achieve economic growth (North, 1987).

Besanko *et al.* (2010) highlighted three components that are intertwined in transaction costs. Firstly a relationship-specific asset: for example the investment made by one party to be in a specific transaction. This is very difficult to re-deploy and if re-deployed it incurs a cost, thus limiting the ability for the firm to switch. This is further reinforced by Chiles and McMackin (1996), which highlighted assets specifically, as a key component in transactional cost structures. Secondly is the concept of quasi-rents: This is the additional expected value that a party believe he can gain from being in the transaction, compared to the spot market transaction that he can achieve otherwise. For a party to invest in relationship-specific assets this value needs to be higher than zero. Thirdly, are hold-up problems: One party knows the other party has invested in relationship-specific assets so he has a bargaining position to take some of the assumed quasi-rents: This manifests itself in hold-up problems such as time to renegotiate contracts, adding complexity to transactions, or adding spare capacity or fat in the pricing system, to protect oneself from these problems.

Key assumptions in transaction costs theory is opportunism, bounded rationality and risk neutrality (Chiles & McMackin, 1996). Opportunism relates to one party using its power in the relationship to extract a portion of the quasi-rents, thus the other party needs to protect itself, imposing an additional transaction cost to the system. Both parties are rational in seeking economic advantage and are risk neutral in their evaluation of potential transaction costs.

The issue of risk plays a significant part in transaction cost economics. The assumption is risk neutrality in total, but on an individual firm level, managers have variable risk preferences. Risk is subjective and this manifests itself in transaction costs - especially in determining long term market expectations and the perceived exploitation risk by the other party (Chiles & McMackin, 1996). Risks and the associated transaction costs can be significantly reduced by introducing trust in the relationship. Introducing trust enables a party to employ less safe guards such as monitoring, and limits the necessity to find alternative partners (Chiles & McMackin, 1996). This is further supported by Schipmann and Qaim (2011) which found that operating in a system of trust is one of the single most important factors in small scale farmers choosing a market channel.

Transaction costs play a major role in driving organizational structure. North (1987) highlighted four transaction costs categories that directly affect organizational structure. The first two, viz. monitoring costs and enforcement costs behave similarly: the higher the costs, especially in a

limited institutional environment, the more economically efficient a more integrated organization will be. The third consideration is market size: If a market is very small, for example a small community, personal relationships inhibit opportunistic behaviour. The transaction costs are low but the market is small and so are the opportunities for growth. The bigger the market, the more subdued the effect of personal relationships becomes: The result is a greater requirement on institutions to facilitate anonymous transactions and reduce the transaction costs. The fourth consideration is integrity: The more morally responsible a society is, the lower the opportunistic behaviour and the lower the transaction costs. With vertical integration transaction costs are reduced, but it introduces hierarchical costs due to organisational complexity (Chiles & McMackin, 1996).

Transaction costs from an input and output perspective are very high for a small scale farmer (Barrett, 2007). High transaction costs serve as a significant contributor to exclusion from the market, especially for the small participant (Escobal & Cavero, 2012). Understanding both fixed and variable transaction costs is important to understand how an SCF decides to participate in a market.

2.1.6 Principal agent problem

An important reason cited for the lack of performance of co-operatives in small scale farming is principal agency issues (Ortmann & King, 2007). Typically in a relationship, the principal delegates some authority to the agent, and the agent is required to behave in a particular manner to the benefit of the collective or the principal. Principal agency issues stem from the difficulty in getting the agent to refrain from opportunistic behaviour (Fayezi, O'Loughlin & Zutshi, 2012). This is especially relevant in a small scale farming environment: for example a farmer can while in a contractual relationship, sell the contracted product to the local community; referred to as side selling. Thus he converts his product into cash without the need to repay his debts to the other contractual party. Or in a co-operative structure, a small scale farmer has the opportunity to bypass the co-operative for example in procuring inputs. Thus the individual farmer gains, but the collective loses out on economies of scale.

Policing agents introduce additional transaction costs and are only solving the symptoms. To avoid these costs, identifying the underlying cause of the problem is critical in solving the issues. Fayezi *et al.* (2012) highlighted the fundamental problem as misrepresentation of abilities and moral hazard. In order to avoid the problem participants need to be made well aware of the interdependence of the relationships and needs to have opportunity to participate as often as possible (Rebernik & Bradac, 2006).

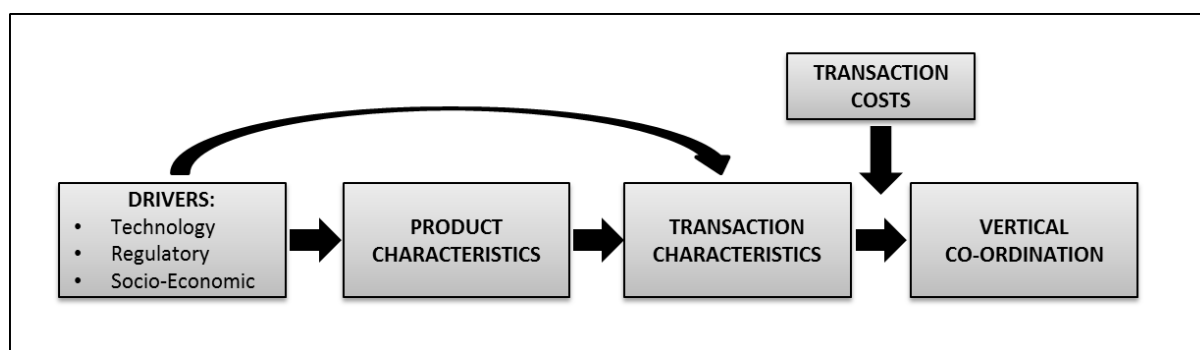
In principal agent situations the disadvantage is loss-of-control-effect: the agent has a significant part of the real control including access to information and occurrence of ideas. The advantage is the initiative-effect: the agent bears some of the cost of getting information, searching costs and actual costs. Typically these costs will be significant for the principal to do himself. To solve this, the firm must decide to what extent it wants to control the system. A solution to the principal-agent problem is a more integrated organization; in its absolute form a firm that comprises of all of the activities. It is easier for a firm to monitor direct employees or company subsidiaries, than outside contractors (Aghion & Holden, 2011).

2.2 Economic integration models

The second component of the literature study is theories on economic integration models. Economic integration refers to the means by which products move through a system, from production to consumption (Hobbs & Young, 2000). For the purposes of this discussion, the specific focus is on the producer (farmer) and processor integration. There is always some form of integration, whether formal or informal. Typically informal spot transactions are directed by price signals, while formal contracts are directed by contract delivery specifications. In the following chapters the two extremes, horizontal and vertical integration are discussed.

The following diagram is a generic model adopted from Hobbs and Young (2000) indicating the relationships between external drivers, product characteristics, and ultimately transaction characteristics. The transaction characteristics introduce transaction costs, which ultimately drives the choice of an economically efficient integration structure. The objective is to choose a structure that minimizes transaction costs.

Figure 5 - Relationship between drivers, product and transaction characteristics



2.2.1 Horizontal integration

Co-operative models are the logical solution to the small scale farmer's problems. In theory, farming co-operatives provides horizontal integration that pools small scale farmers to provide economies of scale. Increasing economy of scale should reduce transaction costs. Literature references various case studies in farming co-operatives. The common theme is that the theoretical benefits of farming co-operatives and the actual results do not match in practice (Fischer & Qaim, 2012). A banana-farming co-operative in Kenya found that although household income rose and the co-operative functioned effectively; this result was more due to increases in land cultivated than in productivity gains (Fischer & Qaim, 2012). In the marketing of product, the increase in selling price for collective sellers has been statistically higher than direct sellers, but in absolute terms the benefits are minimal. A case study in a vegetable co-operative in South Africa found again the foundations are there, specifically if the local village chief is providing a leadership role. However, very little evidence has been found of successful co-operatives in the former South African homelands or in small scale farming areas (Ortmann & King, 2007).

The relationship between the members and the co-operative is ill-defined and often leads to internal conflict. Members typically do not have the skills to manage an organisation, resulting in problematic controls. Co-operatives also have the problem of free riders, with only a small number of members actively participating (Ortmann & King, 2007).

Boundaries of farming co-operatives are another point of contention, with no blue print as to what the co-operative's responsibilities are (Fischer & Qaim, 2012). A major problem with co-operatives is that the co-operative does not control the product produced, nor the quality characteristics. Co-

operatives are further faced with variation in surplus product availability, yet they are responsible for marketing the product - effectively with one hand tied behind their back.

2.2.2 Vertical integration

Opposite of horizontal integration is vertical integration. In its purest form it is where a company starts to produce input material themselves (backward integration) or starts to control the marketing channel (forward integration), (Chiles & McMackin, 1996). In its absolute form the entities merge to form an individual firm. In a relationship format this integration is formalised by a contract stipulating rights and responsibilities. Thus separate entities still exist, and both entities enjoy the advantages of integration. The minimization of transaction cost is the primary consideration in determining the boundaries of the firm (Frank & Henderson, 1992). Transaction costs encountered by food industries in the US are the motivator that drives the level of organizational structure. The higher the transaction costs, the more non-market (contractual) relationships become (Frank & Henderson, 1992).

As a transaction becomes more complex, transaction costs rise, and there is greater incentive for vertical integration to offset these costs (Hobbs & Young, 2000). Integration however also introduces its own costs in the form of firm bureaucracy, referred to as hierarchical costs. The breakeven point is when hierarchical cost becomes less than the spot market transaction costs. These transaction costs are subjective and closely linked to the risk profile for the firm. The possibility of loss and uncertainty of external influences are key drivers in transaction costs. Ultimately, the higher their perceived costs are, the more inclined a firm will be to vertically integrate in order to off-set these risks (Chiles & McMackin, 1996).

Three determinants are highlighted that drive contractual preference: asset specificity, uncertainty and frequency (Hobbs & Young, 2000). Asset specificity is a function of the investment incurred or required by the firm, to service a specific need (Besanko *et al.*, 2010). The higher the asset specificity, the more inclined a firm is to have a vertical integration structure to protect itself from opportunistic behaviour. Uncertainty is a subjective transaction costs and among others includes quality concerns, uncertainty in finding a buyer or seller, and availability: The higher the level of uncertainty, the higher the incentive to vertically integrate. Frequency is a multiplier of the above components and the more frequent transactions occur, the higher the aggregate transaction costs.

2.2.3 Advantages of vertical integration

Vertical integration allows small scale farmers to be linked to global markets with lower risks and lower transaction costs, compared to when a small scale farmer wants to proceed independently (Vorley, 2001). This creates new market opportunities that would otherwise not be available for an SCF. Having greater market access and the ability to extract some surplus from a differentiated product allows for an increase in income for a small grower. Potato farmers in Peru showed an average income increase by three times, compared to spot market players (Escobal & Caverro, 2012). This is however countered by survey data in Thailand, where green pepper farmers initially indicated income increase, but over time showed no statistically significant increase in farmer income when comparing contract farmers to spot market producers (Schipmann & Qaim, 2011). It is noted that the contract farmer definitely did not achieve a worse income result because of a contract farming structure. The crop characteristics and the relationship power balance are key determinants of the actual outcomes for the small grower, which is further discussed in the disadvantages section hereafter.

Vertical integration of small scale farmers has a big role to play in mitigating some market failures, such as imperfect information and market segmentation. This is especially relevant in a system of deficient physical infrastructure (Escobal & Caverro, 2012). Hobbs and Young (2002) also indicated that in a contractual relationship an small grower has greater access to consumer information, such as preferences and desired crop quality characteristics, thereby mitigating some negative effects of market failure.

Apart from increasing farm income and mitigating some market failures, lower input costs and improved scale is highlighted as advantageous to contract farming. Both Schipmann and Qaim (2011) and Escobal and Caverro (2012) indicated that small scale farmers join contract arrangements to obtain credit facilities, cheaper access to inputs, and production technology to improve productivity.

2.2.4 Disadvantages of vertical integration

Vertical integration is not without its controversies: At the centre is the power imbalance between producer and processor, with the producer typically at a disadvantage (Escobal & Caverro, 2012)

(Hobbs & Young, 2002). The agro-processor has alternatives such as forgoing the buying decision by importing products, storage to buy in bulk and typically financial reserves to ride out an cycle. The small grower has limited alternative markets and this poses a significant risk on an SCF in a vertical integrated environment. Producers have the means to effectively backward integrate, while for farmers, to forward integrate requires scale, expertise and capital – all typically outside their means (Escobal & Caverro, 2012).

This imbalance in power manifests itself in a number of ways: In an institutional-deficient environment, the SCF has limited effective recourse to enforce contracts. This leads to increasing legal disputes on contracts, pricing and quality agreements (Hobbs & Young, 2002). Typically the processor is the only main buyer, especially in asset-specific instances, and has the opportunity to behave like a monopsony, ultimately purchasing less than what would be the case in a perfectly competitive market (Hobbs & Young, 2002). Schipmann and Qaim (2011) indicated that the processors have the ability to enforce very strict and non-transparent grading systems, to the detriment of the SCF. The SCF also has limited opportunity to renegotiate contracts. A further view is that the power imbalance can result in small scale famers becoming mere labourers on their own land (Vorley, 2001).

Exclusion from markets presents another issue: In a SCF environment vertical integration's primary advantage is providing market access to participants. However as these vertical chains becomes stronger and more integrated to enter such systems becomes a higher hurdle to cross and ironically excludes potential participants from joining (Schipmann & Qaim, 2011). Processors will endeavour to reduce transaction costs, and one way is to limit the amount of producers that you are dealing with (Hobbs & Young, 2002). This was also highlighted by Escobal and Caverro (2012) which indicated that well developed vertical networks will result in strong market segmentation and exclusion of potential participants.

Vertical integration requires some form of contracting: Contracts can become complex, and in itself raise the transaction costs for the producer, compared to an open market transaction (Hobbs & Young, 2002). In asset-specific contracts, the producer is typically required to improve production processes and quality control. It is estimated that potato contract famers in Peru have 40% higher input costs than a non-contract farmer (Escobal & Caverro, 2012). Associated with the

higher input costs are higher returns, but the capital outlay and expertise can become a barrier to entry for an SCF.

Various other issues are highlighted in literature as disadvantages in vertical integration, such as lowering independence, especially from an SCF point of view (Schipmann & Qaim, 2011). Typically, processor companies are not local firms and not part of a farm's social network. This creates issues of trust that hampers the ability to reduce transaction costs (Schipmann & Qaim, 2011). Hobbs and Young (2002) indicate that as contracts command a greater share of total agriculture transactions reliable public price information is reduced compared to public spot markets. This ultimately leads to less reliable and transparent reference pricing for agriculture commodities.

Another noteworthy disadvantage by Escobal and Cavero (2012) is that there exists a very close correlation between the poorest of the poor and selling their products spot, and the more affluent poor getting involved in complex marketing such as contract farming. This finding potentially undermines the ability of vertical integration to truly develop the lowest level of the pyramid.

