Effectiveneness of a contract farming arrangement: A case study of tobacco farmers in Mazowe district in Zimbabwe

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Declaration

I, Moses Moyo, declare that the entire body of work contained in this research assignment is my own, original work; that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

M. Moyo 31 October 2014
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Abstract

The welfare maximisation effect of contract farming is well documented (Minot, 1986) and the scheme is endorsed by the New Economic Partnership for Africa's Development (NEPAD) as a panacea for alleviating poverty in Africa and for the development of agriculture in general. In this research assignment an evaluation of contract farming arrangement in the Mazowe district of Zimbabwe sought to establish the effect of the arrangement using a comparative study of contract and non-contract farmers. Using data from the Tobacco Industries and Marketing Board (TIMB) an analysis of variance was undertaken to determine if there was a significant difference between the two groups in terms of prices received for tobacco and production. A survey was conducted to test the characteristics of the two groups to help explain the findings. The results show that contract farmers performed better than non-contract farmers in terms of production, contract farmers had access to inputs, extension services and finance which could explain their better performance. However, there was no significant difference in the prices received by the farmers.

The difference in performance can be explained by access to farming resources suggesting that provision of sound infrastructure and public goods could further improve the livelihoods of farmers, both contract and non-contract. Contract farmers only accessed operational finance without infrastructure and patient finance to back up their agricultural production. Government can improve agricultural production through better policies on land tenure, contract enforcement and risk management framework issues which were found lacking.

Key words

Contract farming, analysis of variance, chi-square, welfare

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AFC	Agricultural Finance Corporation
AGRA	Alliance for a Green Revolution
ANOVA	analysis of variance
ASPEF	Agricultural Sector Productivity Enhancement Facility
CAADP	Comprehensive African Agricultural Development Programme
CF	contract farming
COTTCO	Cotton Company of Zimbabwe
FAO	Food and Agricultural Organisation
GDP	gross domestic product
Gvt	government
IFC	International Finance Corporation
IFPRI	International Food Policy Research Institute
MAMID	Ministry of Agriculture, Mechanisation and Irrigation Development
MTP	mid-term plan
NEPAD	New Economic Partnership for Africa's Development
SAGCOT	Southern Agricultural Growth Corridor of Tanzania
STERP	short-term recovery programme
TIMB	Tobacco Industries and Marketing Board
TRB	Tobacco Research Board
USA	United States of America
WHO	World Health Organisation
ZIMACE	Zimbabwe Agricultural Commodity Exchange
ZimStat	Zimbabwe National Statistics Agency
ZTA	Zimbabwe Tobacco Association

CHAPTER 1
INTRODUCTION

1.1. INTRODUCTION

The fast-track land reform process resulted in increased small-scale farmers' participation in cash crop production and involvement in lucrative value chains. Tobacco, Zimbabwe's traditional and major export crop, had the largest increase from 8 537 farmers in 2000 to 60 047 farmers in 2012 (TIMB, 2012). The increased demand for tobacco by emerging markets like China compensated for the slackening demand in traditional European markets. Tobacco production was the preserve of few large-scale commercial farmers who were well resourced in terms of assets and finance which resulted in production topping 230 million kilogrammes in 2000. However, increased tobacco production uptake by small-scale farmers was followed by declining yields (Leaver, 2004). Participation of small-scale farmers in agricultural value chains is hindered by lack of 'production resources', credit constraints, low use of technology and market imperfections that impedes farmers' access to markets (Minot, 1986). Only about one percent of formal bank credit goes to the farming sector due to perceived risks and transaction costs associated with lending to this sector (International Finance Corporation (IFC), 2012).This credit is likely to benefit established large-scale commercial farmers. In Zimbabwe, economic meltdown and an unfinished land reform agenda resulted in resettled farmers experiencing severe constraints in accessing agricultural markets and finance.

About 70 percent of Africa's population live in rural areas and nine out of ten depend on agriculture for livelihood (IFC, 2012), yet agriculture production is low in sub-Saharan Africa (Binswanger & Townsend, 2000; Olomola, 2010). This is due to poor rainfall, poor extension services, lack of credit and low use of technology. As a result, African small-scale farmers have failed to take advantage of the booming demand for quality agricultural produce by food processors and consumers alike. Information asymmetry problems, infrastructure and land tenure systems that do not pass title to communal farmholders have negatively impacted on the use of land as collateral when farmers seek credit to finance agricultural operations (Baumann, 2000; Richardson, 2005). The International Food Policy Research Institute (IFPRI, 2005) has been propagating for the creation of an enabling environment which would help solve problems faced by small-scale farmers and at the same time attract investment to agriculture. One such mechanism is the development of value chains involving farmers, agribusinesses, agro-industries and financing institutions. Due to the unique nature of problems faced by communal farmers, contract farming has emerged as an alternative source of finance and marketing channel for their produce.

Contract farming is viewed as a panacea to poverty reduction and to improved well-being of the small-scale producers who are predominantly rural peasants contracted to produce for large

processing firms (World Bank, 2008). Olomola (2010) noted that contract farming "is a major agrarian institution" which is "capable of removing market imperfections in produce, credit, land, labour information and insurance markets". Farmers in less developed countries face severe credit constraints – a gap contract farming (CF) helps fill, and through vertical coordination with agribusinesses, smallholder farmers have access to new technology. CF provides credit in the form of inputs, extension services and markets for produce, hence its potential to raise production, incomes and fight poverty for Africa's rural poor (Minot, 2011; Bijman, 2008).

According to Minot (2011), five percent of sub-Saharan African farmers are involved in CF, suggesting that uptake and access to farming contracts might be constrained by supply or demand factors. Poorly resourced rural peasants with limited assets and information on contract farming might face exclusion as contracting firms favour a few rich farmers in these communities. If the poorest small-scale farmers are excluded, then the impact of CF on inequality and poverty reduction through increased productivity and income effect is debatable. Yet, CF has the capacity to provide additional financial resources to small-scale farmers that depend on informal sources of finance which "has led to the promotion of cash crops and thereby commercialisation of agriculture" in Africa (Von Braun *et al*., 1989 cited in Senanayake, 2008); Kennedy, 1989). The World Bank (2008) strongly recommends that CF and farmer organisations are the future of agriculture and its access to markets with the subsequent effect of reducing poverty in rural communities. NEPAD believes contract farming should be given priority as a tool for agricultural development. Rehber (1998) and Olomola (2010) looked at CF from an institutional point of view and reckoned it would lead to improved agricultural productivity. The key issue is access to finance and markets which should lead to improved productivity for the poor peasants in rural areas and subsequent mutual benefit arising from the contractual arrangement.

All over the world contract farming has grown in leaps and bounds. In Mozambique, Malawi and Zambia, cotton and tobacco are 100 percent on contract. Leading tobacco leaf producers like Turkey, the United States of America (USA), Brazil and China also finance farmers through CF. However, production in these countries has been on the decline due to health concerns and pressure from tobacco lobbyists and litigation. This increase is also a push from anti-tobacco lobbyists like the World Health Organisation (WHO) which is concerned about the use of child labour and the health consequences thereof (Baris, Brigden, Prindiville, Da Costa e Silva, Chitanondh & Chandiwana, 2000). In most African countries, communal farmers use household labour for farm activities – a vice the International Labour Organisation is trying to eradicate. There is also a need for traceability on the origins of the tobacco crop to ensure quality of the crop through use of recommended quality inputs free from forbidden chemicals and fertilisers. Contract farming has been practised in Zimbabwe for a long time for such crops as tea and cotton. Certain schemes like the sugarcane production in Triangle were operated as out-grower schemes

(Woodend, 2003). When the fast-track land reform started in 2000, the government attempted to spearhead various contract farming arrangements but with little success (Woodend, 2003).

Tobacco contract farming started in Zimbabwe in 2004 (Dawes, Murota, Jera, Masara & Sola, 2009), at a time when tobacco finance and production were declining. The advent of the chaotic and violent land reform in 2000 was followed by an increase of tobacco farmers from 8 537 in 2000 to 60 047 in 2012 (TIMB, 2012), who inherited a vandalised tobacco infrastructure which compromised the quality and quantity of tobacco on the auction floors. New tobacco communal farmers with no collateral and expertise in tobacco production could not access finance from commercial banks that traditionally financed the tobacco crop. Further information asymmetry problems in a declining economy led to extensive credit rationing to the unbanked communal farmers. Tobacco production fell from a high of 237 000 kilogrammes in 2000 to 48.7 thousand kilogrammes in 2008 (TIMB, 2012; Dawes *et al*., 2009).

Shortages of inputs, technical know-how and finance were cited as the major reasons for the decline. Tobacco production is capital intensive, requiring specialised inputs and technology use for a quality crop which can fetch better prices on the auction floors and foreign currency from subsequent exports. It was believed that contract farming sponsored by tobacco merchants would provide small-scale farmers with the necessary inputs and capital leading to improved productivity, foreign currency earnings and income. According to CF theory and findings elsewhere in the developing world, this arrangement could potentially lead to both parties benefiting (Minot, 1996) and yet, dissenting arguments point to an exploitative relationship (Simmons, 2002; Birner & Resnick, 2010), which calls for the development of a well-informed policy to guide the process.