2.2.5 Integration drivers

Joskow (2010) evaluated the drivers for vertical integration from an economic perspective. His work primarily divided these drivers into classical economic drivers and modern theories.

The classical drivers are based on the neo-classical assumptions of perfect markets. Any vertical integration has at its essence the purpose to increase market power (Joskow, 2010). Four scenarios where vertical integration can increase market power are highlighted: vertical externalities, (for example double marginalization), horizontal externalities, price discrimination and vertical foreclosure. All of these scenarios increase the net profit for the integrated firm. It is however based on the assumption of zero transaction costs, legal grounds to not sell to other parties (foreclosure), no prohibiting contracts existing currently, and the assumption of a true monopoly. These assumptions in the classical reasoning for integration provide a significant inhibitor to any application of the model, and indeed very few examples could be found in real industries where these models hold (Joskow, 2010).

For these reasons modern theories on integration drivers focus on transaction cost economics, principal agent problems and property-based theories (Joskow, 2010). All of these theories reason from a cost reduction point of view with the objective to reduce transaction costs for the combined entity. This provides considerable insight into the economic reasons for vertical integration, and many examples can be found where especially transaction cost models, can effectively be applied to explain vertical integration in industries (Joskow, 2010)

Further integration drivers are highlighted by Hobbs and Young (2002) who envisions a future where agriculture markets will consist of generic commodities, enhanced component commodities and specific-attribute raw materials (Hobbs & Young, 2002). Producers will be heterogeneous, with producers increasing their activity in downstream marketing activities through co-operatives, contracts and networks. Hobbs and Young (2000) highlighted three main categories that drive agriculture markets for the future: technology, regulatory and socio-economic.

Increasing concern for food safety issues and the ever-increasing demand for food quality is key to change drivers in the food supply chain (Hobbs & Young, 2001). The agriculture supply chain needs the ability to trace food through the supply chain to the point of origin. This is because of regulatory changes such as the Food and Safety Act in the UK that increases the legal liability of food firms (Hobbs & Young, 2000). Often, traditional fresh produce markets are by-passed in favour of direct purchasing. This is firstly to save supply chain cost by cutting out the middle man. However the primary reason for greater vertical integration is to allow retailers to have better control over quality, mitigate food safety liability, meet regulatory requirements, and provide a greater product specialization to offer final customers (Fischer & Qaim, 2012)

Urbanization provides another long term trend in that traditional maize cereal is being substituted for wheat and rice products by final consumers (Jayne *et al.*, 2010). Typically these products are not commonly produced by small scale farmers in sub-Saharan Africa. Further to socio-economic trends, is changing consumption patterns that move toward consuming environmentally sustainable products (Hobbs & Young, 2000). This is closely associated with new products such as organic products and non-genetically modified crops that becomes part of consumer preferences - again highlighting the macro trend toward product differentiation.

Various technology trends have an impact on agriculture. Primary is the technology advancement in genetically modified crops to cultivate for a specific need (Hobbs & Young, 2000). Typical examples are high oil corn for the bio-diesel industry and potatoes with specific sugar characteristics required by chip producers (Escobal & Caverro, 2012). Technology advancement allows for greater crop specialization which has multiple market integration consequences. This long term consumer trend changes the market for the farmer. It is not good enough to produce only a commodity and deliver it to central delivery points as in the past. The differences in quality allows for price differentiation. This is often referred to as a main reason some farmers are producing economic surplus, while so many others are struggling.

The implication for small scale farming is that the current model of producing low quality commodity staples like primary maize is not going to provide the required poverty reduction and therefore different alternatives needs to be explored.

2.3 Contract farming

2.3.1 The contract farming model

One of the most important developments in modern agriculture is the rise of contract farming and vertical integration (James, Klein & Sykuta, 2010). MacDonald and Korb (2008) estimate that 41% of all agriculture produce in North America is sold under contract - up from 11% in 1969.

A contract farming arrangement is a vertical organizational system that is involved in all steps of the value chain, from input supply to final product marketing. The relationships are governed by contractual commitments to perform (Hobbs & Young, 2001). Often there is a central, typically privately-owned entity with a profit incentive, referred to as the contract manager. From a small scale farmer perspective, a farmer is in effect a supplier to the contract manager. A contractual relationship is especially relevant in access export markets and providing market linkage to super market supply chains (Fischer & Qaim, 2012).

The main categories in contract farming are: market specification, production management and resource-providing (Hobbs & Young, 2000). With market contracts the full management of the farm production is the responsibility of the producers. Before production begins the producer and buyer agree on price, quality and quantities. A production contract is similar to the market contract, but the processes and details of production are also agreed with the market entity. Thus the producer has significantly less authority over farming activities, and he typically falls under the authority of the marketer. The strongest form of vertical organization is complete integration where one entity manages and owns all the production stages, for example an integrated cattle farm and abattoir (James *et al.*, 2010).

Contract farming is characterised in many instances by strong complementary entities. For these entities to effectively innovate in the industry, requires tight vertical coordination (James *et al.*, 2010). There is also a positive correlation between contract farming and farm size: the bigger the farming operation the more inclined the business is to partake in contractual relationships. This is driven by the fundamental structural change in downstream product distribution, and consolidation in downstream markets (James *et al.*, 2010).

The vertical arrangement of contract farming mitigates a number of the problem areas associated with co-operatives. Primary among these are the principal agent issues, as the contract manager is directly controlling this relationship. The contract manager has the authority to include or exclude members. The crop variety produced is also specified by the contract manager. Preliminary research by Ortmann and King (2007) indicated that contract farming could potentially be an institutional mechanism to solve the problems in small scale farming. Santorius and Kirsten (2007) did a case study on contract farming in the timber and sugar industries in South Africa and found favourable results. However these crops have certain characteristics: it is long term growers and is a cash crop, so it has a limited ability to be consumed by the producer. Santorius and Kirsten (2007) suggest further research in contract farming application in staple crops is required to develop this model.

2.3.2 Incomplete contracts

Contracts are a mechanism that enforces property rights and provide a performance yardstick for the different parties. The problem is that contracts cannot specify all states of nature in advance and cannot accommodate all possible issues – thus contracts are fundamentally incomplete,

(Aghion & Holden, 2011). This incompleteness presents a couple of issues. Firstly, it allows some discretion to the owner of the assets, and so there is a possibility of opportunistic behaviour. Secondly the monitoring costs of a contract involve significant transaction costs. The owner of the asset can use his discretion so he can invest and improve his position. The alternative is a relationship that become completely integrated, and so a contract is avoided all together (Aghion *et al.*, 2013). This is the basis for the economic justification for the firm. The more incomplete contracts are, the higher the transactions costs, the more inclined a firm will be to completely integrate and avoid the contract all together.

Frank and Henderson (1992) identified three progressions in transactional contracts. The first is a classical contract that is set in legal rules and typically involves self-liquidating transactions. The second category is neo-classical: This is especially for longer term contracts and accepts that it doesn't cover all contingencies; it rather has additional conflict resolution structures, for example arbitration clauses. The third category is relational contracts: The contract is structured around detailing the relationship's characteristics and roles. It includes tacit and explicit arrangements. Typically as transactions and markets become more complex, contracts evolve from classical to eventually being relational. Frank and Henderson (1992) also highlighted five contract categories in the United States food industry: spot markets, market specification, production management, resource providing and complete integration.

2.4 Literature Summary

The literature elaborates on the many challenges that a small scale farmer deals with. At its essence is by definition a small scale farmer has a small piece of land, and lacks the economies of scale required to compete with commercial entities. This has many associated challenges such as lack of market access. Typically, a small scale farmer is a subsistence farmer and any surplus product is sold into the local community. Finding markets that are competitive to serve outside of these communities is problematic. This presents a significant barrier to scale up. This is further aggravated by the secondary problem of price stability in local communities. Surplus production is closely linked to good environmental factors. When one farmer have surplus, all the farmers in the community have surplus. Thus on a localized level there is excess supply and prices are pressured downwards. This places the farmer in the same net position and creates a disincentive to increased production.

Market access is closely associated with transactions costs. These transaction costs are related to finding a buyer, enforcing any contractual relationship, ensuring quality characteristics, logistics, and numerous other costs for the small scale farmer that present a further barrier to increase his production. It also includes more subtle costs such as insecurity of supply and market, and risks. Small scale farms are typically on communal land in rural areas and so institutions and infrastructure are limited on a local level - the formalization of property rights are especially problematic, and present a disincentive to invest on farm level. This is also linked to lack of finance which is perpetuated by limited property rights. Without title land cannot be used as collateral to obtain debt.

The second pillar of the literature study is the various integration models. On the one extreme is horizontal integration, typically referred to as a co-operative. Although theoretically this could solve many of the problems that small scale farmers face, the evidence is very limited in practice. The reasons are free-rider problems, lack of effective management control and the inability to exclude non-performing farmers in a community context. It is recognised that in theory a co-operative structure can solve a lot of the economies of scale disadvantages of small growers.

On the opposite side is vertical integration. This integration takes many forms, from a simple market contract, to a fully integrated entity where two companies merge to become one. For this research the focus is on contract farming. Contract farming is a form of integration where two entities still operate separately, but the relationship between the company and the farmer is governed contractually to perform. Contracts typically involve financing and the company has some level of involvement on the farm side decisions. It is taken into account that a contract is incomplete and this incompleteness presents several risks to both parties.

This vertical integration follows a long term trend seen in the developed world, where an increasing share of farm produce is being sold contractually, as opposed to spot markets. This follows a fundamental trend where retailers and major agro-processors backward integrate into the value chain. This captures some of the margin in the chain. It also enables buyers to have greater control over quality characteristics and food traceability.

This long term trend in vertical integration presents a unique opportunity that a small scale farmer cannot afford to pass up. Using contract farming as a model this research endeavours to evaluate how vertical integration can solve the major problems small scale farmers face.

Chapter 3 – Research Questions

Small scale farmers face numerous challenges: the fundamental lack of economies of scale and access to market, high transaction costs, and limited access to finance. This is especially concerning in the context that small scale farmers represent over 80% of all farmers and up to 90% of the output in some countries in Sub-Saharan Africa (Livingston *et al.*, 2011). This is in a global environment, where contract farming is becoming very dominant in agriculture.

The objective of the research is to determine how contract farming, as a form of vertical integration, is practiced and whether contract farming has the ability to solve small scale farmer challenges. The following hypothesis is presented:

H0: Contract farming is a mutually beneficial model that increases farm income for the small scale farmer.

In support of the hypothesis the following propositions is being tested:

- i. Contract farming is effective in providing market linkage.
- ii. Contract farming is mutually beneficial in reducing transactions costs.
- iii. Contract farming is effective in raising output and increasing general small scale farm productivity.
- iv. Contract farming is a mechanism to enable social objectives such as rural development and property reduction.
- v. Contract farming can be applied across different crops.

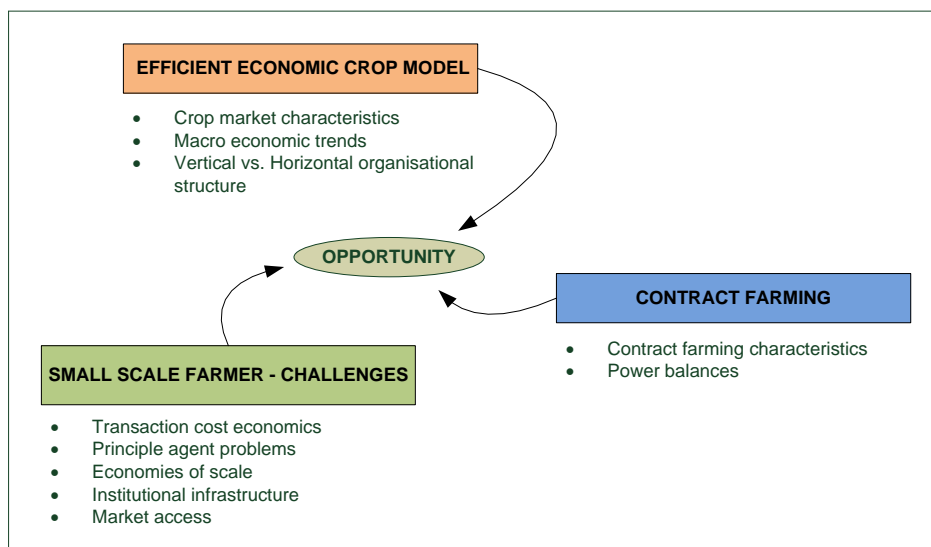
These propositions will be tested using empirical evidence. Based on the various results, the hypothesis will be confirmed or rebuked, and the research question answered.

Chapter 4 – Research Methodology

4.1. Research design

The research methodology followed a deductive approach. The hypotheses presented in Chapter 3 was based on the literature presented around challenges in small scale farming, the contract farming model and vertical integration drivers. Empirical evidence was used to test these hypotheses and propositions.

Figure 6: Research design diagram



The empirical evidence was obtained following a qualitative method. The primary mechanism to obtain data was interviews with relevant stakeholders in the industry. Interviews were conducted using a semi-structural interview framework. The sequence of the questions varied in order to allow the conversation to flow and allow opportunity for participants to go into more detail into the answers. In a number of cases some questions were not relevant to the participant as he, or his company, had no direct experience in the particular area of analysis.

The semi-structured interviews resulted in a wealth of information. It highlighted a host of intertwined factors that enabled a deeper understanding into reasoning driving the participants' positions on the various questions.

4.2. Population and unit of analysis

The unit of analysis was a company or organization that is involved in small scale farming. This unit size is selected to provide an understanding on the business model of contract farming. It is also to give a perspective on the long term advantages and disadvantages of the model. The objective was to obtain a view on contract farming, and not just to focus on a particular industry or a geographical area. Thus for these practical considerations the company unit size was deemed appropriate. Furthermore the number of firms involved in contract farming was perceived to be limited and thus requires a more detailed focus, as supposed to a universal focus.

The population for the selection of participants was primarily based on the JSE's Agri- and food sectors. The target participant was the manager responsible for supplier development, product procurement or general business manager. Apart from companies or individuals not willing to participate, the pre-screening criteria was whether the company is involved in any contracting, developing or purchasing from small scale farmers. Participants were also asked to suggest potential other businesses or individuals to contact. This form of snow ball sampling resulted in a number of private companies that are directly involved in small scale farming, participating in the study.

The table below lists the participants that were interviewed. In some of interviews a second individual also participated for a part of the interview.