For the Zimbabwe government, an intervention to boost tobacco production became an urgent matter given that tobacco is the leading export crop and contributes 25-30 percent of export earnings and 8.2 percent to gross domestic product (GDP) (Tekere, 2003; FAO, 2003). Additionally, 33 percent of the labour force is employed in this sector. Severe budgetary constraints and lack of donor support meant that agriculture infrastructure and finance was poorly supported and hence the need for an integrated financing model. Since the advent of liberalisation of the economy in 1990 and land reform in 2000, there has been very limited research to inform policy formulation and hence government is now taking initiative to engage consultants on contract farming (Mandizha, 2013; Dawes *et al*., 2009). Additionally, tobacco production does not receive attention from donors given its documented health hazards and anti-smoking campaigns worldwide. It was the objective of this research study to assess the effectiveness of this contract farming arrangement in addressing productivity, and the uptake of tobacco farming and its effect on the income of the farmers.

1.2. PROBLEM STATEMENT

CF in theory is seen as a major institutional intervention in the provision of finance to communal farmers for them to increase productivity and quality of their crops thus increasing their on-farm incomes and moving out of poverty. The major challenge is access to contracts and relations of the parties which are seen as exploitative of the poorly resourced small-scale farmers. This tends to affect the poor farmers' income through low contract prices and marketing-related costs. Yet, others argue that productivity, product quality and access to markets greatly improve under contract farming. As discussed elsewhere in this paper, contract farming in tobacco is a new phenomenon in Zimbabwe, with no specific policy in place to guide its implementation – yet the industry is highly regulated. Research in this field has focused on efficiency issues in general (Gadzirayi & Foti, 2008) and very little on the specific effect of contract farming on tobacco communal farmers' income. Tobacco is a major export and foreign currency earner and employer, and contributes 8.2 percent to GDP. There is need for research to inform policy on production and marketing of the tobacco crop by small-scale farmers who are now the major players after the 2000 land reform programme. A well-defined operating environment guiding players in the tobacco industry will solve constraints indicated in the conceptual framework (Figure 1.1), leading to better outcomes for all parties involved.

CF arrangements involve the institutional players like government, and regulator and contracting firms that interact with tobacco communal farmers to create an environment that remedies problems of market access, finance and extension services so as to increase yields and income for the farmers as depicted above. Again, it is critical to assess whether CF provides financial additionality to the sector.

1.3. RESEARCH QUESTIONS

Is contract farming an alternative financing model for the tobacco crop in Zimbabwe?

Can contract farming improve productivity, income and uptake of tobacco production by small-scale farmers?

1.4. OBJECTIVES OF THE STUDY

The objectives of this study were to:

- to compare and explain the differences in productivity, income and yields of tobacco contract and non-contract farmers in the Mazowe district;
- investigate the impact of contract farming on farmers' income and productivity;
- examine if CF arrangements provide additional sources of finance leading to increased uptake of tobacco production by farmers in the Mazowe district of Zimbabwe;

- investigate whether there is an increase in the number of farmers on contract or whether hectarage has increased significantly over the years;
- provide recommendations on ways of strengthening contract farming arrangements in Zimbabwe.

To achieve this, the researcher specifically tested the following hypotheses:

- Contracted farmers have higher output and income from tobacco crop than the non-contract farmers.
- Extension and technical services offered to contract farmers lead to increased output.
- Productivity/yields of farmers under contract are higher than those out of contract.
- Farmers under contract produce quality crop that attract better prices than those out of contract.
- Credit, through input schemes and working capital leads to increased uptake of tobacco production.

Achieving these objectives will inform the design of policy and implementation of same for the mutual benefit of tobacco farmers and merchants. It will define CF players' relations and raise issues to be looked at if contract farming is to be pro-poor. There is currently a legal framework and policy vacuum in the area of contract farming in Zimbabwe and this research study will help policy makers create an enabling environment.

1.5. LITERATURE REVIEW

The emergency and growth of CF (for small-scale farmers) is a response to market failures to allocate productive resources to all sectors of the economy due to perceived information asymmetries (Freguin-Gresh, Anseeuw & D'Haese, 2012). The small-scale farmers are perceived to be risky because they lack assets, collateral, and skills and training to produce cash crops. To alleviate these problems, government, contractor and the regulator each play an important role in mitigating the constraints. Contract farming is an intervention that can alleviate imperfect market constraints by improving information flow about markets, technology and other production resources. Small-scale farmers are mainly vulnerable as they do not have access to credit due to lack of collateral, and the level of human capital in this sector is low, thus affecting their uptake of technology use.

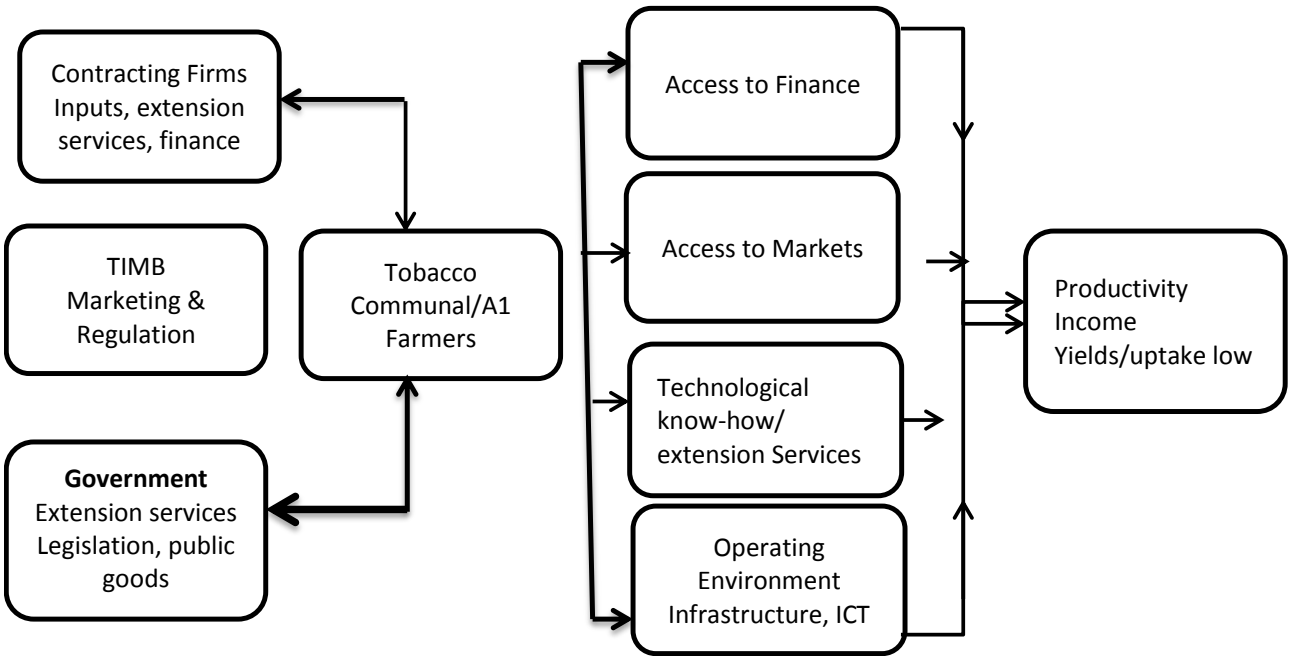

Figure 1.1: Tobacco contract farming conceptual framework

Source: Author's own design.

Governments in less developed countries also lack the capacity to provide support services and as such contract farming is seen as providing some of these services. Simmons (2002) argued that contract farming can directly benefit farmers through improved access to markets, credit, inputs and better use of technology, thus improving their productivity and income. Agribusiness and farmers can also share both production and marketing risks, while also providing employment for the family and the surrounding community. This way, the standard of living of the community will improve. CF is believed to ease information asymmetry problems, which tends to improve farmers' credit worthiness and hence access to financial services from other players. In a broader sense, it has capacity to create direct and indirect finance additionality for farmers' operations or create an environment for farmers to access other means of capital to finance farm assets and infrastructure.

Figure 1.1 is a contract farming conceptual framework, depicting the players involved, and the problems or issues involved if productivity and income are to increase. Contract farming is an intervention which arises because of information asymmetry problems in agricultural markets, which tends to increase the costs of doing business and at the same time affects productivity in the sector.

As shown in Figure 1.1, tobacco farmers are at the centre of this problem, which affects their access to finance, markets and services as depicted on the right. Williamson (1979) argued that firms face high transaction costs due to opportunism and screening of information in trying to contract with farmers, hence the need for government to create an enabling operating environment that reduces the costs of doing business. Wu (2006) argued that 'economic distortions and contract

imperfections' necessitate government intervention to try and improve the operation of the markets. There is general consensus in contract farming literature that poor smallholder farmers have low bargaining power if compared with the well-resourced profit-seeking firms (Wainaina, Okello & Nzuma, 2012), thus necessitating protection from government.

As discussed above, government lacks the capacity to support farmers, yet it is concerned about poverty alleviation and growing the economy through farmers' efforts. Again, the land tenure system in Zimbabwe is fraught with uncertainties which increase the risks faced by firms when dealing with A1 farmers. The government, through TIMB, attempts to provide an enabling environment for farmers and firms to contract so that there is increased economic activity and higher productivity at the end of the chain.

1.6. JUSTIFICATION OF THE STUDY

The purpose of this research study was to gain an understanding of CF in Zimbabwe, its impact on the productivity of tobacco farmers, and the marketing of the crop by communal producers in the Mazowe district. Understanding this CF arrangement will shed light on policy development to aid in increasing production of tobacco. This will improve the life and welfare of the poor communal farmers while at the same time increase foreign currency earnings for the country. Tobacco production has been characterised by health concerns and environmental degradation in communal areas because farmers lack proper inputs and energy sources. It is therefore important to understand the effect CF can have on increasing farmers' welfare while at the same time mitigating these problems. The critical point is that an enabling environment must be found for the optimal production of tobacco to the benefit of all concerned. One such mechanism is contract farming which was investigated for this research study.