Table 1: Interview participants

COMPANY	PARTICIPANT	DESIGNATION	SECONDARY PARTICIPANTS
Buhle Farm Academy	Niel de Smith	Executive Director Buhle	
Department of Rural Development and Land Reform	Alwyn Prinsloo	National: Recapilization Business Plan Analysis	Mamphod Aifheli & Eunice Gangashe
Forbes Farms	Colin Forbes	Farm Owner	
Harvest time, a division of Afgri	Goosen Lombard	General Manager	
Illovo Sugar	Stan Rau	Grower Affairs Director	
Massmart	Sherry-Lee Singh	Manager: Supplier Development Fund	
McCain	Jaap Engelbrecht	Potato Supply Manager	
Northern Farming	Lance Kennedy	General Manager	
Roos Agri	Johan Roos	Managing Director	Andries Nkosi
Tongaat Hulett	Cliff Ingle	Manager Small Scale Growers	
TSB	Dave Thomson	Manager: Land reform	Jabu Dlamini
SABMiller	Carol Roskruge	Supply Chain Strategy Manager	

4.3. Research process

The research process started with identifying the environment and the general research problem. Using literature described in Chapter 3 the theoretical base was set. Using this theoretical base a hypothesis was developed in conjunction with supporting propositions. A semi structured interview frame was developed with the various propositions as a starting point. Using the literature review as background various questions and sub-questions were formulated and matched to the propositions. The interview frame is available in Appendix B.

Empirical evidence was collected using interviews with various participants. In general, participants were contacted first by telephone and then a meeting was scheduled via email. During the initial telephonic contact it was established whether the individual were actively involved in small scale farming. If they were not, an alternative contact was requested. All interviews were face to face and followed a semi structured approach. Participants were encouraged to go into the reasoning behind their answers. Thus the order of questions was not necessarily the same in all interviews, and in some instances some questions were not asked as they were not deemed relevant to the particular individual or company. Various sub-questions to each primary question were identified. Depending on the answer and circumstance, these questions were used to delve deeper into the underlining reasoning behind answers. In cases where the questions were already answered, or the participant portrayed no further insight into the question, these sub-questions were omitted.

The interviews lasted between 45 and 75 minutes. All interviews were voice recorded and transcribed. Atlas Ti was used to code the transcriptions. Priory codes were formulated using the main hypothesis and propositions as foundation. In total 38 codes were used to classify the interviews and this was categorized in 10 code families. Table 3 summarizes all the codes.

In Chapter 5 the results are discussed and in Chapter 6 the analysis of the results.

Table 2: Code families

Family	Code	Family	Code
Contracts	ContBasics	Land	LandPolitics
	ContPrice		LandStructure
Crops	CropCond	Market	MarketBenefit
	CropYes		MarketDirectForward
RuralDev	DevDecrease		MarketRelationship
	DevIncrease	Model	ModControl
Financial	FinIssues		ModCoOps
	FinIssuesFamily		ModCore
	FinSupport		ModLessons
TransCost	TCReduceBuyer		ModRecap
	TCReduceFarmer		ModResourceCentre
Income	IncCond		ModStructure
	IncCondEOS		ExternalSupport
	IncCondLand	Production	ProdDecrease
	IncCondPassion		ProdIncrease
	IncCondYield		ProdSupport
	IncContinuity	General	GenCompany
	IncDec		GenNumbers
	IncInc		GenSCFDescription

4.4. Limitations of the research

The non-availability of information on small scale farmers prohibited following a farmer-focused survey or questionnaire approach within the scope of this research. This provided a limitation in making conclusive inferences on the state of the small scale farmer without getting farmers' direct responses.

The population and sampling methodology is a limitation as it could potentially exclude contract farming companies that are within the private domain. This poses a potential limitation on the generalizability of the research. It is however believed that the publically traded companies will be the dominant firms in the industry, especially taking into consideration that other significant private companies have been included in the research scope.

From a participant perspective there are a number of limitations. Firstly a participant holds a particular view and is in its nature subjective. This provided great insight but has a limitation compared to a general survey with multiple participants. Generally one participant from each company was interviewed, so there is a potential limitation that the participant could not necessarily be the best informed individual in the company. Participants not willing to participate

are another limitation. Although few, a number of participants were not willing to participate due to time constraints and perceptions that he or she had nothing to contribute to the research.

Chapter 5 - Results

The results were synthesised into the categories parallel to the hypothesis and propositions. The first topic is the main hypothesis: Does contract farming increase small scale farming income? This is followed by the main issues that limit small scale farmer growth. Thereafter the different propositions are summarized as market linkage, rural development, production output, reducing transaction costs and the applicability to different crops.

There are a number of other relevant subjects that, although not explicitly part of the research propositions, support the unpacking of the different dynamics in contract farming and present some possible solutions. These are discussed and categorized as follows: general contract models employed by companies, financial considerations, contract characteristics and pricing methodologies, land structure and small scale farmer demographics.

The table below has the short name of each company used as reference during the discussion.

Table 3: Company summary

COMPANY	REFERENCE NAME IN TEXT	# OF SMALL GROWERS
Buhle Farm Academy	Buhle	450
Department of Rural Development and Land Reform	DRDLR	n/a
Forbes Farms	Forbes	64
Harvest time, a division of Afgri	Afgri	32
Illovo Sugar	Illovo	10000
Massmart	Massmart	162
McCain	McCain	6
Northern Farming	Northern Farming	650
Roos Agri	Roos	30
Tongaat Hulett	Huletts	7000
TSB	TSB	1300
SABMiller	SAB	n/a

5.1. Farm income

The results on farm income start with positive responses and are followed by examples of negative results. The various limitations to success, as defined by the companies, are discussed in the third section.

5.1.1. Increase in farm income

Almost all the companies were of the opinion that contract farming has the ability to increase income for the small scale farmer. Various examples were presented. For example, Illovo had two models in the 80's and 90's: first model was a miller-driven model, Inkanyese, and the second was a more hands-off model, Umfolozi. Both were very successful; cane supply grew very well and bad debt was at a minimum. The hands-off grew more slowly. Illovo also stated specific areas like Eston and Noordsberg where farmers are very successful. Massmart have women farming groups that are earmarked to sell R160'000 of goods by the end of October 2013, which will result in the women taking away between R8'000 and R10'000 each. SAB is already sourcing 7'000t of product from their out grower system in Taung, and is planning to increase this to 30'000t over the next five years. Buhle believes it can work because it is done all across the world, and has an example of small growers that can't keep up with demand selling vegetables to Pick n Pay in Kwazulu Natal. TSB stated that the community would be far worse off if they were not growing cane. Their systems are all voluntary and there is a tremendous amount of interest to join their new joint company, viz., TS Grow. Forbes indicated that his communal land system yields over 8 tons per hectare which is comparable to the best commercial farmers in the region. Northern Farming strongly indicated that their system results in increasing wealth for farmers. They had an example of a farmer that left the city with nothing to start farming, and after the 3rd season he finished his house, had 2 cows, a scotch card and a motorbike.

Another consideration is systems where the farmer does not necessarily farm himself: For example co-operative estates or leasing land to contractors. In these systems individual farm owners receive an income for the passive contribution, compared to receiving nothing. This was highlighted by Illovo, TSB and McCain.

Roos also stated that a contract can give you a base load to cover fixed costs. Marginal land can then be used to plant other crops, like green corn, to provide additional profits. TSB also highlighted the ability of farmers to leverage their contracts by planting alternative crops to supplement income. Huletts stressed the fact that not only does the individual receive income, but any grower system creates rural employment that creates additional wealth in the community.

5.1.2. Decrease in farm income

Just as there are examples of how contract farming can increase small scale prosperity, there are also respondents that have detailed examples of failed initiatives and models. Chief among these is TSB, that indicated that apart from some pockets of prosperity, they have numerous farmers that get zero net profit repatriated to them after all costs have been deducted. McCain also have numerous initiatives that failed after being operational for a year or two. These initiatives failed primarily due to lack of farm control; thus side-selling occurs, the farmers lose interest or run into financial difficulty.

Most concerning however is in the sugar industry. The models used during the 80's and 90's, started to fall apart during the late 90's to early 2000's. This was so severe that the system ground to a halt under bad debt, and the result was a 10 year decline in small scale farmer contribution to the mills. This was primarily caused by a change in quota system, which allowed a farmer to sell his cane under another name to the mill: So the farmer effectively by-passed any debt repayment. The ultimate result was the system moved from being almost free of bad debt, to accumulating just for Illovo, over R54 million bad debt. Ultimately companies stopped financing small growers.

5.2. Factors limiting farm income growth

The factors limiting farm income discussed below are fundamental issues that are to an extent, part of the definition of a small scale farmer. This includes issues of land, yield, economies of scale, character and sustainability. Other operational issues such as finance, technical support and market linkage are discussed in later chapters.

5.2.1. Issue of land

Land in a tribal environment is primarily controlled by the chief, and secondarily by the family to which it is allocated. The transfer of land is almost unheard of. It is almost impossible for a small scale farmer to buy out his neighbour in a traditional tribal environment. This was highlighted as a major limitation on growth by Illovo, TSB and SAB.

Even the most efficient farmer only has his allocated plot of land. At best, he can informally rent the land, but that is under lot of suspicion and often lease contracts are reneged on just before the harvest starts. The inability of the small scale farmer to grow beyond his piece of land is a severe disincentive for the farmer: He has zero ability to scale up.

Another associated problem is bad debt, specifically highlighted by Illovo. A land owner with a bad debt has a limitation of input financing and so the land becomes unproductive. This causes two problems: Firstly, he cannot sell the land to obtain capital to re-instate his credit record, and thus his economic activity. But secondly, and more severely, the land becomes unproductive because he is not able to transfer ownership to an economically active farmer. Ultimately this results in pockets of economic deserts in communities.

“These guys can’t grow their businesses ... these guys cannot expand their business model, even if they wanted to, even if they were capable of it.” Dave Thomson, TSB

5.2.2. Issue of yield

Even if you solve all the problems of financing, logistics and markets, without solving the problem of farming yield, nothing will be gained. Illovo, Buhle, Northern Farming and Roos strongly believe that the single biggest driver to compensate for the economies of scale is yield per hectare. Margins are very sensitive to yield, and if the yield goes up all the other activities in the value chain start making sense as the majority of the costs are fixed. TSB regarded their main challenge as being yield improvement. At the current 65 ton physical sugar cane per annum per hectare, a farm - whether commercial or small scale - cannot survive. The target is to get to an average 100t

per annum, with commercial farmers already able to achieve up to 200t per annum. For any project, Massmart performs a technical feasibility study on the land to ensure the yield potential is comparable to that of commercial farmers.

“... you can forget the finance, you can forget logistics, all of that – the fundamental driver is the yield that that small grower retains” Stan Rau, Illovo

5.2.3. Issue of economies of scale

Small scale farming is the cultivation of a small piece of land by an individual farmer or family. At its definition small scale farmers have enormous challenges to achieve the benefit of economies of scale. Illovo summed it up - that the benchmark is commercial farms in the United States, with big tracts of land, highly mechanized and with low cost of production. How does a small scale farmer compete against that?

TSB, Huletts and Roos indicated that a small scale farmer will never be able to make enough money from farming because his land size is too small. For example, maize on 3 hectares at an average yield of 5 tons per hectare, will provide income of R30'000 with a maize price of R2000 per ton. Input costs will typically be R4'000 per hectare so gross profit is R18'000 per annum or R1200 per month. This is especially relevant in an environment where input costs increase, creating a margin squeeze. Roos further indicated from a capital point of view, a typical small scale farm of 2 or 3 hectares requires enormous fixed costs per hectare. Buhle pointed out that because individual farms are so small, it is very difficult to establish market linkage individually, and if done, a distinct power disadvantage in negotiations can occur.

Afgri, Roos, Massmart and Huletts indicated that one way to compensate for the lack of scale is to cluster small scale farmers in relatively small geographical areas. In the sugar industry small scale farmers are regionalized around mills, which allows for economies on transport. Massmart supports the notion of clustering, in that concentration allows for economies in logistics. Clustering further allows for cross-learning and internal competition that drives productivity.

“So there are so many co-ops and so many smaller parcels ... so that is a challenge, trying to work a commercial piece of land with a business model that is not designed for scale” Sherry-Lee Singh, Massmart

5.2.4. Issue of character

Almost all the respondents - McCain, Forbes, Afgri, Buhle, TSB, Roos, Massmart and Illovo - made a point that the character of the individual farmer is critical to the success of any initiative. The farmer must first and foremost have a heart for farming. This passion, together with taking responsibility, having a little bit of entrepreneurial zeal and commitment to farming as a business, are critical attributes. With the issue of character solved, the technical skills in farming can be taught. The challenges are finding these farmers. Illovo made the point that farmers follow the classical normal distribution, and it is about finding that 10 to 15 % that is in the tails.

5.2.5. Issue of sustainability

A key challenge to any small scale farming system is to be sustainable over the long run. Massmart indicated that farming is volatile. A true farmer accepts this and the challenge is how to manage this volatility. McCain and Huletts indicated that buyers, or NGO's, or government will not always have the ability to support and subsidize farmers. It must be sustainable to succeed. When international commodity prices are high, it makes sense for buyers to chase sellers, but the challenge will be when soft commodity prices go into a long term downward trend. In general the recapitalization program is praised as allowing for at least some form of sustainability to small scale farmers. Buhle stated that the key to having long term success is to be continuously involved with short interventions such as short training courses. Without this, success is very low.

Buhle and Northern Farming further stated that the key to long term sustainability is profits. As long as farming is profitable, people and companies will invest in it. The challenges are when farming is not materially profitable over the long term.

Further to the issue of sustainability is financial sustainability highlighted by Roos, Illovo and Huletts. Typically farmers are short of cash, and the system must allow the farmer to build up savings to finance the next harvest. This will help him to avoid getting into a debt trap, and further build financial capacity in order to be able to accommodate fluctuating harvests and income streams.

5.3. Market linkage

Market linkage is discussed along two paths. The first discussion is on the value that market linkage brings to the small farmer and some controversies around it. Secondly, the market relationship and how companies go about building these relationships. The market linkage discussion is the combined results from the interview questions on how the model works, and the mutual benefit to both the farmer and the company.

5.3.1. Market linkage in contract farming

The value of contract farming in providing an offset market for farm produce is widely supported. TBS, Illovo, SAB, Massmart, Huletts and McCain all state they have the ability to buy continuously, and in volume. They will buy every ton produced by the farmer. A small grower's alternatives are selling to the fresh produce market or the local hawker market. It is also stated that typically in the fresh produce market, not all produce supplied is necessarily bought on the day; the farmer also has the limitation that if he over-supplies the market, the price drops even further. Contract farming can militate against all that. To put it into context, McCain consumes 600t of potatoes per day. No other market has the ability to buy in volume like McCain does. Both Buhle and Massmart indicated that the primary advantage is that the market linkage provided allows the small scale farmer to scale up production.

“Now when it comes to marketing, in other agricultural commodities, you have to go and find a market. In sugar cane the market finds you. We have got an extension service department, goes out to the guys, we have all sorts of schemes and encouragement to get that area under cane ... so you have a department whose sole purpose is to get more cane planted. So the market chases the seller, not the seller chase the market.” Cliff Ingle, Tongaat Hulett

Market linkage is however not without its challenges. Buhle indicate that it is a major challenge for a corporate to contract with lots of small farmers; the transaction costs are just too big, and the management problematic. Furthermore Roos, Buhle and Forbes indicate that the pricing mechanism is always contentious: It is perceived that agro processors and retailers are squeezing the price, not fulfilling their contractual obligations, or using quality issues as a way to lower the price. This is especially relevant when contrasted against the small scale farmer's alternative, which is the hawker market. In the hawker market, he can dictate the price and get the majority of the margin in the value chain for himself. The results are that he is significantly more profitable selling in his immediate neighbourhood than he is selling to a retailer. All agree though, that there is a ceiling to the volume that can be achieved in the hawker market.

Processors TSB, McCain and Huletts acknowledge that there is a continuing cat and mouse game between the processor and the farmer, and to a certain extent that it is 'the nature of the beast'. The farmer believes he is not paid enough, and the processor feels he is paid too much. They are however, sensitive to perceptions that the companies squeeze too hard. Creating transparency and building the relationship in general is a big focus. Northern Farming stated that the legislative environment around grain selling has a significant impact on the contract farming business, for example if the Government Maize Board buys maize at subsidized prices.

5.3.2. Building market relationships

The importance of relationships is summarized by TSB:

"... when you are doing business in Africa, it is about relationships. Anywhere in Africa, it is more especially if it is rural communities, it is about relationships, it forms the basis of anything" Jabu Dlamini, TSB

This relationship is between a company, the community and the government. Often companies focus on the technical aspects, while the underlying social dynamics are the thing that needs to be understood. Afgri and Roos reiterated that creating trust between the farmers and the company is

critical, and at its foundation it is about respect. Northern Farming strongly indicated that any contract farming must be win-win otherwise it will not succeed. Huletts stated that to establish a relationship in a particular area can easily take three years for somebody that is new to the community. A challenge with company-community relationships is fly-by-night companies that offer poor advice and support and then disappear.

Roos believes that the key to building relationships is transparency, which ultimately will build trust, if it is sustained over a period of time. SAB and McCain believe the transparency can be achieved by work-shopping the contract and having continuous meetings with the community stakeholder - without getting into a shouting match. TSB is building their relationship with new initiatives, where the farmer is part-owner of their own bank and services company, thus creating commitment. They also employ specific community managers that are responsible for managing the community -company relationship, and are heavily involved in the community affairs. Huletts provided a contra view, believing the key is to know your boundaries as a company, respect tribal leaders and families and not to get involved in internal disputes.

Commitment and relationships goes both ways, and Massmart reward loyal farmers that sell the majority of their harvest to them. McCain manage the price expectation of the farmer by sending an agronomic team to take samples and supply the farmer with a preliminary quality, tonnages and price report before the harvest is moved from the farm. McCain re-iterated that it is important that farmers don't feel cheated; people have a very long memory.

5.4. Rural development

Rural development is firstly discussed with views that contract farming is not contributing to rural development, and then followed by views that it is. The results discussion is a direct result of the interview question on whether the participant experience is that contract farming contributes to the wider community prosperity and development.

5.4.1. Non contribution to rural development

The challenge with contract farming from an empowerment perspective is that farmers have diminishing control over their farming operations, and thus there is limited empowerment. This is referred to by a number of interviewees, TSB, McCain, Illovo, Huletts, Roos and Buhle, where the farmer is in practical terms demoted to a quasi-farm worker. It is stated that if the company were to pull out of any of these systems, in all likelihood the farmer would not survive.

The DRDLR has a very strong view that from an empowerment perspective contract farming is wanting. The contractors are very strict and it is extremely difficult to build an independent farmer. Thus there is very limited knowledge transfer, and in the end when the contractor pulls out, or something goes wrong, the farmer has a lot of financial problems.

TSB stated that part of the reason for lack of knowledge transfer is changing dynamics on farm level, where farmers leave and service providers change. Thus there is limited continuity, and companies and farmers have to adapt all the time. Illovo, Huletts and TSB mentioned changing demographics on farm level, resulting in farm areas being de-populated. This is aggravated by limited economic activity outside farming.

5.4.2. Contributing to rural development

The importance of achieving real empowerment is emphasized by a number of companies. TSB, McCain and Forbes strongly felt that the stability of agribusiness is directly linked to stability in communities. Communities and business are interlinked and if South Africa wants to grow as a its food supply, real empowerment must be achieved. This is especially relevant in the light of growing international competition from foreign food suppliers.

Afgri and Buhle stated that the small scale farmer of 90 years ago is the big successful commercial farmer of today, and no reasons exist why this cannot be achieved again. Also, that the more empowered the individual farmer is, the more he can contribute to social society. SAB have a very

strong emphasis on socio-economic development. Currently 95% of their commodities are bought locally, and small scale farmers have very little franchise – this is not sustainable.

Afgri, Buhle and Roos strongly felt that the success of a small scale farmer is closely associated with his feeling of ownership: If ownership is lacking, so is interest and accountability, and in the end the operation fails. To this end, the Afgri model moved away from a score card system to a complete advisory model, where the farmer takes all the decisions. The Buhle training program focuses specifically on building real capacity of the farmer.

To support this empowerment, Illovo indicated that the sugar industry changed their model towards a vendor-type system, because communities felt the model was too prescriptive. In the new co-operative estate system of TSB there are opportunities for capable farmers to become farm managers, and then be part of the TSB corporate management structure. This can potentially lead to career growth for the individual. Also in TSB's co-opt model, the co-operative management arranges their own inputs and farming arrangements. Massmart and Northern Farming indicated that as part of empowerment their farmers are building a credit history, which can be very valuable in future business endeavours. Illovo highlighted that the challenge with all of these models is the time it takes to become effective from a tonnages and supply point of view.

Further to individual development Afgri, Massmart, Huletts and TSB indicated the regional development brought by contract farming can be substantial. Northern Farming indicated that it does increase, but probably to a lesser extent. Firstly from a service provider and contractor perspective, the money stays in the community. Huletts estimate that for every ton of cane supplied, R170 stays in the community through external contractors. Secondly, farmers are encouraged to have a business on the side, e.g. cattle or a plot of vegetables. This can be for own consumption, but more importantly, to supply the local communities or schools. This builds further business acumen, apart from the contract farming.

5.5. Production output

The contribution that contract farming makes to production increases is discussed in three sections. Firstly, interviewees that feel it does lead to increased production; secondly, interviewees that present a contrary view; and finally, a summary of the various mechanisms that companies use to support production output. Production increase and decrease results are the results of interview questions on whether the participant experiences production output changes.

5.5.1. Increasing output

Northern Farming highlighted increasing production as a key success in its model. They indicated that farmers increased yield from 6 tons per hectare to 11.3 tons per hectare on maize over three years, which is comparable to the best commercial farmer. A key reason for this is that small growers only have 1 hectare, so they can micro manage their crop to achieve very high yields at the top of the yield curve. This enables the farmer to use a relatively small amount of harvest to repay his loan, and the rest is his profit. Both Illovo and Huletts stated that the old model employed until the end of the 90's, worked very well: It ensured continuity and sustainability and the result was substantial output expansion. Illovo stated that the hands-off model also works, although just at a slower rate.

Buhle stated that if the market demand exists there is a big incentive to expand production. Forbes indicated his mentor system with farm workers achieves 8 tons per hectare, which is very similar to commercial farmers. The recapitalization model is generally praised as a contributor to increasing output. Illovo in particular experiences that small growers are taking off nicely. The expectation is that small growers will be back to their production highs in about 3 years' time. The challenge will be when the recapitalization program is finished.

The Massmart system rewards quality, loyalty and tonnages. They have farmers on 5 hectare farms that are fully delivered, and next year they are giving them a bigger contract. Massmart stated that the key advantage for a small scale is that the farms are healthy, so they have a great opportunity to improve quality and margins.

Huletts indicated that before the contractor renting system, land was idle with no production. With the renting system the land is productive and increasing tonnages for the mill. When the previous model collapsed, farmers in Matikulu and Felix did not drop to the same extent, because the contractors were involved and planting continued.

5.5.2. Decreasing output

Many companies presented examples where production output did not increase. Huletts and Illovo indicated that since the old system ground to a halt, from early 2000 outputs have dramatically dropped. TSB concurred that for the last 10 years production has dropped. McCain had numerous examples where projects failed to deliver the expected tonnages and were deemed failures. Illovo had the example of a collective system in the Transkei – Mofunda sugar – that was producing 124'000t of cane, and today there is not a single ton harvested from the land. Huletts also pointed out that in general their experience is output has dropped as a collective, but it is very difficult to get accurate figures per farm.

Apart from land issues, economies of scale, yield and financing, a number of additional reasons for reducing output are highlighted. Firstly, TSB indicated that because farm income is under pressure, money for inputs is diverted to more immediate family matters. This causes a long term mining of the soils, and ultimately to the yield dropping. With the yield dropping, the next harvest generates even less income and the problem is perpetuated. Another consideration is the general increase in costs. TSB and Illovo indicated that rising input costs, such as fertilizer, electricity and labour, is contributing to a margin squeeze, and ultimately less investment in the farm. Further to this point, Illovo, Forbes and Roos indicated that the farmer doesn't completely understand the full implications of the importance of fertilizer, weeding and general farm management. There is no investment in the farmer memory bank, so even if he sees a problem, he does not know how to solve it. The farmer does not always understand that production problems are a symptom of long term decisions being taken. This is part of the training and development need identified by Massmart and Buhle – a small mistake by a farmer can cost him a lot of money.

Illovo, McCain and Massmart stated the problems of control. Side selling is a major problem in consumable crops and the change of vendor system in the sugar industry resulted in bad debts. In

both cases the short term income is used for personal consumption and debts are not repaid. Thus for the next harvest cycle, financing is not available and so the next harvest suffers.

Land politics and internal in-fighting is another major problem that causes land to become unproductive. McCain and Roos indicated that this is perpetuated by poor advice and fly-by-nights that have a vested interest and get rebates from corporates - ultimately resulting in poor decisions and a general feeling of mistrust.

Buhle, Forbes, Roos and Northern Farming also stated a major problem in full value chain contract farming was the company not harvesting at the right time, or providing and applying inputs too late. Ultimately this results in lower production tonnages, and is not within the control of the individual farmer. Again, there is a resultant downward spiral, with bad quality crops resulting in less farm income. This results in the next harvest being under-invested in. Illovo indicated that this is perpetuated by the rural environment where inbound logistics for fertilizer and pesticide can be problematic.

5.5.3. Production support

Almost all the companies indicated that they provide a range of support to farmers to improve production output. Production support is primarily clustered around providing field support, such as extension services or mentoring and training. It is noted that companies have a strong interest in ensuring production is raised. Roos indicated that the whole agribusiness sector stands to benefit from increased farm activity, especially as more commercial land is redistributed.

TSB, Illovo, McCain, Huletts, SAB and Massmart all have extension officers or agronomists that specifically support small growers. In most cases such as TSB, Illovo, McCain and Huletts, these extension officers are company employees. In SAB and Massmart's case the extension service is outsourced to a contractor company, for example GWK. Apart from providing guidance and support, these extension officers also fulfil a control role for the company: they provide feedback on estimated production tonnages and problems. In Forbes' case, on-farm mentoring and in-service training is a specific focus to provide support. Afgri emphasised that most of the time the greatest need from the farmer is a mentor whom he can trust and bounce ideas off, and so

perform a guiding role. In TSB's case they also have a variation from the extension officer: a community manager that focuses on addressing internal community issues. Massmart encourages mentorship in the form of regional commercial farmers, to facilitate knowledge transfer to small growers. Massmart also performs a pre-assessment audit to identify any training gaps, whether it is pesticide control or quality management etc. TSB set up a support company that is serving small scale farmers. This company is jointly owned by both the farmer and the company and thus enables a one-stop shop system for any service need the farmer may require.

Huletts stated one of the problems with extension officers is the lack of co-ordination between different organizations. Illovo indicated the problem is sheer numbers, in terms of how to effectively train or mentor 10'000 farmers during a year. TSB highlighted that a key element in any support system is to package it - combining marketing, financial, technical and personal development into a co-ordinated effort.

Various training programs are also provided by the companies. Buhle do the training themselves. They have a comprehensive on-farm training program that not only focuses on the technical skills, but also on business skills and personal development. Buhle also offers a top-up course to allow the farmer to train, go and farm, get a bit of experience, and then come back for a course focussing on a specific farming question - for example weed control or planting. Afgri's training follows a similar model where there is a strong emphasis on personal development and business skills. Afgri's program is over 5 years. During this timeframe there is a strong focus on linking the farmer to agricultural business networks within the farming community. This was highlighted as a great need by Massmart.

5.6. Transaction costs

On the question of what the benefit is to farmers and companies to participate in a contract farming system, many firms are strongly focused on small growers to ensure long term supply reliability. For agro processors and sugar producers in particular, there is very high fixed cost associated with processing. The last marginal ton is where you make your profit. Huletts stated the need for additional inputs to be so high that the market chases the grower, and in essence there are purchasing costs by the company, as opposed to a traditional system where there is a

marketing cost by the supplier. This is accentuated by limited scope to grow production from existing commercial farmers, as there is no major unproductive land available.

“Fundamentally there is no market problem, in fact the market chases the grower, the market spends, they sort of have a purchasing cost as opposed to a grower having a marketing cost.” Cliff Ingle, Tongaat Hulett

Northern Farming indicated that for a small scale farmer the transaction costs to service are very high. From a buying side, the transaction costs are reduced by cutting out intermediate parties and processing. In McCain’s environment, farmers do not need a packing line, nor do they need product to be washed – all presenting a saving to the farmer when comparing it to selling it to the fresh produce market. McCain will buy in bulk, which allows for a further transport efficiency. All of these activities reduce costs. McCain and Massmart indicate that by bulk buying, the farmers can clear their land quickly, reducing on farm costs. This is all compared to supplying the fresh produce market which Buhle indicated attracts an agency cost of 15% of the final price, and there is a good chance all produce will not be bought at once.

TSB have a centralized resource centre for each project. This resource centre does administration and manages the communal infrastructure, such as irrigation and electricity. A further development is that a resource centre will allow bulk buying of inputs, thereby raising efficiency of labours. All of this reduces the cost to the farmer.

Further, to the same concept of a centralized organization, Massmart install pack houses in the community, to service the regional cluster of small growers. This attracts a handling and packing fee, but for the individual farm it is far less than doing it himself or outsourcing it. The DRDLR strongly support this clustering concept to reduce costs, especially in a co-operative type of system, where fixed costs such as tractors can be shared. SAB have a co-operative system that share central resources. Northern Farming has a geographical clustering approach to enable some sort of economies of scale.

Another alternative to the centralized resource system is a McCain and Buhle initiative of a centralized company that can consolidate and manage a small grower system. The company

manage all input supply and do the heavy negotiations to reduce farm input costs. From a company perspective, transaction costs can be further reduced by having greater certainty of supply. Buhle stated that the challenge with any centralized system is that it introduces additional costs which must be recovered either from the farmer or the company.