CHAPTER 2

BACKGROUND TO THE STUDY

2.1. INTRODUCTION

The Zimbabwean economy shrunk by 40 percent between 1998 and 2008, while at the same time registering unprecedented inflation levels of 231 million percent (Government of Zimbabwe, 2011a; Government of Zimbabwe, 2009). The economic decline followed the fast-track land reform programme in 2000, which was aimed at redistributing land to marginalised blacks. However, the process was devoid of planning, which was the basis of the success of earlier programmes. Agriculture provides about 60 percent of raw materials used in manufacturing and hence the economy declined during bad agricultural years (Bautista & Thomas, 2006; Tekere, 2003). The fast-track land reform programme was unpopular with the donor community and investors. Zimbabwe was subsequently placed under sanctions by Western countries and its membership of the Bretton Woods institutions was suspended. The loss of budgetary support, access to credit and loss of investor confidence all led to spiralling inflation, foreign currency shortages and economic meltdown.

2.2. OVERVIEW OF THE ZIMBABWEAN ECONOMY

The Zimbabwe government inherited a diversified and modern but dualistic economy in 1980, with about 75 percent of the population living in rural areas and dependent on subsistence agriculture for livelihood and poor urbanites, relying on informal activities for survival (Tekere, 2003). Various policies were put in place to correct this inequality, starting with the growth with equity policy (World Bank, 1995). The growth with equity policy was based on land redistribution and focused on the resettlement of landless blacks. Early resettlement efforts based on the Lancaster House Agreement of 1979 were a success and farmers improved their welfare and asset holdings compared to their counterparts in communal areas (Deininger, Hoogeveen & Kinsey, 2002). Resettled families significantly improved their welfare, due partly to having access to farming inputs and services (World Bank, 1995). Resource scarcity and the requirements of the Lancaster House Agreement, limited the land redistribution exercise which was supposed to be based on a willing seller-willing buyer basis (Palmer, 1990; Moyo, 2004). However, despite the limited redistribution of land, the economy continued to grow at an average of 4.3 percent in the 1980s (Richardson, 2005).

Exchange controls limited the growth of the manufacturing sector; however, after trade liberalisation and the economic structural adjustment programme of 1990, exports almost doubled – led by improved agricultural exports, particularly tobacco (Table 2.1). Manufacturing started declining in the 1990s, due mainly to competiveness problems following trade liberalisation. In the 2000s, the economic meltdown was exacerbated by low productivity of the agricultural sector

which was necessary as provider of raw materials for the manufacturing sector. The shrinking of the economy worsened the unemployment problem as jobs continued to be lost in the formal sector. The manufacturing sector was operating at ten percent of normal capacity in 2012, due to a shortage of raw materials and dilapidated industrial infrastructure (Government of Zimbabwe, 2011b). This pushed economically active people back to the informal sector and agriculture with limited farming resources.

The dollarisation of the economy helped stabilise the economy, reducing inflation to single digits and the economy growing by 6.3 percent in 2009, economic growth averaged 9.5 percent between 2009 and 2011 (Government of Zimbabwe, 2013), this growth was based on very low economic base. Liquidity remained the major challenge facing the economy with Bretton Woods institutions refusing to provide financial assistance and investors remaining sceptical about the new developments in Zimbabwe.

Table 2.1: Zimbabwe economic performance 1980-2012

Economic indicator	1980-1990	1991-2000	2001-2006	2009	2010	2011	2012
Exports as % of GDP in final year of period	23.00	43.00	24.00	22	37.4	42.9	32.7
Manufacturing as a % of GDP	20.35	17.70	16.89	16.3	13.7	18.0	16.8
Agriculture as % of GDP	16.20	14.90	17.00	17.2	16	15.6	14.7
Mining as % of GDP	4.30	4.30	4.00	8	10	10	11
Government debt to GDP %	-	65	80	121.	131	94	151

Source: Government of Zimbabwe, 2011a; Trading Economics, 2014.

2.3. AGRICULTURE IN ZIMBABWE

Agriculture is the cornerstone of the Zimbabwean economy, contributing significantly towards the rural economy as well as the manufacturing sector. In the past three decades, agriculture has been transformed from its dual nature in 1980 to a situation where production is now dominated by the previously marginalised blacks. The transformation has changed land ownership structure with major consequences for on-farm investment and productivity, production patterns of cash crops and livestock issues that are discussed in this chapter.

2.3.1. Developments in the agriculture sector since 1980

According to Bautista and Thomas (2006), agriculture contributes 16-20 percent to GDP, absorbs 70 percent of total employment, contributes 40-45 percent of merchandise exports and provides about 60 percent of raw material to the manufacturing sector. They further argued that the low contribution to GDP only reflects the poor prices paid to farmers. In the 1980s and 1990s, agriculture was characterised by a vibrant commercial sector operating alongside a subsistence-

based rural sector. Commercial farmers dominated cash crop production until about 2000 when the fast-track land reform programme started. Angela Cheater (1978) noted the anomalies and skewed land holdings in the then Rhodesian government and suggested that there was a need for review of the system so as to accommodate marginalised landless blacks. She argued that this would reduce overcrowding and improve blacks' livelihoods.

As shown in Table 2.2 below, most of the fertile arable land was in the hands of 4 500 white commercial farmers, while blacks occupied land with little commercial potential. As a result, a dual agricultural system arose with blacks producing for subsistence. Research has shown that land tenure systems are important in alleviating poverty and improving the welfare of the landless (Zhikali, 2008; Deininger *et al*., 2002). Government sought to correct this anomaly by implementing a land redistribution exercise along the Lancaster House Agreement framework.

Table 2.2: Changes in the national distribution of land

Farmer category	1980		2000		2010		
	Million hectare	%	Million hectares	%	Million hectares	%	Number of farmers
Communal	16.4	41.9	16.4	41.9	16.4	41.9	1 100 000
Old resettlement	0.0		3.5	9.0	3.5	9.0	72 000
New resettlement A1	0.0		0.0		4.1	10.5	141 656
New resettlement A2	0.0		0.0		3.5	9	8 000
Small-scale commercial farms	1.4	3.6	1.4	3.6	1.4	3.6	14 072
Large-scale commercial farms	15.5	39.6	11.7	29.9	3.4	8.7	4 317
State farms	0.5	1.3	0.7	1.8	0.7	1.8	
Urban land	0.2	0.5	0.3	0.8	0.3	0.8	
National parks and forest land	5.1	13.0	5.1	13.0	5.1	13.0	
Unallocated land	0.0		0.0		0.7	1.8	

Source: Government of Zimbabwe, 2013.

As shown in Table 2.2 above, in 1980, 15.5 million hectares of fertile arable land was in the hands of 4 500 large-scale commercial farmers, while landless blacks occupied 16.4 million hectares of less potential agricultural land for subsistence production. Even before independence, Cheater (1978) argued that this situation was untenable. She proposed that blacks should be allowed to hold land title to improve productivity as well as correct the skewed land holdings. Moyo and Nyoni (2013) also noted the need for the marginalised blacks to access land for them to move out of poverty. It was in this spirit that in 1992, the Zimbabwe government enacted the compulsory Land Acquisition Act to speed up land acquisition and fight poverty.

Earlier resettlement efforts in the 1980s were hugely successful because of support from government, British aid and donors, which resulted in small-scale farmers being the major suppliers of staple crops and cash crops like cotton (Deinegner *et al*., 2002). Agriculture grew by 3.5 percent in these early years (World Bank, 1995). The effective coordination in agriculture led Bautista to note that 'an effective land reform' process coupled with complementary government policy can increase incomes for small-scale farmers and achieve the growth with equity objective. The successes in the 1980s regarding resettlement were not replicated in the 1990s due to budgetary constraints and decreasing donor support and aid from Britain. Small-scale farmers, including resettled farmers, were left exposed to the vagaries of the imperfect agricultural markets after government drastically reduced 'support for smallholder agriculture' (World Bank, 1995).

2.3.2. The 2000 fast-track land reform

The war of independence was anchored on the need to redistribute land to blacks who occupied low potential agricultural land and were said to be marginalised by the white minority who occupied most of the prime agricultural land. It is in view of this that land reform was part of a negotiated settlement of the Lancaster House Agreement, in which Britain was expected to contribute to resettlement of marginalised black communal farmers. About 50 000 families were resettled by 1990 when the Lancaster House Agreement expired (Leaver, 2004). These resettled farmers had access to finance and other support services which contributed to improved productivity on these farms. Some of the resettlement programmes were hailed as success stories and a model to be followed for development purposes.

In 1990, the Lancaster House Agreement expired leaving the Zimbabwean government to decide on the future and path of the land reform process. In 1992, the Land Acquisition Act was passed and it empowered the government to compulsorily repossess land from whites without compensation. Under pressure from a declining economy, labour unrest and pressure from the opposition government listed 1 471 farms for compulsory acquisition in 1998, but no action was taken to implement the decision (Moyo, 2004).