SAB and Huletts highlighted the advantage for a small grower to be associated with a bigger company. For SAB the small grower have access to the same farm inputs that SAB negotiate on a corporate level, so effectively getting a commercial farmer price for a small grower purchasing power. In the typical system the company pay service providers or input suppliers and so suppliers have a payment guarantee that service providers would not have had with individual small growers.

From a retailer perspective, direct sourcing reduces costs. Massmart indicated that the plan is to have 70% of their fresh produce directly from farm. This enables quality management, pesticide usage, and ensures traceability.

Almost all the companies, Massmart, Roos, Illovo, SAB and Huletts highlighted the importance of logistics in reducing costs. Typically farm commodities are bulk and heavy. Consolidating loads among farmers or taking a full truck load at a time significantly reduces transport costs. In the same breath the limited infrastructure is highlighted as a limitation.

The reduction in transaction costs is split in different ways: In Massmart's case the 15% for the fresh produce market is split 50/50. McCain's model is to put the farmer in the same position had he used the fresh produce market. For Massmart packing house and TSB, Huletts and Illovo contractors, the actual cost is billed back to the farmer. So the company is in the same position, and the associated saving is for the farmer. Huletts and Illovo subsidize some costs to incentivise the farm to produce.

5.7. Different crops

On the question of applicability to different crops: Illovo, McCain, Afgri, TSB, SAB, Buhle, Roos, Northern Farming and the DRDLR believe that contract farming can be applied to various crops, as long as there is market demand. Roos believes that the ability to expand into different crops does not reside with the crop characteristics, but rather in the ability of the individual farmer. However, a number of issues with different crops are highlighted.

The primary concern is how to prevent side selling of produce. It is widely supported that single market product, for example sugar, cotton and tobacco can easily be incorporated into a contract farming model. The challenge comes with maize, vegetables and other consumables and the ability to control side selling.

It is noted by Buhle and Roos that the more high-value crops, for example strawberries or asparagus, have the potential to increase farm income even further. However this comes with higher capital outlay, higher risk associated with quality, and ultimately the ability of the farmer to manage intensive farming and quality control. This also requires stronger contracts, as there is very limited hawker market or fresh produce market for these speciality products.

Afgri and Roos indicated that any crop traded on SAFEX can be included as this will give you a future's price. These crops include sunflower, wheat and maize. Illovo indicated that the success of the cultivate lies in the infrastructure to support it and the ability to provide sustainable income. To this end it is stated that timber will have multiple issues of continual income stream, as the crop cycle is in excess of 10 years. The sugar industry highlighted that the structured and low risk environment in sugar is conducive to sugar being a contract crop. McCain highlighted that additional crops are imperative to the farmer to enable successful crop rotation on fields.

5.8. The contract farming model

The contract farming model is discussed starting with the core model, and then followed by deviations from the model. There after the specific model attributes: co-operatives, centralized

resource centres, model control and external parties are discussed individually. The model outcomes discussed are a summary result on the question on how the model works in general in the various companies.

5.8.1. Core model

The standard contract model is described by TSB, Roos, Huletts, Illovo and Northern Farming. The farmer signs an off-set agreement with the company. This entails that the company will buy the harvest and typically the company will also provide the farm inputs. The input materials are financed by the company. Also included are additional services, for example harvesting services, planting services and maintenance of common infrastructure. When the farmer delivers his harvest all of these costs are subtracted from the farmer's account and the farmer is paid the difference, e.g. the profit that is left.

Almost all models have some level of support structure for the farmer that provides assistance and agronomic advice. This includes extension officers, mentors or training. Another part of most models is geographic clustering. This is highlighted by Roos, Northern Farming, TSB, Illovo and Huletts as being critical in reducing transaction costs and enabling control of the system.

5.8.2. Deviations from the core model

The key difference between the companies is to what extent inputs are supplied or financed, and then whether the farmer is an individual farmer or part of a collective arrangement. Massmart and Illovo summarized the difference as being different levels of intervention: Massmart have three structures, viz., complete value chain, intermediate sites and ready link sites. The majority of farmers opt for the complete value chain. Another version is that the company only performs like a bank, with no farm involvement. McCain indicated that they tried this model and it worked initially, but as soon as the farm came under pressure, the farmer lost focus and the company lost a lot of money.

The sugar industry, TSB, Illovo and McCain, have a retention system where apart from the costs subtracted, a retention savings amount is also subtracted and allocated to the farmer. The farmer can then draw against this savings account during the next season to finance inputs or labour. It is noted that the majority of these savings are drawn as labour to the farmer himself. The SAB system includes a monthly salary to the farmer. This cost is built into the costing model.

Illovo's agronomic support also includes a mentor system with commercial farmers. Each commercial farmer has about 20 small scale growers under his wing and ensures that they produce. They are provided with mechanized equipment. This cost is approximately 10% of the harvest, and this is paid by Illovo.

Most models entail buying a farmers' complete harvest. However McCain, Massmart and Northern Farming have a variation, where the farmer has the option to only deliver enough harvest until the debt is paid. The farmer is free to sell the remaining crop to external parties or to the company. Northern Farming indicated that most of the product is any case sold to the company, which gives an indication that the price and model is right. Buhle believes for a small farmer to be successful he must first sell his product into the local hawker market to achieve reasonable profits and continuity; thereafter contract farming can be initiated.

The additional services e.g. harvesting, extension services and common infrastructure maintenance is not necessary performed by the company. However in all cases the company plays a key role in organizing and paying for these activities. SAB's model completely relies on external parties, while TSB, Illovo and Huletts contract this out to harvest contractors. McCain currently has everything in-house. Huletts indicated that harvest contractors play a major role in ensuring continuous production.

5.8.3. Co-operative structures

Massmart, TSB, Illovo and Huletts stated that although there are individual relationships, the majority of farmers are organized within a co-operative structure, thus the relationship is between the company and the co-operative.

TSB arranges projects with about 50 farmers with a total of 500 hectares of cane. They share common infrastructure and income is distributed proportionally to each individual field. Each project runs, maintains and administers their own affairs, and also pay their own accounts. TSB is evolving this model to be run as an estate. The estate effectively leases the land from the farmers. The farmers get dividends. The farmer can also be employed as labour. A key factor is that the management is independent. This estate is also a shareholder in the support company set up by TSB, e.g. banking and service providers. Huletts is following a similar approach with a set amount of 10% of proceeds paid to the farmer for land rent, while the profits are distributed as dividends. Northern Farming highlighted the need to consolidate farmers into co-operative structures, to reduce costs associated with servicing each individual farmer.

Illovo indicated that the co-operative model works quite well, especially if it is clustered along clan lines. Tendering for inputs can be collective and achieve a better price point. The DRDLR promotes the co-operative concept as it allows for economies of scale and the sharing of capital equipment. Ideally it must be a natural process where the farmers organize it themselves. Huletts indicated that the system allows passive farmers to receive income, and the land to stay productive.

Huletts, Forbes, TSB and Illovo highlighted the multiple challenges of management, mistrust and cultural issues with regard to co-operatives. In a co-operative, management is critical: as soon as everybody is responsible nobody is responsible. There is also the issue of ineffective committees that foster mistrust. For example, where the chairman appoints himself as a supervisor and draws a salary, and the issue of nepotism. This is aggravated if there is no rotation system and the chairman is in power for life. There is deep suspicion of where the money is going to and who is paying whom. This causes further in-fighting. Illovo specifically stated that nobody likes a co-operative system and this is deeply rooted in the African land culture – nobody wants to give up their land. Forbes, TSB and Huletts indicated that the key is around leadership and often this is character-based.

“The problem with co-ops is that there is so much suspicion within the co-op, that somebody is stealing this and somebody is stealing that, they last for about a year or two and then argue and fall apart” Stan Rau, Illovo

5.8.4. Resource centre

Another important element is a centralized body that controls and manages a group of farmers. This is referred to as a resource centre. TSB have a centre for each project. They perform administrative functions, ordering and distribution of inputs, collecting levies and managing common infrastructure maintenance. They also perform a critical control and communication function for the individual project. Each resource centre has its own management, constitution and annual general meetings. The resource centre's management is part of, or replaces the management structure of the co-operative or estate.

SAB have a similar model but the functions are performed by an outside service provider. Both McCain and Roos strongly advocated the need for a centralized control that can, apart from the farm management side, also perform the financial and contract management for the company. Massmart's centralized resource takes the form of a packing house, servicing a cluster of farmers.

5.8.5. External partnerships

External partnerships are an area most companies believe to be critical to the long term success of any small scale farming model. The most critical partnership is with government. SAB, Massmart, Illovo and Hulett's stressed the mutual dependency between the private and public sector in order for development farming to be a success. Even within government, DRDLR indicated the importance of collaboration between government agencies. This is both a vertical relationship from a regional to national, and a horizontal relationship with, for example, the Landbank.

Apart from government, partnership with other private sector parties is very relevant, especially from a co-ordination perspective. Afgri is pulling in specialist trainers, McCain is adapting their model to allow input suppliers to participate, SAB is using contractors to perform farm side services and Massmart is in continual discussion with mechanization and financial companies.

5.8.6. Model control

McCain, Massmart, SAB and Northern Farming stated that side selling is a major issue. Side selling allows the farmer to sell product without servicing his debt, resulting in write offs and eventually lack of supply to the company. Illovo indicated that the lack of control caused by the changing in vendor system, allowed farmers to sell product without re-paying the debt, and eventually the amount of bad debt was so big the system ground to a halt. Massmart indicated that side selling is especially a problem when the farmer doesn't have any additional income.

The control of side selling is primarily achieved by extension officers performing regular farm checks and by the resource centre controlling inputs. This is the case for McCain, Afgri, SAB, McCain and Northern Farming. In Northern Farming's case the extension officer system includes a management structure with a regional manager, extension officer and a lead farmer. Massmart have a system where, as part of the contract requirements, the farmer must supply financials - including sales data at regular intervals. This gives a guide to the level of commitment of the farmer, the price he can actually realize and for Massmart supply chain systems. McCain critically controls the seed supply and planting process to establish a starting reference for any measurement. Northern Farming controls fertilizer supply and promotes conservation farming that accurately measure seed and fertilizer application.

Another critical element highlighted by TSB, SAB, Illovo and Hulett's is that the company controls the money. So the farmer never has full access to all the funds from the harvest. The company pays the service providers, so if things go wrong the company's liability is limited. The recapitalisation model enforces a similar function, with a joint bank account between farmer and companies.

Northern Farming, Massmart and Hulett's believe at the heart of controlling side selling is the price, and incentive model employed. If the price is right, and it is truly a win-win for the farmer he will be committed to the model. Further to the price, is the farmer's domestic situation: Often the intention is not to renege on the contract, but when faced with paying family hospital fees and honouring the contract the choice is really simple.

Other mechanisms highlighted by all the companies are ultimately exclusion – the farmer will not be contracted again. Huletts indicated that sugar cane is intrinsically heavy, so economically, side selling is limited. Roos stressed the importance of trust and SAB pointed towards getting a simpler, more transparent system.

5.9. Financial considerations

The financial considerations are discussed as follows: Firstly the main financial challenges the farmer faces, including personal financing. Secondly, the financial support offered by the various models, and then the Department of Rural Development and Land Reform's recapitalization program.

5.9.1. Financial challenges in small scale farming

Illovo and Afgri summarize the key financial issue as lack of access to capital. The small farmer has no assets except his land. The lack of land title means it cannot be used as collateral to obtain financing. Afgri reiterated that the small farmer does not have the financial capacity to take a knock, which causes sustainability issues. The recapitalization program helps tremendously, but that won't last forever.

TSB, Huletts and Illovo indicated that because the farmer has such a small amount of disposable income, harvest income is often used for family expenditures, and not to improve the next harvest. Small land size, which results in a relatively small income, aggravates this problem. The limited amount of available money is cause for a lot of in-fighting and mistrust in a co-operative structure, as everybody is very focussed on getting the fair share.

McCain, Buhle, Afgri, Roos and Massmart indicated that a major part of the problem is financial literacy. The small grower doesn't fully understand long term risk and financial reward. Even for commercial farmers, managing cash flow is problematic and often, when a farmer gets a big once off payment, the money is quickly spent on life style goods. McCain indicated that the ultimate

result is a failed project: This results in limited money being available for the next harvest and ultimately less production, and so less income next year, which creates a downward spiral.

5.9.2. Financial support

All the companies have some form of financial support for the small scale farmer. This is mainly around input finance. This has three variations: grant money to help the farmer, a reduced loan bearing system or a traditional loan bearing account. This is apart from the recapitalization funding discussed in the next chapter. It is noted by all companies that grant funding plays a major role in their financing ability to small scale farmers.

The sugar industry, Huletts, Illovo and TSB, had the Sugar Association Financial Aid Fund (FAF) which provided money to be lent out to the farmers. This worked very well until the model collapsed. This fund was later replaced by the Nthombo Trust, providing similar services, just on a smaller scale. TSB indicated that the rates are significantly lower than commercial rates. Illovo's financing package includes other sources such as grant money. Huletts has a financial company, Vusileka, into which all sources of money is pooled and used for finance.

SAB provides input supply at a reduced loan (prime less 1%) and also provides a monthly salary that is built into the contract model. Massmart have a zero interest loan from their internal supplier development fund and NGO funding. They indicated that 96% of the loan money was repaid last year. Afgri indicated that farmers are typically financing against a cession and crop hedge on SAFEX at a minimal interest rate. McCain will supply 80% of the required capital.

Apart from financing, Buhle, Afgri and Roos assist farmers to develop financial management skills. Roos indicated that transparency of any money process plays a massive part in building trust. Huletts mentioned that the ultimate ability of companies providing finance and subsidies is linked to food prices.

5.9.3. Recapitalization program

A major part of the small scale development and financing is the recapitalization program. DRDLR indicated that the recapitalization program (RADP) is promoting co-operatives, and a partner structure between farmers and business. The ultimate goal is to finance infrastructure to get the farm back into production. There are different partnership structures, for example equity-based or joint ventures. Contract farming is a specific category. The process starts with a business plan by both the farmer and the company. This is presented at the regional level. If preliminarily approved, it is then presented to the national level, and then finally approved. The key factor is whether the plan is economically feasible. The regional level is responsible for the roll out. The funding is made available in phases and it is linked to deliverables for each phase. A joint bank account between the farmer and company is required, with both parties required to sign for any payment. The total period varies, but is not longer than 5 years. Ultimately, the goal is for farmers to develop, and develop value-adding capability further along the food chain.

There is generally praise for the recapitalization program, with Illovo and Roos specifically indicating that it works quite well. TSB indicating that it allows the farmer to start with very little debt, and that puts him in a very good position. Roos also stated that the Recap program allows for mentors. The model is policed by assessors that do farm evaluations and according to Roos, is very strict. McCain and Illovo reiterated that the program must avoid becoming a tick box list, and must be effectively applied and managed.