After the referendum of 2000 which the government lost, sporadic and violent farm invasions started, led by war veterans, and destroyed most of the farming infrastructure. By 2008, 148 656 families (Table 2.2) were resettled on former white commercial farms which were parcelled out into smaller plots referred to as A1 and A2 schemes. While most blacks were allocated land under the programme, there were no land titles, infrastructure, extension services and finance to support the new farm beneficiaries. Consequently, agricultural production went on a downward spiral. Richardson (2005) contended that poor agriculture policies and not drought, were key factors resulting in the economic turmoil experienced by Zimbabwe in the 2000s. Richardson further contended that the loss of property rights by displaced farmers and new occupants did not provide an incentive for farm improvements. Delgado (2006) emphasised the need for supporting small-

scale agriculture beyond mere market reforms through effective institutions that create opportunities for the farmers. Failure by government to provide public goods and a supportive environment could have contributed to low productivity by the resettled farmers during the fast-track land reform programme.

While land reform is a necessary starting point in empowering landless peasants, it can only be successful if agricultural markets are operating efficiently and public goods are provided for. The land reform was meant to empower the landless blacks but throughout the reform process women have been marginalised with only 18 percent benefiting from the fast-track land reform programme; 15.2 percent were allocated land under the A2 scheme and 19 percent are in large-scale farms (Government of Zimbabwe, 2013). The government is now making a belated attempt to correct this through the Agriculture Sector Gender Strategy Policy (Government of Zimbabwe, 2014).

2.3.3. Agriculture production

The land reform process changed both the land holding and production of major crops in Zimbabwe. There has been a shift whereby smallholder farmers (communal, resettled and small-scale) are now the major producers of all categories of crops as shown in Appendix 1. However, smallholder farmers have low yields due to low use of fertilisers and other farming implements. Agricultural productivity has been constrained by lack of resources which generally led to a decline in fertiliser use by farmers resulting in reduced yields since the beginning of the land reform (Figure 2.1).

Figure 2.1 shows that fertiliser use has been on the decline, reaching an all-time low in 2008 at the peak of the economic crisis. Recovery has been slow due to lack of credit and budgetary support from government. Donors who supported government agricultural programmes in the 1980s and 1990s also withdrew finance for A1 and A2 programmes, further reducing inputs to agriculture. Low budgetary allocations to agriculture meant that on-farm support and extension services were compromised. Figure 2.1 shows trends in yields for food security crops which also declined in sympathy with the decline in use of fertilisers and poor extension services to farmers. The low use of fertilisers was also compounded by falling production of fertilisers due to price controls which made production unprofitable. Price controls and involvement of government in the inputs market through various schemes also led to distortions in the supply of fertilisers to farmers, with delays in supply being a common occurrence (FAO, 2006).

Government input support schemes were misused and more often reached beneficiaries late in the planting season. As shown in Table 2.3 below, small-scale farmers are the most affected as their consumption of fertiliser is very low. The Food and Agricultural Organisation (FAO, 2006) estimates that about 20 percent of small-scale farmers use fertilisers due to underdeveloped input markets, lack of finance and risks posed by poor rainfall. All of this leads to low yields from this sector, yet it is becoming the major player in the production of both cash and staple crops.

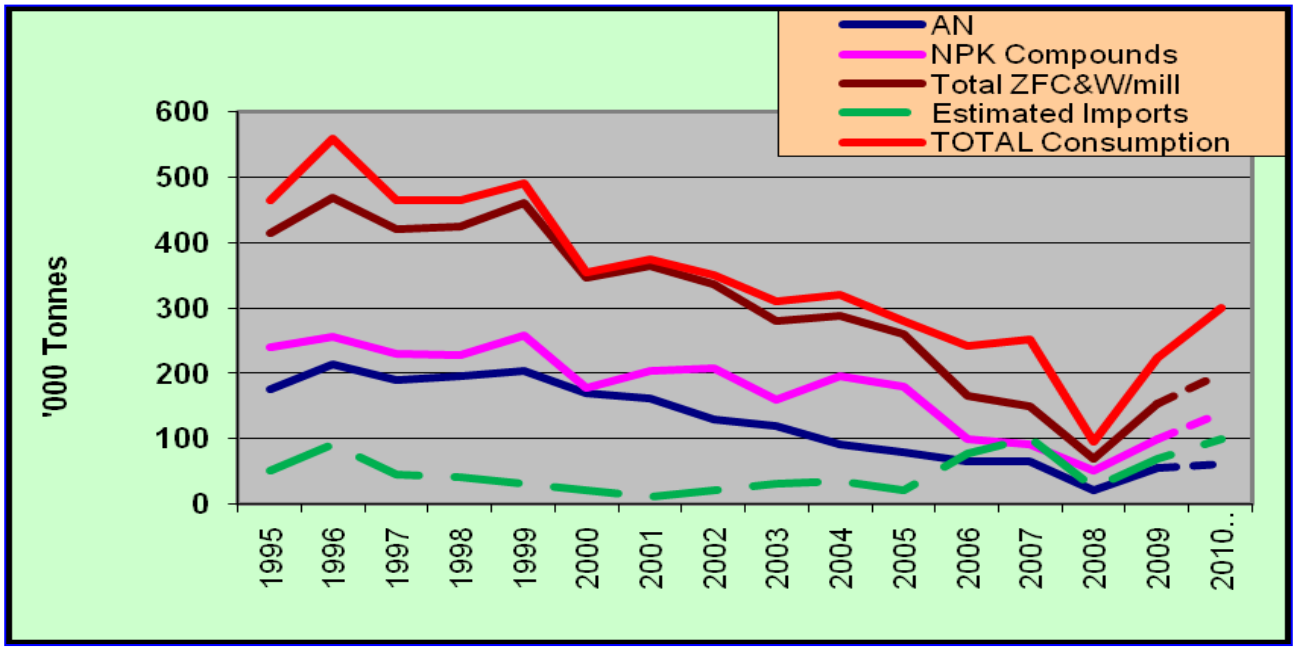

Figure 2.1: Fertiliser use and production trends

Source: MAMID, 2013b.

Table 2.3: Fertiliser market and application by sector

Subsector	% of market	No. of farmers	Average order in tonnes	Average application (kgNPK/ha)
LSCF	81	2 500	185	290
Communal	17	850 000	0.1	15
SSCF	2	12 000	0.8	33

Farmers are further constrained by shortage of farming equipment and viable tillage programmes necessary for the full utilisation of the newly acquired farmers under the A1 and A2 schemes. As shown in Table 2.4, farm implements are far below the number of farmers involved in crop and animal production in Zimbabwe. Further farm infrastructure was severely damaged during the land reform programme, thus further reducing productive capital stock in the country (Richardson, 2005).

However, the data in Appendix 1 shows that smallholder farmers have made significant inroads into the production of cash crops which were previously the preserve of large-scale commercial farmers. To improve productivity, the farmers will need considerable support in terms of technology transfer, extension services and financial assistance.

MAMID (2013b) estimated that 70 percent of the farm labour force are women A further 61 percent of farmers are women who are actively involved in the production and processing of staple crops

which are critical for food security and poverty reduction (FAO, 1995). However, women have difficulties accessing modern equipment and instead rely on traditional methods like hoes for weeding which reduces their productivity (FAO, 1995). Women also do not benefit much from government production schemes and normally have difficulties accessing financial resources for their agricultural activities. For instance, of the 121 927 short-term loans advanced to farmers in 2010, eight percent went to communal farmers and only one out of every four recipients was a woman (Zimbabwe National Statistics Agency (ZimStat), 2013).

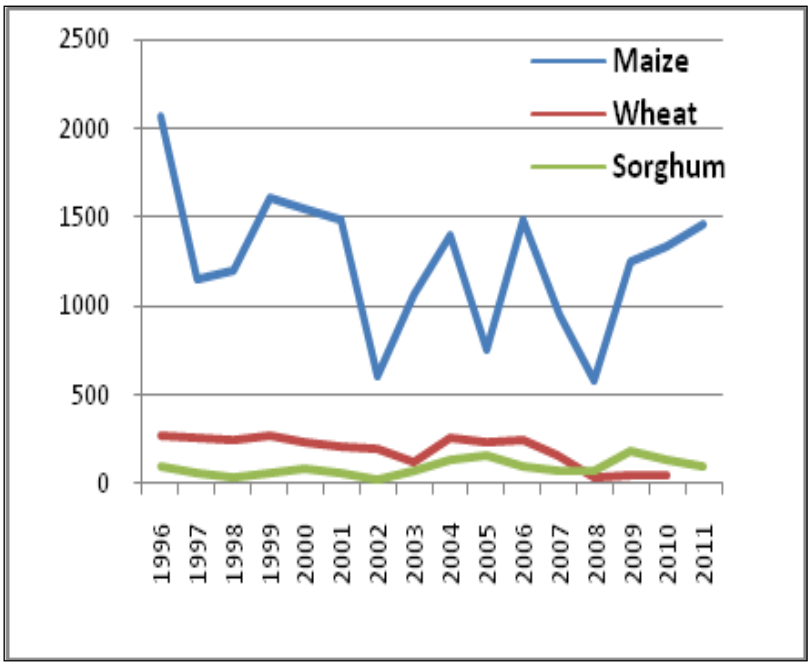

Figure 2.2: Crop production trends

Source: MAMID, 2013b.

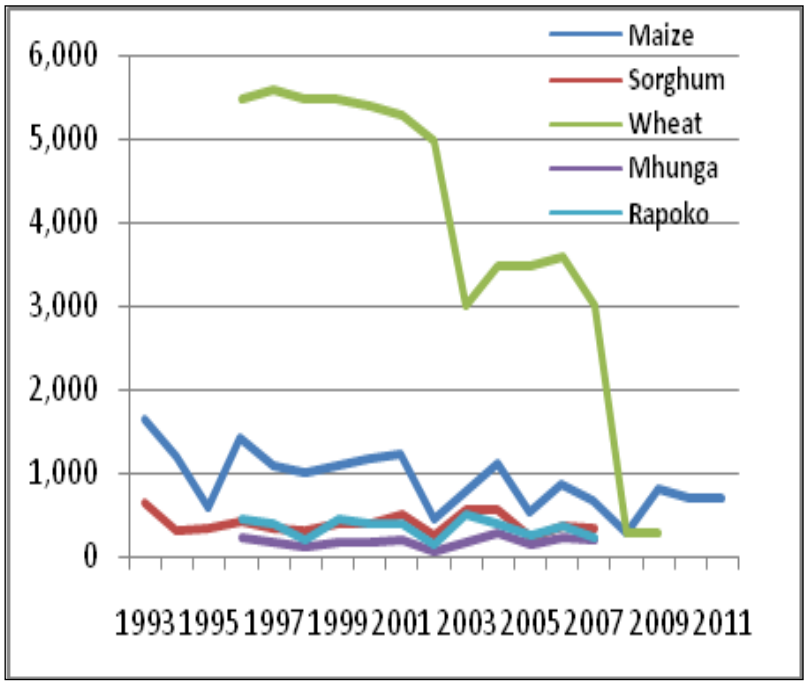

Figure 2.3: Average yields: staple crops

Source: MAMID, 2013b.

Irrigation infrastructure is also needed to support the production of winter crops and horticulture crops. As already indicated, the stock of farm infrastructure, implements and equipment (Table 2.4) is very low compared to the number of farmers, yet this is important for the revival of the agricultural sector. This calls for substantial investment in agriculture by both government and the private sector to improve this stock, and this is the prime reason the government is advocating contract farming as a strategy to boost agricultural production.

Table 2.4: Farm equipment by sector

Equipment/sector	LSCF	SSCF	A2	A1	OR	Communal	Total
Tractor< 50hp	558	168	1 146	455	88	604	2 271
Tractor 50-119 hp	1 549	300	4 862	1 081	196	1 486	6 730
Tractor>120hp	544	171	2 273	338	155	583	3 016
Animal drawn ploughs	0	12 657	14 140	12 133	82 952	815 713	1 046 796
Animal drawn cultivators	0	7 446	6 951	30 932	26 633	168 481	240 443
Animal drawn planters	0	1 509	850	2 248	1 709	6 857	13 173
Animal drawn harrows	0	6 520	5 566	25 809	19 288	131 038	188 221
Animal drawn scotch carts	0	6 733	7 154	64 129	44 595	350 654	473 265
Animal drawn water carts	0	679	902	3 684	1 219	15 046	21 430

Source: Adapted from ZimStat records, 2013.

Zimbabwe is divided into five agricultural regions in line with rainfall patterns and soil profiles. Table 2.5 below is a summary of the area, rainfall and crops produced in each of the five regions. Zimbabwe's staple crop is maize and as such communal farmers even in those regions not suitable for maize production do produce maize. The situation was made worse by the land reform programme as people resettled in areas previously reserved for conservancies and more suitable for tourism like in regions four and five. According to TIMB, farmers in region 3, 4 and 5 are also involved in tobacco production, even though the areas are not suitable for the crop. This has resulted in low yields and threats to food security. Additionally, this compromises planning in terms of extension services and resource allocation to support the farmers. Financial constraints and lack of knowledge have also prevented farmers, resettled in areas like conservancies, from undertaking tourism activities and benefiting from the high-income potential activities.

Table 2.5: Zimbabwe's production by regions, rainfall patterns and crops

Natural region	Area (000 ha)	% of total land area	Annual rainfall (mm)	Farming systems
I	613	1.56	>1000. Rain in all months of the year, relatively low temperatures	Suitable for dairy farming, forestry, tea, coffee, fruit, beef and maize production
II	7 343	18.68	700-1 050 rainfall confined to summer	Suitable for intensive farming. Based on maize, tobacco, cotton and livestock
III	6 855	17.43	500-800. Relatively high temperatures and infrequent, heavy falls of rain and subject to seasonal droughts and severe mid-season dry spells	Semi-intensive farming region. Suitable for livestock production, together with production of fodder crops and cash crops under farm management
IV	13010036	33.03	450-650. Rainfall subject to frequent seasonal droughts and severe dry spells during the rainy season	Semi-extensive region. Suitable for farming systems based on livestock and resistant fodder crops. Forestry, wildlife/tourism
V	10 288	26.2	<450. Very erratic rainfall. Northern low veldt may have more rain, but the topography and soils are poor	Extensive farming region. Suitable for extensive cattle ranching. Zambezi Valley is infested with tsetse fly. Forestry, wildlife/tourism

Source: FAO, 2006.

2.3.4. Financing agricultural production

Historically, agriculture was financed through commercial bank loans because large-scale farmers held title deeds to their land which could be used as collateral. Given the importance of agriculture to the economy, government-owned development banks like the Agricultural Finance Corporation

(AFC) (established in 1924) provided credit to farmers, and by 1970 the bank was financing African smallholder farmers with land titles (Makina, 2009). At independence, the bank's mandate was broadened to include communal farmers with no collateral to back up the loans and interest rates were subsidised by government. Loan repayments by small-scale farmers were erratic and the scheme eventually became unsustainable (Makina, 2009). Agribank, which succeeded the AFC, faced the same fate.

Donor funding and official development assistance played a critical role in supporting agricultural infrastructure, particularly small-scale and communal farmers. After the fast-track land reform programme donors withdrew, and government, through the Reserve Bank of Zimbabwe, took the lead in supporting agriculture through schemes like the Agricultural Sector Productivity Enhancement Facility (ASPEF), Agricultural Mechanisation Programme and Grain Procurement and Commodity Producers Support Prices Programme (Makina, 2009). The programmes were supported by loans from China's Exim Bank and the programmes were not a success due to the hyper inflationary environment and price which resulted in farmers diverting inputs and implements to other uses. In light of liquidity problems facing banks, declining government support to agriculture and withdrawal by donors, efforts were made to involve value chain players in agriculture finance to cater for small-scale farmers that were facing severe credit constraints (Dawes *et al*., 2009).

Agriculture requires high levels of investment for it to succeed (FAO, 2013a). Current efforts by the Comprehensive African Agricultural Development Programme (CAADP) have been promoting investment into agriculture in order to fight poverty in Africa. CAADP have been arguing with governments to allocate ten percent of their budgets to agriculture to lead the way in agriculture financing. As shown in Table 2.6, Zimbabwe has not been meeting this target and hence falling short in its desire to offer patient finance to the industry (Government of Zimbabwe, 2014). For such an initiative to work there is need for sound macroeconomic environment and political will in member states so as to attract investors through value chain programmes like contract farming and public-private partnerships. These initiatives are important for Zimbabwe given the vandalism that accompanied the land reform process and the need to rehabilitate the infrastructure. The developments in the Zimbabwean agriculture sector demand comprehensive efforts by all stakeholders if agriculture is to take its rightful position in the continent.

Table 2.6: National budget allocations to agriculture (1995-2012)

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
% allocation	2.0	4.0	5.0	6.0	4.0	7.47	7.32	4.64	2.47	14.0	4.44	8.43

Source: Government of Zimbabwe, 2010: 53.

CAADP's second pillar aims to promote market access for small-scale producers, through establishing linkages with agribusinesses, which can be a source of finance for farmers. Public-private partnerships in the form of the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) will create both the infrastructure and services needed to support agriculture (Government of Tanzania, 2011; FAO, 2013a). Liquidity problems in Zimbabwe's banking sector also demand that value chains be used as sources of finance for agriculture. Value chain and public-private partnership will also help reduce transaction cost associated with lending to agriculture, which will induce other credit providers to support small-scale farmers.

2.3.5. Marketing of agricultural produce

Controls in the marketing of agricultural produce have been one reason constraining the development of the sector in Africa, and added to these controls agriculture is heavily taxed (IFRPI, 2005). Marketing of agricultural produce and animal products have been under government marketing boards since the Rhodesian era when a number of legislations were passed into law. At independence, the Zimbabwe government consolidated the work of these boards, increasing their reach to small-scale and communal farmers. However, the marketing boards were characterised with inefficiency in the payment of farmers, and added to this they were offered low prices which were controlled by the state. The Grain Marketing Board, tasked with the procurement of all grain, was normally associated with poor service in the grading of farmers produce, thus paying low prices. In 1990, most controls related to the marketing of agricultural products were removed under the trade liberalisation regime. This did not benefit farmers since they lacked the necessary skills and information to compete in a changing marketplace, and farmer organisations were still not ready to represent the small-scale farmers.

Access to markets is also hindered by poor infrastructure and high transport costs (Hazel, Poulton, Wiggins & Dorward, 2006). This problem is acute in Zimbabwe given the poor state of the road network and a non-functioning railway system. Most small-scale producers market high volumes to value produce which demands bulk transport and storage facilities, and hence the poor state of the transport system increases marketing costs. This problem is exacerbated by spatial dispersion of farmers which makes it difficult to aggregate their produce and for farmers to have sufficient quantities to meet the required transport loads. Added to this are also high coordination costs (International Food Policy Research Institute (IFPRI), 2005). Further small-scale farmers lack capacity to service their target markets due to low productivity and small land holdings. Small-scale farmers also have problems accessing lucrative markets because of the quality demands of the changing markets. Poor information and communication technology have also meant that farmers cannot access market information about 'the true value of their products', and demand patterns (Hazel *et al*., 2006).