5.10. Contract characteristics and pricing

5.10.1. Contract characteristics

On the question of how a typical contract looks, all companies indicated that they have some form of contract that captures the contract farming relationship. There are however, different levels of contract, which follow the different models employed by the companies. At the one extreme is a very detailed contract, for example McCain, where they provide the seed and the fertilizer; they plant and harvest, and collect the product. The farmer gets the net profit at the end of the day. At the other extreme is a contract which only includes operational support and at best, is a right-of-first-refusal to buy the product - for example Massmart and Afgri.

The majority of the contracts are however, in essence, offset agreements. The agreement is a contract between the farmer and the company, guaranteeing the company will buy a certain amount of product from farmer at a referenced price at a point in time. Various farming costs, for example seed, transport, harvesting, etc. are subtracted from the final revenue by the company, and the farmer gets the net profit from the transaction. This is commonly referred to as an off-set agreement. Typically, the agreement is used to obtain finance in-house or from financial institutions.

McCain's contract for small scale is the standard contract as for a commercial farmer. McCain highlighted the need to simplify the contract into two pages. Northern Farming indicated their contract is one to two pages, and focuses on roles and responsibilities, and pricing. Roos confirmed this issue, as most of the time the farmers don't fully understand the full implication of the contract. This becomes a problem, as it creates a perception that the worst kind of contract is with retailers, because the quality and delivery characteristics are especially prescriptive and small scale farmers have difficulty in complying. In the case of TSB they contract not on tonnages, but on hectares: They will buy the entire product produced on the contracted land. This enables a far simpler contract for the farmer.

SAB highlighted that they feel incomplete contracts contribute to the challenges. The roles and the responsibilities are not clearly understood, nor specified. SAB have opted for a very formal contract. Thus in the SAB contract, various conditions are specified: for example hectares, expected yield, delivery timing, cash flow, delivery of inputs and quality; the contracts not only specify technical considerations, but also the contract relationships with other service providers. Huletts stated specifically that the contract not only comprises farmer to miller, but also in the case of co-operatives, is between the different farmers and the co-operative.

All the companies have conditions attached to the contract. For example that land title must be confirmed or a right to operate (RTO) must be signed by the tribal chief. It is part of the conditions for Massmart that the farmer supplies financial information, including all the sales data to other buyers. All the companies and specifically McCain highlighted that as part of the RTO, the exact entity, farmer or co-op that is responsible for the contract be specifically specified. In the case of

Afgri the contract is referred to as an enterprise agreement and the farmer can sell to any company. They do however, include a number of specific conditions, such as the farmer must allow an Afgri mentor on their farm and they must attend training. There are also exceptions, for example in the case of McCain, an ITC check is required, which is waived by the company in some instances. Contract management is highlighted by SAB to be critical in the successful execution of an agreement. SAB workshop the contract beforehand, to ensure everybody has the same expectations and it allows for a collaborative process. Typically these workshops are in local language.

Hulett's, SAB and McCain highlighted that contracts are actively enforced. The main enforcement mechanism is sending a legal letter, especially if the contract party is bigger. However Northern Farming and Hulett's indicated that enforcing contracts for very small farmers is problematic, and will probably cost more in legal fees than it is worth. The main contract enforcement mechanism by SAB is preventative, i.e. in work-shopping the contract beforehand. And then exclusion is highlighted by all companies as the ultimate enforcement: if a contract is reneged on, the company will not go into agreement with the farmer again. Ultimately it is highlighted that the success of the contract is more do with the relationship than with the exact wording of the contract. The contract term varies, from a long term 10 year contract from TSB and Hulett's, to a 3 to 5 year contract from McCain. SAB and Afgri have a 5 year contract. Northern Farming is year on year.

5.10.2. Contract pricing

In all instances the final price is derived from a reference price. The deviation compensates, or rewards, for different levels of quality. The reference price is either market linked or it is a cost plus price.

Market linked pricing is the dominant reference for TSB, Hulett's, Illovo, Afgri, SAB, Massmart, Northern Farming and Buhle for vegetables. Roos also indicated that in the grain trade, SAFEX based pricing is the most common. In the case of vegetables, the reference is the fresh produce market in Johannesburg. Massmart uses, in conjunction with the fresh-produce market, an FNB agronomics database as a reference - which is inclusive of product volume movement by province.

For the sugar industry, the Sugar Association of South Africa publishes a reference price, referred to as a pan-territorial price. The price is weighted between domestic sugar market (import party) in South Africa and the export market (export party) based on international sugar prices. This weight is typically around 60/40 with the emphasis on the domestic market. It is still however one price regardless of location – thus all the mills in South Africa start with the same reference price. Pricing is not per tonnage, but per relative value (RV) which is a combination of both the sucrose and non-sucrose content of the cane. Sucrose is the intrinsic value of the cane, however the non-sucrose content presents a cost to the miller and this is subtracted to reward higher quality cane production. Non-sucrose content is for example excess fibre. It is noted that the pricing methodology of the sugar industry is currently under review.

In the case of McCain, the reference price is a cost-plus pricing model. The cost price model is benchmarked against their own farming operations and with input from the University of the Free State. This is rationalized against the fresh produce market from time to time. McCain indicated that four out of six years the prices are higher than the fresh produce market. Massmart found that fixed price systems fall apart when the market is moving. If it is going up, people cop out, and if it is down everybody is honouring their contracts. Northern Farming indicated that the key reason for using market linked pricing is to avoid this situation.

Some exceptions to the pricing model are for example SAB, which also offers a both a fixed and a market linked price. The fixed price is a derivative of the future price for Barley. SAB experiences a growing trend toward fixed prices for small farmers, mainly because of literacy levels and the risk associated with an open pricing mechanism.

Apart from quality and location, the difference between the reference price and the final price is also caused by specific market characteristics. For example Huletts shares the marginal benefit-to-mill additional tons with the farmer. This is typically in the form of subsidising transport, harvesting contractors or providing a diesel rebate. Illovo also have the same type of model, where they pay the small farmer additional premiums to compensate for his lack of scale to ultimately ensure continuous supply. In the case of McCain the deviation from the reference price is also determined on a case-by-case basis on immediate supply and demand conditions. Other

deviations are also around reduction in transaction costs and splitting it with the producer. Typical examples are the agency fee and transport fees in the fresh produce market. In the case of Massmart a fixed premium is offered to incentivise the farmer in some instances.

It is highlighted by McCain, Roos and Buhle that one of the issues of reference pricing is the price volatility. Thus a farmer must sell his product potentially when the price is low for that period of time, while this is not necessarily reflective of the market as a whole. Volatility makes financial planning difficult. Pricing is contentious and Massmart is looking to develop a better pricing model that is sustainable and not propped up by development finance.

5.11. Land structure

Illovo, TSB, Massmart, Northern Farming, Huletts and SAB shared the same response on land. The majority of small growers are on tribal land. Typically tribal land is communal land allocated to a family by the local Nkosi (chief). This is endorsed by a right to occupy (RTO) letter from the chief. Critically the land ownership does not rest with the individual, but with the tribe.

So while all the companies require a RTO to be in place before any contracting can happen, there is still no title. Because of the lack of title no financing can be obtained against it. McCain highlighted numerous cases where the lack of clarity, and conflicting information as to who has right to the land, caused major difficulties. To further complicate it, land is very fragmented in places and as per Huletts, is getting even more fragmented as a result of infrastructure and housing development. In the words of Massmart, you are trying a commercial business model on a land system that was never designed for scale.

Illovo stated that the government strictly forbids resale of land from land reform. Huletts indicated that a small grower cannot legally bond or lease his land out, although informally it happens - especially among family members. Often there is not monetary compensation, but rather an agreement that every third harvest is the land owner's.

5.12. Small scale farmer demographics

Small scale farming is firstly characterized by land size. Huletts summed it up in three categories: small, medium and commercial - small being less than 10 hectares, medium around 100 hectares and commercial farms that are bigger than that. TSB indicated that their small farms average between 7 and 10 hectares, Huletts average size is 2 hectares and for Northern Farming the average size is 1 hectare. Goosen and Roos focus more on medium size farmers that already have some scale. In the case of Massmart and SAB typical farms are between 5 and 20 hectares. Huletts also indicated that in Natal there is a fourth category, viz., freeholders, which are typically a slightly bigger farm in the Indian community, over which they have full title.

TSB and Huletts indicated that the average age of a farm owner is 60 and 53 respectively. This farmer is typically a woman, or grandmother, with a number of children in her care. The men stay in the city and repatriate some money every now and again. The men are employed from casual labourers to teachers and diplomats. Farmers themselves often are not able to do much farming, and thus the need for contractors to farm on their behalf. The youth urbanize to towns and cities. Illovo indicated that the rural family is concerned about food security. Their assets are typically a cow, a couple of goats, a patch of maize and then their sugar cane. Finding labourers is problematic according to Huletts. Competition is also against the government grant system and employment is difficult to formalize. Afgri also stated that some land owners just want an income stream, so will just rent their land, never becoming a farmer. It is therefore better to spend resources on the person who really wants to farm.

Almost all the companies stated that small scale farmers have very little life experience in running a viable farming business. Often these farmers have limited formal education, and most importantly, lack the background knowledge that other people take for granted. The farmer may have the heart, and can even farm a bit, but knows very little outside of that.

Chapter 6 – Results analysis

The results was analysed into three components. Firstly the five propositions was tested. Thereafter the research question was answered using the propositions as a basis. The chapter concluded with a summary of best practice guidelines for a contract farming model.

6.1. Propositions

6.1.1. Market linkage

Barrett (2007) highlighted that market access is a significant issue for a small grower, with Vorley (2001) further indicating that vertical integration has a key attribute that it allow small growers to access international markets with lower risks and costs. Fischer and Qaim (2012) further supported this with their finding that small growers in East Africa sell 85% of produce locally and the pie is not getting bigger. Contract farming's ability to provide market linkage is widely supported by all interviewers and confirms the literature findings. Respondents SAB, Illovo, Massmart, Hulett's, and McCain indicated they have the ability to buy in volume, and continuously. This is a real benefit to the small growers, whose alternative is the fresh produce market or the local hawker market. Both these markets have volume limitations, associated marketing costs, and lower quality produce will not necessarily be bought. All of this is mitigated by contract farming and the small grower can scale up his production. The ability to buy in bulk implies that the farmers do not need storage facilities, overcoming a limitation sited by Fischer and Qaim (2012).

A key issue with market linkage is the power imbalance between the small producers and big corporates, that manifests itself in the pricing model employed (Escobal & Cavero, 2012). Hobbs and Young (2002) stated that the power imbalance leads to disputes and pricing issues, while Schipmann and Qaim (2011) highlighted that corporates enforce strict quality control that leads to pricing disputes. Interviewees all agreed on this to a more or lesser extent. Roos, Buhle and Forbes strongly believe that the pricing mechanism is always contentious. They argued that contract farming is definitely providing a market, but it is marginal for the farmer because the

company squeezes the profit out of the deal. Processors TSB, McCain and Hulets acknowledge that there is a continual cat and mouse game with pricing. Northern Farming viewed the pricing system as critical; there must be something in it for the farmer - it must be win-win.

“... at the end of the day you can provide as many as good or best benefits as you can, right up to the day you sell it; if you don't give them the best price then they feel cheated, and as soon as they feel cheated then they want to cheat you ... the best price means you are securing their trust to a large extent” Lance Kennedy, Northern Farming

Because of the pricing issues Buhle strongly felt that the small grower's first priority must be to make a success in the local hawker market. It is recognised however that there is a ceiling to the volume that can be achieved. This view supports the finding by Barrett (2007) that local selling is more profitable due to the local networks and transport advantages.

Fundamentally the power imbalance exists. The only counter small growers have is processors' supply chains need to be balanced, and ultimately they need supply. It is stated by Afgri and Roos that creating trust in the relationship is critically important. This is achieved by transparency and having enough contact time. SAB indicated that to workshop the contract is very important to manage expectations, while TSB employ community managers and have various co-owner initiatives to create buy-in from the farmer.

Both the literature and the interviewers confirmed the proposition. It is noted that in practice the power imbalance has significant implications on the pricing system employed – and the ultimate success of a relationship. It is also recognised that a small grower can make more money out of the local hawker market, but there is a volume ceiling which vertical integration can solve. On balance, the proposition that contract farming is providing market linkage is strongly confirmed.

6.1.2. Transaction costs

Barrett (2007) and Escobal and Cavero (2012) highlighted that transaction costs are a significant contributor to market exclusion for the small participant. These transaction costs are costs

associated with the linkage between two firms: search costs, contract costs, price information, monitoring costs and enforcement costs - to name but a few (Besanko *et al.*, 2010) (Hobbs & Young, 2000). Barrett (2007) stated that transaction costs are very much linked to institutional support which includes contract enforcement, market channels and property rights for the SCF.

Contract farming reduces these transaction costs by providing input financing, market linkage and other general attributes. Particularly on financing, all companies provide financing in some sort of form and it is a critical component in all contract farming models. For the small grower financing is particularly problematic, because they do not have the required property rights to use the land as collateral for financing. The off-set agreement in contract farming allows for the institutional void to be mitigated. It further provides market linkage that gives a farmer an external market, as described in the previous section by McCain and Massmart. Transaction costs are reduced by the associated cost savings, for example the fresh produce market agency fee of 15% and direct transport from farm to processor.

Apart from financing and marketing a number of other examples were highlighted involving geographical clustering, that reduce costs by consolidation and economies of scale. Massmart install packing houses to consolidate a cluster of farmers – a very high cost if the small farmers want to do it themselves. SAB also indicated that with the company guaranteeing a service provider's payment, there is a huge cost to the farmer that is mitigated. SAB is also reducing costs from the EOS perspective by purchasing inputs in bulk, so small growers get a commercial price for small grower purchasing power. Logistics savings were highlighted by TSB, Illovo, Huletts, SAB and Massmart by consolidation of loads. It is however noted that physical infrastructure is problematic and is a major contributor to transaction costs, supporting authors (Barrett, 2007), (Ortmann & King, 2007), (Fisher & Qaim, 2012) and (Janje *et al.*, 2010). Further costs are reduced by consolidation of common irrigation and maintenance structures by TSB, Huletts and Illovo.

Transaction cost savings from the buyer's perspective is also noteworthy. It is noted by all interviewees, especially in the sugar industry – TSB, Illovo and Huletts – that long term supply is the primary consideration. This supports the notion of Frank and Henderson (1992) that more subtle costs such as uncertainty in demand and supply, also contributes to transaction costs. This is especially for agro-processors where high fixed costs associated with processing plants have the benefit of high marginal profits after target capacities are reached. So increasing volume

throughput is a major determinant of profitability. This is especially relevant in the sugar industry where there are huge costs advantages to sourcing supply in close proximity to the sugar mill.

There are however, a number of issues with transaction costs. Critical is the issue highlighted by Basenko (2010), of quasi rents: there must be a benefit to both the farmer and the company to invest. So how is the reduction in transaction costs split between the farmer and the company? This was strongly supported by Northern Farming, who stated it must be win-win for the farmer as well.