Zimbabwean farmer organisations are highly compromised when it comes to bargaining power and skills, due mainly to the politicisation of the land reform process as well as the abrupt weaning from government controls before attaining the necessary skills and human capital. Biénabe and Sautier (2005) argued that farmer organisations are important in creating a competitive environment for farmers through various cost-reduction measures and economies of scale. Farmer organisations can represent farmers in the political front when negotiating an enabling regulation, while an organisation will also have strong lobbying power and negotiation of contracts with input suppliers, value chain and service providers (Suli, Bombaj, Suli & Xhabij, 2013). As a group, they will also be able to source and disseminate information to farmers.

The emergence of contract farming has also seen farmer organisations participate in the choosing of farmers who enter into contracts given the knowledge and information they have about farmers in their organisation. In Zimbabwe, given the history of the land reform process, this selection process has also taken a political dimension leading to polarisation within communities. This also creates inequalities to opportunities by farmers to access markets.

Following the land reform process, most donors involved with farmer organisations withdrew their services, yet they were critical in capacity building and development of the market information system. This hindered the development of such marketing platforms like the Zimbabwe Agricultural Commodity Exchange (ZIMACE), put in place for the trading of cereals in an open market. Such initiatives were also affected by irregular government policy with legislation changed in 2007, controlling the marketing of cereals. Despite the development of information technology in the country, agriculture has not benefited much because of the underdevelopment of institutions needed to disseminate information. However, other organisations like TIMB actively use mobile phones to communicate with their farmers.

Value chains are important for marketing of farm produce, however, there is a need for enabling legislation and policy to guide both parties involved in such contracts. Suli *et al*. (2013) argued that public-private partnerships have an important role to play in agricultural markets through reduction of transaction costs. Cash crops like tobacco are produced for the export market, but effective partnerships with agro-processors can add value to the produce before exporting with capacity of benefiting the farmer and processor. Currently Zimbabwe exports 98 percent unprocessed tobacco with the remainder being processed into cigarettes in Zimbabwe (Leaver, 2004). Effective partnerships in line with CAADP's second pillar on market access will promote the development of agro-industries that can cater for value addition in the agriculture sector.

2.3.6. The role of smallholder farmers in Zimbabwe

Smallholder farmers play an important role in agricultural production, contributing up to 90 percent of the total output in other countries (Kang'ethe & Serima, 2014). This has been the case in Zimbabwe since 2000 when smallholders benefited from the land reform. Since the advent of the

land reform programme in Zimbabwe, smallholder farmers have taken a leading role in the supply of livestock, food security and cash crops for the country (Appendix 1). Kang'ethe and Serima (2014) also noted the importance of smallholder farmers in feeding the nation and contributing to exports of cash crops like cotton and tobacco which are now dominated by smallholders. Since the inception of the land reforms in 1980, resettled farmers who are smallholders have been the leading suppliers of the staple crop maize (Deininger *et al*., 2002) which helped cement Zimbabwe's status as the breadbasket of Africa. With the support of cotton merchants, smallholders also dominated the production of the crop as early as the 1990s. Women in particular have been cited by FAO (1995) as leading figures in alleviating hunger through active involvement in subsistence farming in rural areas.

ZimStat (2012) also showed that smallholders are now a major source of employment in rural areas, thus also supporting the non-agricultural economy in these areas. This in turn has an income redistributive effect on rural areas. With contract farming supplying inputs and working capital to small-scale farmers, more jobs and income will accrue to these localities. Tobacco farmers have been singled out as major contributor to exports, contributing 61 percent to agriculture export and 30 percent to the overall export figure. Due to its labour intensive nature, tobacco farming is also a leading employer in agriculture which has given prominence to the role of smallholder farmers who are the major supplier of the crop.

Scoones, Marongwe, Mavedzenge, Murimbarimba, Mahenehene and Sukume (2011), in a study of the land reform in Masvingo area, found that resettled farmers were predominantly poor smallholders before the reforms increased their production and incomes. They further noted that the farmers were actively investing in both on-farm and off-farm activities, thus contributing to the development of the region. Improved farm production is important for reducing inequalities between the poor rural areas and their urban counterparts. Production of cash crops which were previously dominated by large-scale commercial farmers has also positively impacted on income levels in rural areas despite the fact that productivity has been low.

2.3.7. Why develop agriculture?

NEPAD identified agriculture as an important tool to fight poverty and promote economic growth in Africa. Through its CAADP initiative, NEPAD hopes to promote food security and agricultural competitiveness through improved small-scale farm productivity and creating market access for the produce. Agriculture-led economic growth has been proved to lower poverty and increase incomes of rural populations (Dorward, Fan, Kydd, Lofgren, Morrison, Poulton, Roa, Smith Tchale, Thorat, Urey & Wobst, 2004). Foster and Valdes (2005) argued that agriculture has strong multiplier and spill-over effects on the economy through its higher share of intermediate inputs in value chain industries (IFRP, 2005). Timmer (2002 quoted by Foster & Valdes, 2005) also notes that a one percent growth in agriculture leads to 0.2 percent non-agriculture growth, further supporting the

linkages, and more importantly, that agriculture contributes 2.5 times in raising incomes of the poor compared to non-agriculture (IFRP, 2005).

Zimbabwe is still highly dependent on agriculture for growth given that over 70 percent of its population is in rural areas and agriculture is the main employer and source of livelihood. Agricultural growth will impact positively on the poor and this could even be magnified through supportive policies that promote agriculture and the related value chains. Linkages with value chains and strong beneficiation policies will also develop the non-agricultural sector with more benefits for employment creation. Land plays an important role in agricultural productivity, and Zimbabwean farmers were allocated land under the fast-track land reform process, the challenge that remains is for government to provide the necessary public goods and environment for the farmers to be productive. Various authors have argued that, property rights, working markets and macroeconomic and political stability, will help attract investors to the sector (IFRP, 2005; Delgado, 2006; IFC, 2011; FAO, 2013).

2.4. TOBACCO PRODUCTION AND MARKETING

'Smoking is harmful to health' is a warning given to tobacco smokers and is a mandatory advert in all tobacco packaging in Zimbabwe. This follows intense anti-tobacco lobbying internationally; the major issue is how it will affect tobacco production in countries like Zimbabwe where it is said to have immense economic benefits. The anti-tobacco lobby has the potential of lowering tobacco prices and demand, which in turn will negatively affect small-scale tobacco producers in less developed countries who depend on the crop for their livelihood. Tobacco is a major export earner for Zimbabwe, contributing 25-30 percent (50 % of agricultural exports). About 8.2 to 10 percent is contributed to GDP with 33 percent of people employed in the agricultural sector (Zimbabwe Tobacco Association, 2000; Leaver, 2004; FAO, 2003). The government also earns revenue through taxes and levies on the product. In Zimbabwe, levies per hectare of tobacco produced could be as high as US$132 (FAO, 2003). Table 2.7 below is a summary of economic benefits accruing from tobacco production. TIMB's 2012 report shows that out of the 60 047 producers, 25 610 were communal farmers, 26 069 were A1 resettled farmers and 4 994 were small-scale farmers, producing tobacco of less than two hectares on average (Table 2.2) and only 3 374 were commercial farmers. The Zimbabwe Tobacco Association (ZTA, 2000) in response to WHO on stiffer controls on tobacco cites the above as important issues for consideration. Even the FAO also supports initiatives aimed at imposing tough rules on tobacco smoking and production (FAO, 2013b).

Table 2.7: Tobacco production and contribution to the Zimbabwe economy

Year	1995	1996	1997	1998	1999	2000	2010
Percent of total exports	25	33	26	26	32	28	13.1
Percent of GDP	8.5	9.9	7.2	8.4	9.9	8.2	5.6
Production in '000' tonnes	177	178	171	226	197	198	123
No. of farmers	2525	2921	5101	8334	7194	8537	51 685
Hectarage	74550	81231	90630	91905	84762	84857	67 054

Source: ZTA, 2000.

Africa consumes very little of the tobacco it produces and Zimbabwe exports 98 percent of its tobacco to major cigarette makers in Europe and China (Van Liemt, 2002). If consumers in these countries heed these warnings as the unfolding trends suggest, international tobacco prices could fall, thus affecting economies of African countries like Zimbabwe and Malawi.

Zimbabwe is among the top four producers of flue-cured tobacco after USA, China and Brazil. Since the 1990 trade liberalisation programme, tobacco production has experienced dramatic increases (Leaver, 2004). After the fast-track land reform most small-scale producers took up tobacco production with the view of improving their welfare and encouragement from authorities (TIMB, 2012). Leaver (2004) using the Nerlovian model found that tobacco farmers are "highly unresponsive to price changes" due to the high capital and opportunity cost involved in setting out tobacco infrastructure, most of which is specific to the sector. Despite the high cost involved in producing tobacco, farmers find it attractive as it is said to be 6.5 times more profitable than other crops, probably explaining the high numbers now involved in tobacco production (FAO, 2003; Leaver, 2004). Table 2.7 shows the standard cost and return on tobacco production per hectare.