McCain pricing model is based on putting the farmer in the same position as his alternative. McCain is going forward supplying 80% of the required financing. SAB provides an interest reduced loan of prime less 1%. Afgri is providing finance at minimal interest. Any infrastructure or packing house costs are billed back to the farmer as a service charge by TSB, Hulett's, Illovo and Massmart. The savings from the consolidation is for the farmer. To benefit from the marginal production ton; typically Illovo and Hulett's are subsidising some of the costs to incentivize the small grower to produce more tonnages for the mill. TSB and Hulett's indicated that the financing is supplied at significantly lower rates than commercial borrowings. Massmart is splitting the savings, e.g. the fresh produce market agency fee 50/50, while providing a zero interest loan.

Besanko *et al.* (2010) highlighted an issue of vertical integration as the ability to introduce hold-up costs. This hold up cost manifests itself inside selling of inputs and farm outputs. This is a major problem cited by McCain, Massmart, SAB and Northern Farming, primarily because the company supplied the financing. So in the event of side selling debt is not repaid, and secondarily, because the company planned for certain amounts of inputs and are now faced with making emergency alternative supply arrangements. This contributed significantly to the failure of the Sugar model by the end of 2000 and was highlighted by McCain as a major contributor to their failures.

To mitigate the issues of hold-up and side selling, extension officers are used on farm level by McCain, Afgri, SAB, McCain and Northern Farming, to monitor farming operations. It is however highlighted by Massmart, Northern Farming and Hulett's that at the heart of controlling side selling is the price incentive model employed, and the farmer's domestic financial situation. To this end SAB included a monthly salary to the farmer to provide him with continual cash flow. The

enforcement of contracts is problematic and often the costs outweigh the benefits - according to Huletts and Northern Farming. Creating a system of trust to reduce monitoring costs is highlighted by Chiles and McMackin (1996) and Schipmann and Qaim (2011) as being critically important. This is strongly supported by Afgri and Roos.

Another issue of vertical integration is that contracts themselves are raising transaction costs (Hobbs & Young, 2002). This was strongly supported by Buhle - somebody has to pay for the centralized activities. Hobbs and Young (2002) further indicated that to reduce transaction costs, processors limit the amount of individual farmers they are dealing with. Northern Farming specifically stated that the amount of small growers raises transaction costs for them, and so plan to consolidate farmers going forward.

In order to mitigate this increase in transaction costs caused by the number of small growers, Roos highlighted the need for clustering small growers in a geographical region. Massmart, TSB, Illovo, Huletts and Northern Farming, are all adopting this clustering approach. This further allows for economies of scale in procuring inputs. This is however not without its challenges: Huletts, Forbes, TSB and Illovo highlighted the multiple challenges of management, mistrust and free riders in a co-operative - which supports the findings by Fischer and Qaim (2012) and Ortmann and King (2007). Despite these issues, almost all the companies are adopting a co-operative structure of some form. This typically takes the form of a co-operative project, or in the case of Massmart, having a centralized packing house in a region. Co-operatives are further supported by the DRDLR via the RADP program. In TSB case they have a specific resource centre that control and manages a project, or group of farmers. This cost is typically recovered from the farmers.

In summary, the proposition that contract farming reduces transaction costs for the small growers is supported, especially from a financial and market linkage perspective. It is however noted, that the management of additional introduced costs such as monitoring costs and side selling, is critical to the success of the model. It is argued that the extent to which the transaction costs benefits are shared with small growers is a leading indicator to the success of the model.

6.1.3. Production output

Schipmann and Qaim (2011) and Escobal and Caverio (2012) highlighted that one of the key reasons small scale farmers participate in contracts, is to obtain input finance and production technologies, all in an effort to increase productivity. Escobal and Caverio (2012) especially argued the importance of raising productivity and output quality by small farmers. All participants, especially Illovo, Buhle, Northern Farming and Roos, strongly supported the importance of increasing productivity per hectare. TSB highlighted this as their main challenge.

The evidence of the increased output however is mixed. On the positive side, Northern Farming indicated that their farmers managed to raise output from 6 to 11.3 tons maize per hectare, over a three year period. Illovo and Huletts stated that the previous sugar model, up until the end of the 90's, had worked particularly well. Massmart indicated their tonnages are fully delivered and they plan to increase contracts next year, likewise for SAB. However just as the sugar model worked very well up to the end of the 90's, sugar producers Illovo, Huletts and TSB stated that since then there has been a 10 year decline in output. This was primary caused by issues of bad debt. McCain and Afgri similarly have started many different projects that have failed to deliver the anticipated results, forcing them to restart new initiatives.

The key problems identified are lack of proper controls that results in side selling, which ultimately causes bad debt. In the same breath however, Massmart and Northern Farming both indicate that their model is working, with Massmart quoting a 96% debt repayment figure. Another problem highlighted by Buhle, Forbes, Roos and Northern Farming is that contract companies are not fulfilling their contractual agreements - with activities such as harvesting, chemical supply and fertilizer application being late - and thus the harvest suffers. Another key problem identified by McCain is lack of continuity on the farm side, with the farmer losing interest.

In conclusion, the results are mixed. On balance contract farming has proven itself to work, but the numerous examples mentioned detract from making a conclusive argument, especially the long term decline mentioned by the sugar producers. Based on this evidence the ability of contract farming to increase production is inconclusive. It is however noted that all contract companies

have extensive programs to raise production levels. This includes inter alia, extension officers, training, mentoring programs and financing options.

6.1.4. Rural development

Schipmann and Qaim (2011) highlighted a key negative attribute of contract farming is the lowering of independence of farmers. This view was strongly supported by DRDLR which believes that contract farming fails to deliver on its economic empowerment aspects. Illovo and Huletts stated that failing to develop farmers in the old model, lead them to change from a system that was working from a production output perspective, to a vendor system. The latter has been in effect for the last 10 years and has led to a reduction in tonnages. Afgri, Buhle and Roos strongly felt that the success of the small grower is linked to his feeling of ownership – and this is something the companies must cultivate. They argued that if the farmer is in essence only a farm worker with no involvement in decisions, the farm will suffer and he will ultimately lose interest. Northern Farming stated that a key reason for its success in improving yields is ownership of individual farmers and micro managing his piece of land to achieve the maximum output. Contrary to this: McCain provide a complete service, the company plants and harvest. It is argued that the lack of real involvement of the farmer contributes to farmers losing interest and ultimately in projects failing.

Fischer and Qaim (2012) further indicated that up to 85% of small scale produce is sold locally and the key is to make the pie bigger. On this point there was support by Afgri, Massmart, Huletts and TSB that the regional development brought by contract farming can be substantial. Huletts quoted that for every ton supplied to the mill, R170 stays in the community through contractors and transporters. This excludes any multiplier effects which still have to be added.

It is argued that the strong support from many parties for regional development via service providers is substantial. Although still very relevant, the critique by DRDLR and others that contract farming makes the farmer owner into a quasi-farm worker is outweighed by the regional benefit, especially if economic multiplier effects are added - especially since Northern Farming, and to a lesser extent SAB, presented evidence of heavy farm owner involvement. In summary, the proposition that contract farming is increasing rural development is on balance supported.

6.1.5. Alternative crops

Santorius and Kirsten (2007) founded positive results of contract farming in the sugar and timber industry in South Africa and highlighted the need to expand the research into other crops. The applicability of different crops in contract farming is widely supported by Illovo, McCain, Afgri, TSB, SAB, Buhle, Roos, Northern Farming and DRDLR.

The support is however subject to the ability to prevent side selling and on the condition that there is a market for the product. Hobbs and Young (2000) stated that different crop characteristics drive transaction costs. A single market product is one such characteristic that is highlighted by respondents to have a higher chance of success. Examples of such products are sugar, cotton and tobacco. These products have no other significant market outside industrial users and thus have a natural characteristic that prevent side selling. It is however noted that the consumable product Maize is successfully contracted to small growers by Northern Farming, Afgri and Forbes. Massmart and McCain also contract farms consumable products viz., vegetables and potatoes respectively.

On condition that side selling can be prevented, the proposition that different crops can be contracted to small scale farmers is confirmed.

6.2. Research question

The ability of contract farming to increase the income of small growers is highlighted by Escobal and Cavero (2012) who found that on average income increased three times in the potato market in South America. This is countered somewhat by Schipmann and Qaim (2011) who found in a case study on green peppers, that initially there were substantial income increases, but over time the increase normalized in South East Asia. It is noted by all that contract farming definitely did not result in a worse outcome.

The ability of contract farming to increase income for small scale farmers is widely supported by all interviewees. Various examples were listed by Illovo, Hulett's, Massmart, SAB, TSB, Forbes and Northern Farming.

“this guy here was quite an interesting story, - his name was Kelvin Shambari – he left formal employment in Harare because he felt he was not realizing his potential. He has been contracted to NF since the company started its scheme in 2009/10. The program has enabled him to grow his farming operation and accumulate assets. By the end of the third season he had finished his house, purchased two beasts, a scotch card and a motorbike” Lance Kennedy, Northern Farming

It was also indicated by Hulett's and TSB that often land is idle because the owner does not farm himself. Contract farming incentivizes intermediate companies to informally rent land, which results in passive income for the land owner. Otherwise the land owner would have received nothing. Counter evidence was also presented by TSB, specifically that some farmers receive a zero net income at the end of the season. This is primarily caused by dropping of yields, under-investment in the farming operation, bad debts and increasing costs. All participants agree that contract farming can increase income.

There are however a number of issues that make this very difficult to achieve in practice: Firstly is the issue of land. The majority of small growers are on tribal land and the transfer of land is almost unheard of. This supports Feder and Feeny (1991) finding that land transfer in a communal land environment is very limited. At best, land can be informally leased, but even this is problematic in that it provides limited incentive for the land renter to invest in the soil. The lack of land ownership creates a ceiling to the extent that a farmer can grow. So ultimately even the most successful farmer has a limited incentive to raise his income, because he cannot buy out his neighbour to consolidate the farming operation into a bigger unit. The small farmer does not enjoy the property rights which according to Bellemare (2013) allow the farmer to sell or lease land, and creating strong incentives to maintain and develop land, or use it as collateral to obtain finance.

This further speaks to the fundamental issues of lack of economies of scale for a small scale farmer. For the farm to be successful over the long term these barriers need to be mitigated. This is a key reason that companies, TSB, Afgri, Northern Farming, and Massmart adopt a

clustering approach to consolidate farmers to some extent and to achieve at least scale on the inputs, mechanization and processing. This reduces the cost side, but TBS, Huletts and Roos stated that a small grower's farm is so small it is very difficult to make enough money from the land over the long term. The lack of income results in under-investment in the farm, which further perpetuates the problem. For ultimate success the farmer needs to grow his farm size to improve the total output.

Another consideration highlighted by almost all companies – McCain, Forbes, Afgri, TSB, Buhle, Roos and Illovo, is the importance of the individual farmer's character: The farmer must have a heart for farming. Most of the technical skills can be tough, but if the farmer does not really want to farm, eventually he/she will lose interest and the operation suffers. The challenge is to find farmers with the correct disposition. Northern Farming and Afgri especially highlighted the selection criteria as a major contributor to the models' success.

A further consideration highlighted by Buhle, Northern Farming, Massmart, McCain and Huletts, is that the small scale farming must be sustainable in the long term. Development financing helps tremendously in adding production, but development financing will not continue forever. The key to long term sustainability is profits. As long as the farm is profitable, people and companies will invest in them.

A summary of the propositions' main findings is tabulated below:

Table 4: Proposition summary

Nr	Proposition	Confirmed/Rebuked	Conditions
1	Market Linkage	Confirmed	Power imbalance
2	Reduction in Transaction Costs	Confirmed	Sharing of savings
3	Increasing output	Inconclusive	n/a
4	Improving rural development	Confirmed	n/a
5	Applied to different crops	Confirmed	Control side selling

The summary finding is that four out of the five propositions are confirmed, together with the evidence present that contract farming definitely has the ability to increase farm side income. The hypothesis that contract farming is a viable vertical model to increase small scale farm income is confirmed. This is however subject to solving the issue of land transfer, mitigating the effect of low economics of scale and increasing profits over the long term. James, Klein and Sykuta (2010)

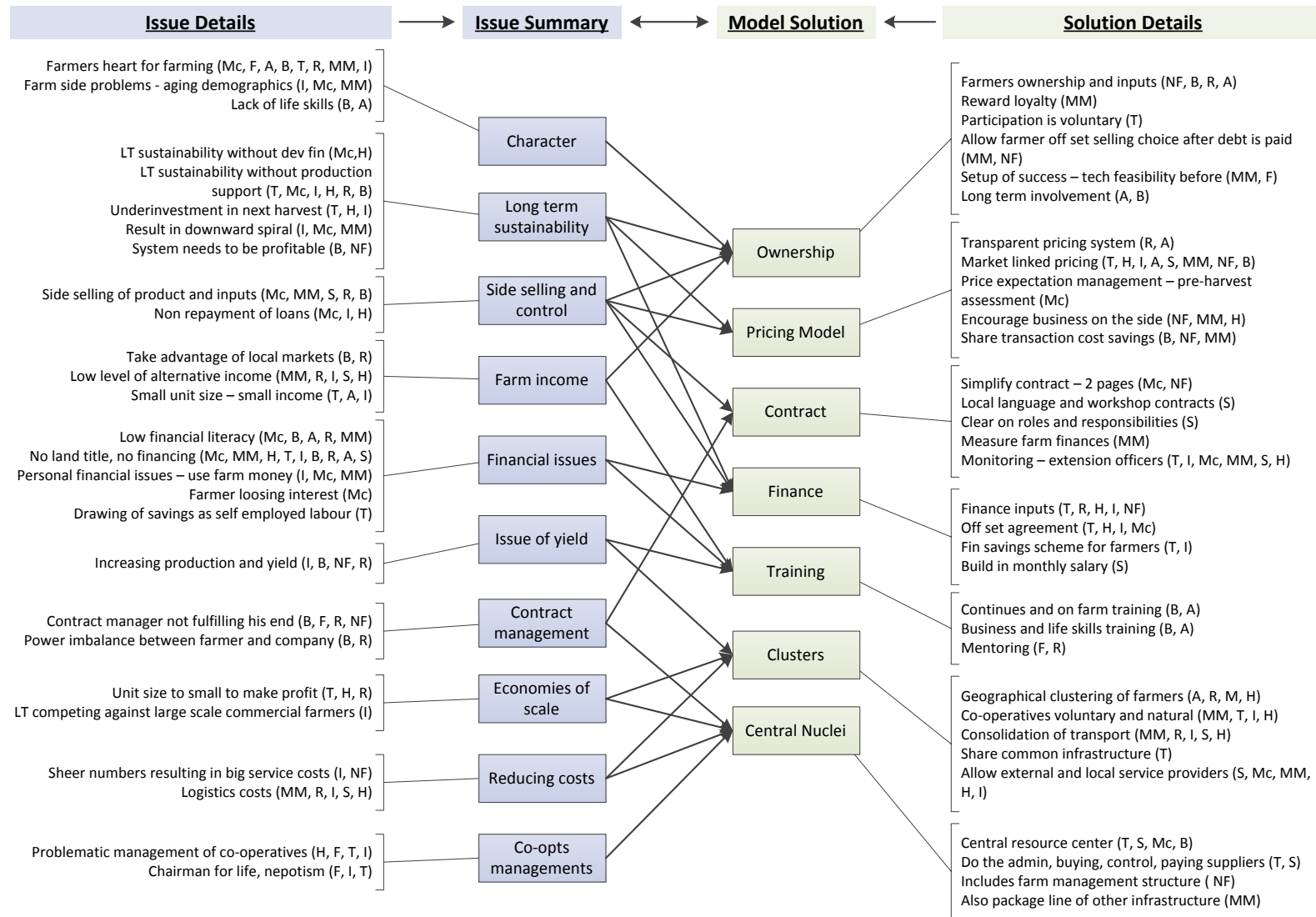
highlighted that contract farming is the most important development in modern agriculture in recent times, and the ability for small growers to partake in these schemes bodes well for them.

6.3. Model framework

Apart from the main research focus of the propositions and hypothesis, the evidence collected was synthesised into a potential model framework. The objective of the model framework is to highlight major practical issues indicated by the various respondents, and then encapsulate solutions that are employed by the various companies. The result is a contract farming model framework that can be applied in a small scale farming system. It is explicitly noted that the framework is an analysis of a small number of subjects and the descriptive nature of the research prevents conclusive cause-and-effect linkages being drawn. It is however included for practitioners in the field to have a snapshot of what other companies believe to be relevant and what works for them.

The process of analysis summarized all the major issues into an issue category. Simultaneously, the solutions employed by the various companies are collated into a seven model solution. The association of the solution to the issues category is highlighted in figure 8. The issue and solution details are specifically highlighted by the respondents, and are referenced in the legend.

Figure 7 – Model issues and solution breakdown



Legend: A – Afgri, B – Buhle, F – Forbes, H – Huletts, I – Illovo, NF – Northern Farming, Mc – McCain, MM – Massmart, R – Roos, T – TSB, S – SAB

The conclusion from the analysis is a contract model framework of seven categories. These categories are highlighted in figure 9. At the foundation of the frame work is the small scale farmer, who is ultimately the critical element in the equation.

Figure 8 – Contract model framework



Farmer's ownership in the process is critical to the long term success of the initiative. This can be achieved via a system where the farmer makes the farming decisions, thus the company can supply the inputs and select the crop, but ultimately the farmer must be responsible for planting, weeding and harvesting. This does not detract from companies advising and stipulating some farming inputs that are linked to the marketing side, for example the cultivar to be planted. Secondly, after a seasons' debt is paid in terms of the contract; give the farmer the choice to sell his produce locally or to the company. This greatly increases empowerment and is the ultimate test for the model. If the model's incentive systems are working, the farmer will sell to the company.

Clustering of small growers in a geographical area is critical to overcome some of the issues of low economies of scale. It allows for logistics optimization, sharing of common infrastructure and services to better optimise among the community. It furthermore fosters cross learning between farmers, and helps in the establishment of an economic nuclei.

A resource centre, within a clustering of small growers, is very important to enable economies of scale and exert control over the system. Such a centre performs administration functions, but more importantly is a mechanism to consolidate farmers to buy and sell together. It further allows a single focus point for external parties to participate in the system. The resource centre also plays a critical role in managing common infrastructure. The resource centre can also be expanded to physically store farm inputs. The key difference between the resource centre and a co-operative is that the farmers can be excluded by the resource centre if they are not performing; the company owns and controls the resource centre, not the farmers. The same holds for the resource centre leadership - thus you avoid leaders for life and ineffective management legacies.

Pricing systems needs to be transparent and market linked. Market linked pricing prevents side selling, as the price on the day of harvest should be at least the actual market price that the farmer can achieve from his best alternative. In addition to that, soft commodity hedges and contracts can be used to minimize the down side risk for the company that have supplied the inputs. It is also recommended to encourage a diversification strategy for the farmer by having an alternative crop on the side that can provide food security and also an alternative income source. Critically the pricing model needs to be a win-win system for both farmer and processor.

The contract must be simple, short and clear. The emphasis should be on a relationship based contract that focuses on the roles and responsibilities. It is also recommended to workshop the contract extensively beforehand and having it written in local language to improve understanding. Critical for the monitoring of contracts and providing advice and support, are extension officers who are widely employed by companies in development farming.

The availability of input finance is critical to the contract farming model. The finance model should be tightly controlled and should accompany the off-set agreement. It is recommended as part of the financing model to include a monthly salary that reduces short term cash flow issues from the farmer, and thus the temptation to default on the contract by side selling. It is also recommended as part of financing, to establish a retention savings account per farmer. After each harvest a percentage of the profits are set aside in the farmer's name, to finance the next harvest or capital requirements. The saving account also builds the balance sheet of the farmer which improves farm sustainability in the light of droughts or capital equipment needs.

Training, and specifically continuous training, is a mechanism to build farmer capacity and improve long term productivity. The curriculum should also include life skills. Training can be in conjunction with a mentor system that guides and assists farmers in practical farming operations.

Chapter 7 - Conclusion

Sub-Saharan Africa agriculture is typified by small farmers in remote areas. Small scale farmers represent 80% of all farmers in SSA and contribute up to 90% of agricultural production in some countries (Livingston *et al.*, 2011). On average, farms employ 62% of the local population. This also relates to South Africa: the economic growth path of 2010 envisions an ultimate goal of creating 5 million jobs, with 500'000 of these jobs attributed to the employment increases in rural agriculture development (RSA New Growth Path, 2010). Small growers have however not been without their problems. While the world has experience a green revolution over the last century, Africa has distinctly been left behind. Alston *et al.* (2010) states in his evaluation of a century of agriculture, that Sub-Saharan Africa has one of the lowest agriculture productivities in the world - despite ample land and water availability.

The challenges with small scale farming are widely discussed in literature. These problems include inter alia, the fundamental disadvantage of the economies of scale, lack of market access, high transaction costs and limited access to finance. By definition, small scale farmers have small plots of land and have a distinct disadvantage in economies of scale, compared to commercial farmers. This results in raising input costs and high selling costs outside local markets. Market access is a key component of institutional support that is lacking for the small growers (Barrett, 2007). This is further aggravated by local prices: a bumper harvest results in lower local price, eroding the gains made by improved productivity. Fischer and Qaim (2012) highlighted the lack of storage space and immediate cash flow needs as further issues that aggravate these problems. A host of authors highlighted the commonly cited problems with local infrastructure as raising costs. Market access introduces the concept of transaction costs in linking farmers with buyers. This was highlighted by Escobla and Cavero (2012) as a significant contributor to exclusion of markets for the small participant. These transaction costs includes search costs, financing costs, contract costs, enforcement costs, monitoring costs, hold up costs and risk introduced by uncertainty of demand and supply.

Economic integration models are highlighted in literature as a solution to many of these problems. Integration is divided into horizontal or vertical integration. Horizontal manifests itself primarily through co-operative structures, where a number of small growers consolidate some activities. This solves many of the problems of economies of scale. It does however introduce new problems

with Fischer and Qaim (2012) stating that the theoretical benefits and actual benefits of co-operatives do not match in practice. This is primarily caused by the free rider and principal agent problems (Ortmann & King, 2007).

At the opposite spectrum is vertical integration. In its purest form it is where a company backward integrates into the supply chain, or forward integrates into the marketing channel (Chiles & McMckin, 1996). In a farming environment it is where processors start to get involved in farming operations. The advantage of vertical integration is the reduction in transaction costs (North, 1987). It proposes that integration minimizes problems associated with single participants or co-operative structures. It further contributes to increasing income for the farmer.

A subset of vertical integration is contract farming. In contract farming two entities still operate separately, but the relationship between the company and the farmer is governed contractually to perform (Hobbs & Young, 2001). A key attribute of contracts is that it provides financing to the farmer in exchange for a cession on the farmer's crop. It also implies that the company has some level of influence on the farming practices, reducing default risk in exchange for the finance. The rise of contract farming and vertical integration is highlighted as one of the most important developments in modern agriculture (James *et al.*, 2010). MacDonald and Korb (2008) estimate that 41% of all United States agriculture produce is sold under contract - up from 11% in 1969.

The objective of this research was to evaluate contract farming as a vertical integration mechanism for small scale farmers. The hypothesis states that contract farming is a mutually beneficial model that increases farm income for the small scale farmer. In support of this hypothesis a number of propositions were tested:

- i. Contract farming is effective in providing market linkage.
- ii. Contract farming is mutually beneficial in reducing transactions costs.
- iii. Contract farming is effective in raising output and increasing general small scale farm productivity.
- iv. Contract farming is a mechanism to enable social objectives such as rural development and property reduction.
- v. Contract farming can be applied across different crops.

To test these propositions empirical evidence were obtained from a number of companies involved in contract farming. A semi structured interview framework was developed and in total twelve companies was interviewed. The interviews where transcribed, coded and analysed to answer the hypothesis and propositions.

The results confirmed the proposition that contract farming provides market linkage. In practice, the power imbalance between the individual small farmer and the corporate is problematic, and needs to be actively managed in order to have ultimate success of the relationship. It is also recognised that a small grower can make more money out of the local hawker market, but there is a volume ceiling which vertical integration can solve. On balance, the proposition that contract farming is providing market linkage is strongly confirmed.

The proposition that contract farming reduces transaction costs for the small growers is supported. This is especially relevant from a financial and market linkage perspective. It is recognised that contract farming introduces additional costs such as monitoring and side selling. The management of these costs is critical to the success of the model. It is argued that the extent to which the transaction cost benefits are shared with small growers, is a leading indicator to the success of the model. It supports interviewee's views that the relationship must be win-win for the model to succeed over the long term.

The results on increasing production tonnages are mixed. Theoretically, production tonnages should increase especially compared to the farmers alternative - which is to sell to the local market. However, there are numerous examples presented that prove the contrary and detract from making a conclusive argument, especially the long term decline mentioned by the sugar producers. Based on this evidence, the ability of contract farming to increase production is inconclusive. It is however noted, that all contract companies have extensive programs to raise production levels. This includes extension officers, training, mentoring programs and financing options, amongst others.

The strong support from many parties for regional development via service providers is substantial. Although still very relevant, the critique by DRDLR and others that contract farming makes the farmer owner into a quasi-farm worker, is outweighed by the regional benefit,

especially if economic multiplier effects are added. The various evidence presented of substantial farmer involvement in some contract farming models, further supports the proposition. In summary, the proposition that contract farming increases rural development is on balance supported.

The proposition that different crops can be contracted to small scale farmers is confirmed - on condition that side selling can be prevented and that there is a market demand.

The summary finding is that four out of the five propositions are confirmed, this together with the evidence presented that contract farming definitely has the ability to increase farm side income. The hypothesis that contract farming is a viable vertical model to increase small scale farm income is confirmed. These findings are however, subject to solving a number of issues - such as land transfer, mitigating the effect of low economies of scale, controlling side selling, and having a dispensation that increases profits over the long term.

Apart from the main research focus of the propositions and hypothesis, the evidence collected was synthesised into a contract model framework. The objective of the contract model framework is to highlight the major practical issues described by the various respondents, and then the solutions employed by the various companies. The result is a framework to apply contract farming to small scale farmers. It is explicitly noted that the framework is an analysis of a small number of subjects and the descriptive nature of the research prevents conclusive cause-and-effect linkages to be drawn. It is however included for practitioners in the field to have a snapshot of what other companies feel are relevant and what works for them.

Figure 8 – Contract model framework



The model framework highlights seven critical success factors that ultimately revolve around the small scale farmer. The seven factors to incorporate into a contract farming model are cultivating farmer ownership in the model, clustering of farmers in a geographical area, establishing a central nuclei that administers and controls, ensuring a transparent win-win pricing model, keeping the contract simple and transparent, providing finance and lastly, establishing a system of continuous training and mentoring for the farmer.

The value that small scale farmers can bring to the food supply chain should not be underestimated. It is recommended that companies use contract farming in developing small growers as part of their supplier development programs. Contract farming has the ability to solve many of the issues of small scale farmers. The contract model framework can be used to provide a structure in setting up a contract farming operation. It provides the benefit of learning from the mistakes that other companies have made. It is further recommended from a national level that the tribal land transfer mechanism be re-evaluated to establish a system of land transfer. This land transfer must be to empower and incentivise small land owners to grow their businesses and reach their enormous economic potential. This is viewed as critical to the long term success of agriculture - not only in South Africa but also in the wider region.

This research supports vertical integration as a mechanism to reduce transaction costs. It also goes further in determining that a reduction in transaction costs is a key driver in the participation of small scale farmers in contract farming systems. It is recommended that future research focus

on establishing at which optimal level the savings in transactions costs be shared within the system, and between whom. If the level of sharing can be determined it can be used by practitioners as guide to setup a more effective contract farming system. It will also advance the academic field of transaction costing and how to apply it.

It is also recommended for future research that the contract model framework proposed be tested to empirically validate the model. This research can be furthered by testing the relevant strengths of the various linkages in the contract framework model. This will advance the academic field of contract farming and enable practitioners of contract farming to apply the framework more effectively.

In conclusion contract farming is a growing trend worldwide and it presents small growers with an enormous opportunity to actively partake in commercial food supply chains. At its heart is the comparative advantage that small growers have in micro managing their land to achieve optimal yields and quality characteristics. By empowering small growers, using local service providers and spending the money in the community, enormous economic upliftment can be achieved - to the benefit not only of the farmer, but for us, our communities and our children.

Appendix A - References

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Appendix B – Interview frame

QUESTION	PURPOSE
How long has your business been involved in contract farming?	General understanding
How big a part is contract farming as a % of your total input supply? Sub: How many SCF do you have in the system? Hectares?	General understanding
How does your model work? Sub: How does the financing work? Sub: How does the farmer input side work? Sub: How do the output quality, price and quantity system work? Sub: What does a contract typically look like?	General understanding and Prop1&2: Market linkage and Transaction Costs
What is the benefit for you? Sub: Why do you do it?	Prop1&2: Market linkage and Transaction Costs
What is the benefit to the SCF? Sub: Why do they do it? Sub: How do the supplier inputs work?	Prop1&2: Market linkage and Transaction Costs
What makes this model a success? Sub: how do you prevent moral hazard?	Prop1&2: Market linkage and Transaction Costs
Looking back over the years, do you see increases in productivity from your SCF? Sub: Are there skills transfer in your opinion?	Prop3: Productivity Increase
To what extent is the model enabling for poverty reduction in the community?	Prop4: Inclusive business model
How do you interact with the community – who are the key stakeholders	Prop4: Inclusive business model
In terms of different crops – for what crops do you think this will work? Sub: What about consumable vs. non-consumables?	Prop5: Different crops
Anything else that you think is relevant? Do you think it is sustainable in the long run? Do you think without external development funding SCF will stay in production?	General