Small-scale farmers who are resource constrained use firewood for curing their tobacco which causes deforestation and land degradation. Lack of finance also means that a shortage of inputs leads to low yields. Tobacco production is labour intensive and households producing this crop seldom have time for multi-cropping – as a result this tends to threaten food security for the family. Unlike food crops, tobacco does not attract support from donors like FAO and the Bretton Woods institutions because of the health hazards associated with it. This leaves the industry to finance its development, but recent trends have seen the consolidation of key industry players into three major producers, creating monopolistic tendencies that can affect downstream farmers (Van Liemt, 2002). The Zimbabwe government is faced with food security problems and hence finds it difficult to invest in tobacco, its key revenue earner. Instead, it has been providing inputs for food security crops to starve off hunger in the country. Since the advent of the land reform, government has provided input support for staple food crops like maize and other small grains – however, tobacco

producers did not benefit from such schemes. It is in this view that contract farming becomes critical as a financing mechanism for tobacco.

The potential of tobacco to increase incomes is not questionable. What is an issue are the capital and technological demands of producing the crop. Lack of adequate energy sources have led to massive deforestation and land degradation as farmers cut firewood for curing tobacco (Lecours, Almeida, Abdallah & Novotny, 2012).

2.4.1. Marketing of tobacco

Tobacco marketing was done through the auction system until 2004 when a dual marketing system was adopted. Before dollarisation, the major problem was the foreign exchange controls, which affected farmers' earnings. With inflationary pressures of the 2000s farmers' earnings were eroded making it difficult to even produce the crop. Producing and marketing tobacco under contract has exposed farmers to indebtedness due to lack of a pricing formula in their contracts. The same mechanism of classifying and pricing tobacco used by auction floors is also applied by contract buyers which leads to conflicts with farmers. Zimbabwe has no policy or legislation guiding contract farming arrangements – a situation that could lead to the exploitation of small-scale farmers.

2.4.2. Regulatory framework

Flue-cured tobacco was first produced in the then Rhodesia in 1894, and the first crop was auctioned in 1910. By 1936, the first legislation to control the marketing and production was enacted (TIMB, 2012). Since then, TIMB emerged as the regulator and controlling board as set by an act of parliament, the Tobacco Industry and Marketing Act, Chapter 18:20. TIMB oversees all activities related to tobacco production, marketing, registering farmers, auction floors, contracting firms, processors and exporting and importing firms.

2.4.3. The role of the Tobacco Research Board in production

The Tobacco Research Board (TRB) is the leading research institution for tobacco production. It is the Board that develops tobacco varieties that are compliant with worldwide industry standards. These varieties are then sold to farmers in line with their agricultural regions. The Board provides research output in relation to the curing of tobacco – a key quality control process. With the high levels of land degradation in tobacco producing areas, the Board has taken the lead in advising on technologies that are environmentally friendly.

2.4.4. Arbitration role in marketing

TIMB is the regulatory authority responsible for tobacco marketing in Zimbabwe. It is responsible for the administration of the tobacco selling calendar, the information system that supports tobacco trading and overall record keeping for the industry. As the regulator, TIMB registers all tobacco farmers and licenses contracting firms, auction floors, buyers and all stakeholders who buy

tobacco. There are currently three auction floors and 12 contracting firms operating in Zimbabwe. All tobacco is sold either through the contract system or auction.

TIMB is responsible for classifying all tobacco sold at auction and contract floors, and hence it is a requirement that all tobacco should be brought to the floor for classification. After classification tobacco buyers can proceed with the buying process. TIMB plays a critical role as an arbitrator when disputes arise – this is more common in the pricing of tobacco. At the auction floors, market forces are normally left to determine the prices with only TIMB intervening to handle logistical issues like cancellation of sales, stop orders and nesting (a process where farmers mix quality tobacco with foreign matter to increase weights). At the contracting firms, floor arbitration involves settling disputes on prices by offering the average price for the class of tobacco on a particular day. Classification of tobacco in other tobacco producing countries is closely related to prices, however, TIMB classification seems to be irrelevant when it comes to the pricing of the crop.

2.5. CONCLUSION

Commercial agriculture production presents great opportunities for small-scale farmers to escape from poverty. They are currently facing challenges in accessing inputs which are vital for their success in cash crop production. The liquidity crunch, macroeconomic and political instability currently affecting Zimbabwe acts as a deterrent to would-be investors needed for the development of the agricultural sector.

As discussed elsewhere in this paper, trade liberalisation was expected to benefit small-scale farmers, however, this was not the case given the half measures adopted in liberalising the economy. Small-scale farmers previously excluded from these markets needed an enabling environment to facilitate their participation. There was a need for government to implement sound macroeconomic policies, and land reform supported by good institutions meant to promote financing and marketing of produce by small-scale farmers (Bautista & Thomas, 2006). Government policy inconsistencies actually saw a reverse of trade liberalisation and the establishment of grain marketing boards.

CHAPTER 3
LITERATURE REVIEW

3.1. INTRODUCTION

Marketing systems have changed considerably in recent years due to development in the agro-industries sector, supermarkets and ever-changing consumer demands. To accommodate the demand for differentiated products, firms have had to integrate either upstream, downstream or both in the face of highly imperfect markets. In this chapter, a review of contract farming as a method of vertical integration, as well as an analysis of its appropriateness to small-scale farming operations is presented.

3.1.1. Overview of coordination mechanisms in agriculture

Various policy measures and interventions targeted at improving smallholder farmers' productivity and welfare have been undertaken through such programmes as credit guarantee schemes designed to reduce and mitigate risks associated with providing finance to the sector. Of late, microcredit and microfinance programmes have been promoted as a solution for smallholder farmers in rural areas to access finance. The key to these strategies is to address constraints faced by farmers in developing countries particularly. The aim is to boost productivity and income while at the same time fight poverty. It is generally believed that support services to small-scale farmers help improve their welfare. In a study of resettled farmers in Zimbabwe, Deineger *et al.* (2002) found that resettled farmers with full agricultural support had better assets and welfare than their counterparts in communal areas – pointing to the importance of farming-related services to the development of agriculture. Attempts focused on addressing small-scale productivity and marketing constraints through government-led development banks and credit guarantee schemes yielded very little success (Dorward *et al*., 2004). In the 1980s and 1990s, the focus changed to market liberalisation, to create improved access by farmers to international markets with a view to increase on-farm income and alleviate poverty. However, incomplete liberalisation did not effectively address production and marketing constraints faced by small-scale producers in developing countries (Dorward *et al*., 2004).

Private sector-led value chains are now viewed as a panacea to small-scale farmers' problems. The changing consumer preferences and development of supermarkets that demand more differentiated products have given growth to new market linkages (Rehber, 1998). These changing quality demands which are ever-changing have meant that firms cannot satisfy their customers through traditional spot markets. Linkages with farmers would allow firms to communicate the desired product qualities as well as transfer knowledge acquired from their research.

Young and Hobbs (2001) explained vertical integration from the new institutional economics approach, particularly transaction cost economics and agency theory. They further drew lessons

and experiences from other fields like strategic management and neoclassical economics as shown in Figure 3.1 below. In their pursuit of profit maximisation, the firm applies its internal competencies and strategies as shown at the bottom of the funnel in Figure 3.1 to achieve its goals.

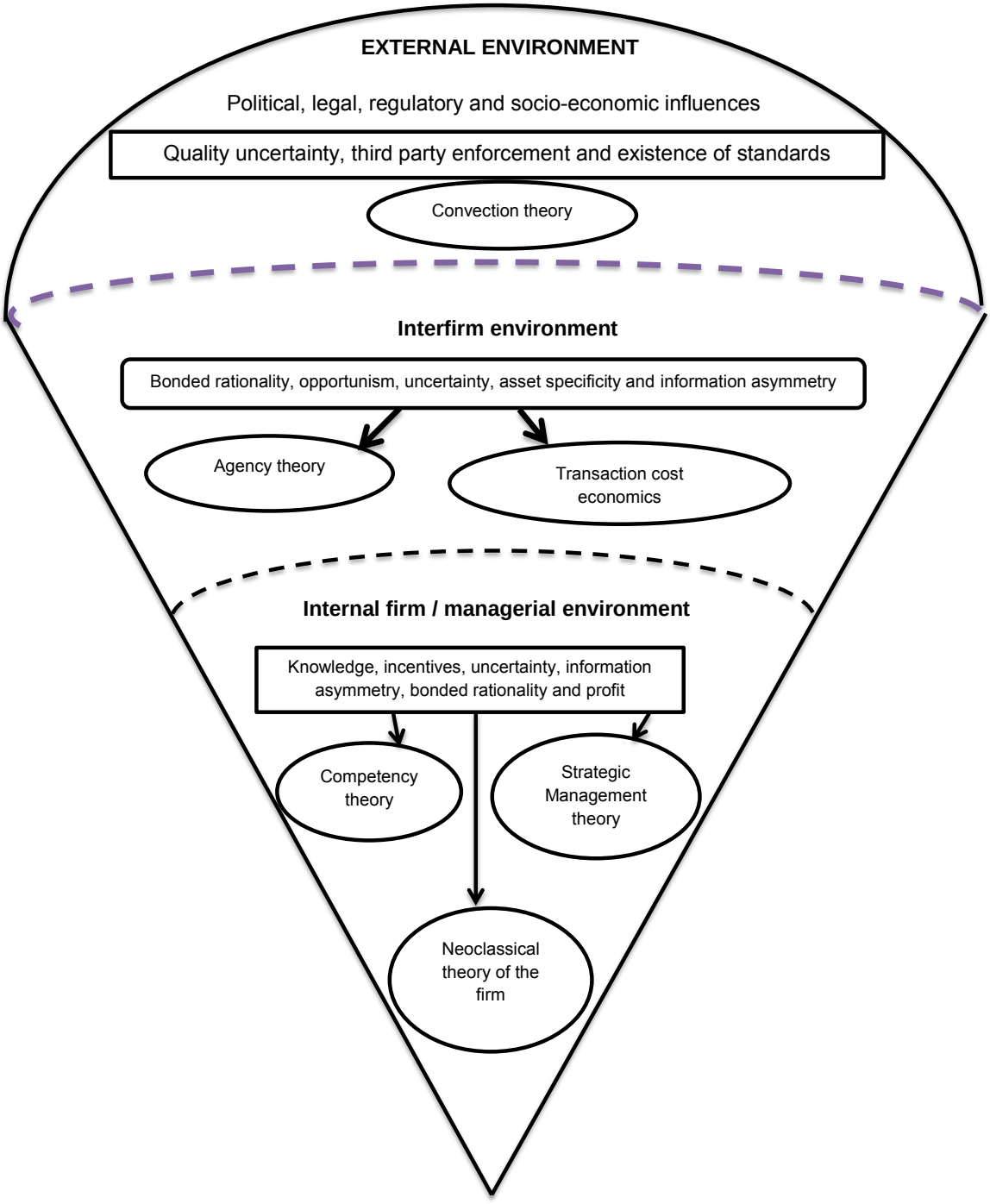

Figure 3.1: Synthesis of theoretical and conceptual approaches to contract farming

Source: Young and Hobbs, 2001.

Assuming perfect information as postulated in the neoclassical theory, firms at this level source from spot markets, transaction costs are low and there are no differentiated products. However, imperfect markets mean that firms incur costs in search of products with distinct characteristics and quality. In this search, the firm deals with other firms downstream or upstream in their production cycle. At this level, ex-ante costs arise as firms try to screen potential partners and ex-post for monitoring and enforcing the conditions of the transaction (Young & Hobbs, 2001).

Young and Hobbs (2001) further argued that these costs are exacerbated by 'information asymmetry, bounded rationality, opportunism and asset specificity' in relation to contracts. This problem is acute for crops like tobacco where the farmers need to invest in assets like barns that are solely for use in tobacco curing. All the problems constitute market imperfections that warrant intervention by the state to protect the parties to a transaction, consumers and all stakeholders through convections, regulations and institutions that help facilitate the smooth flowing of transactions (Williamson, 1979; Wu, 2006).

Young and Hobbs (2001) framework is important in the understanding of contractual relations between rural farmers and agribusinesses in the Zimbabwean set-up. For efficient operation of contract arrangements government needs to invest in enabling institutions, convections and regulations that reduce transaction costs and agency problems. This is critical in agriculture given increased quality demands and failure of market forces to effectively handle differentiated products.

3.1.2. Challenges faced by smallholder farmers

Smallholder farmers have limited access to farming resources and markets mainly due to high transaction costs and information asymmetry problems. Small-scale farmers generally operate from communal or government-owned land where farmers have no title to the land. As such, this land cannot be used as collateral when accessing credit. Further, this land ownership structure makes it difficult for farmers to invest in farm infrastructure which compromises productivity on these farms. Poor infrastructure and lack of investment on the land tend to increase the risk of crop failure and marketing of same, thus impacting on the credit worthiness of farmers. Further weak-risk management tools to mitigate the effects of crop failure have led to the farmers being discriminated against in the credit markets by financial institutions. Formal financial institutions are also faced with high transaction costs in trying to process credit applications by these farmers.

Interventions to solve market failure have taken various forms by different players that included government, the donor community and the private sector. Such interventions were aimed at improving access to on-farm production resources and the marketing of produce. Recent institutional approaches have argued for government interventions that provide public goods that are supportive of integration of small-scale farmers into value chains.

Government needs to improve the environment through investments in sound institutions and infrastructure that should help reduce transaction costs and facilitate linkages with agribusinesses. One way of providing these public goods is through public-private partnerships. The growth of supermarkets and other agro-processors is seen as beneficial to small-scale farmers. For them to invest in agriculture, the theoretical framework depicted on Figure 3.1 provides a base for beneficiary relations with small-scale farmers, as it shows how each stakeholder in the contract farming system can help reduce information asymmetry and transaction cost. This will further reduce problems associated with imperfect markets. Contract farming can provide for the missing markets, assets, services and information that prevent smallholders from participating in value chains (Delgado, 2006). Farmers need access to assets, markets, information and services to participate in markets. One such mechanism of vertical integration is contract farming which is the focus of this study.

3.2. CONTRACT FARMING

The issue of smallholder farmers in the fight against poverty, the constraints they face and coordination mechanisms needed to improve their operations, are well documented in literature. Various value chain and integration mechanisms have been put forward and this includes contract farming which is the subject of this research study. The term 'contract farming' is at times used interchangeably with 'out-grower scheme'. Contract farming has its roots in information and market imperfections that affect farmers' access to credit and produce markets leading to low productivity and income respectively. Contract farming offers credit to farmers without the need for collateral as demanded by formal financial institutions, thus helping finance agriculture.

3.2.1. Definition of contract farming

Senanayake (2008) undertook a rigorous critique of definitions by various authors like Minot (1986), Ncocosmos and Tosterink (1985 cited in Senanayake, 2008)) and Ayako *et al*. (1985 cited in Senanayake, 2008) and noted that Roy's (1972 cited in Senanayake, 2008) definition that is, "those contractual agreements, between farmers and the firms, whether oral or written, specifying one or more conditions of production and/or marketing of an agricultural product" was comprehensive. Senanayake (2008), in agreement with Glover (1994) and Rehber (1998), observed that the futures markets in the definition should be excluded. Bijman (2008) noted that the US Department of Agriculture defines contract farming as "the growing and marketing of farm products under circumstances that selective terms of the market-quantity, grade, size, inspection, timing or pricing are specified to both the grower and the processor or shipper before production is undertaken". In this study, the objective is to access the effectiveness of the contractual arrangement in terms of impact on production and marketing, a situation well covered in Roy's (1972 cited in Senanayake, 2008) definition. The US Department of Agriculture puts emphasis on marketing and is thin on production. The conceptual framework and approach in this study will

therefore follow Roy's (1972 cited in Senanayake, 2008) definition. CF affects the production decision of farmers and aligns them to the needs of agribusiness (Oya, 2012); also it is an aspect of intervention by either agribusiness, government or other organisations with a view to influencing farmers' production and marketing of their produce.

3.2.2. Types of contract farming

According to Baumann (2000), there are three types of CF, namely market specification contracts, resource-providing contracts and production management contracts.

Market specification contracts guarantee a market for the farmer provided the set product standards are met. Intervention by the contractor is normally limited to grading of the crop at the marketing stage. While a resource-based contract provides the necessary credit in the form of agricultural production inputs and at times working capital. Credit advanced is recouped when the farmer sells produce. Under this contract farmers can also be offered extension services and there is a high chance of technology transfer. Production and management contracts are a combination of the two. In Zimbabwe, tobacco marketing is controlled by TIMB which provides a ready market through the auction market system, hence the last two types are more appropriate given their capacity to offer credit to farmers and influence farmers' production activities. The issue of access to credit and market imperfections are brought to the fore by these definitions.

3.3. CONTRACT FARMING MODELS

Will (2013) identified five contract farming models as discussed below.

3.3.1. Informal model

As implied in the name, small agribusinesses enter into informal contracts with farmers, generally for the production of vegetables on a seasonal basis. Agribusinesses are mainly concerned with quality and hence intervene in the 'sorting, grading and packaging' activities (Bijman, 2008). Support services are normally provided by government and this type of model has a high risk of default by both parties (Will, 2013).

3.3.2. Intermediary model

This is an infusion of an informal and centralised model; basically it involves three parties – the buyer, middleman and the farmer. Vertical coordination problems like the supply of inputs and support services normally arise, and farmers might not benefit from technology transfer and market-related prices as the middleman might strive to maximise his/her margins (Will, 2013; Bijman, 2008).

3.3.3. Nucleus estate model

This model is based on a buyer also being involved in farming from their own estate and contracting other small farmers to mainly supplement supply for their own processing. Hulett Sugar uses this model in Zimbabwe's Chiredzi district.

3.3.4. Multipartite model

Various organisations might be involved in this model, ranging from government/statutory bodies, financial intermediaries, agribusiness and farmers. Koranteng (2010) researched one such model, the IDC-KAT River Citrus Development Scheme in South Africa where the financier provided funding through the agribusiness to finance farmers involved in citrus production. In this proposed study, a statutory body like TIMB works with contractors in the production of tobacco with small-scale farmers. The contractors are responsible for sourcing offshore finance and TIMB provides support services like research and development and the platform for the marketing of tobacco.

3.3.5. Centralised model

Vertical coordination is high in this model, and normally characterised by formal contracts that specify production and quality demands, and involves a number of farmers contracted by a processor (Will, 2013). The focus of this study is on resource-providing models like the last two.

3.4. EMPIRICAL EVIDENCE

As discussed above, a resource-based CF seeks to provide small-scale farmers with inputs, extension services and markets (Glover, 1994; Goodland, Coulter, Tallontire & Stringfellow, 1999) to enable them to increase productivity and quality of their produce which will then attract better prices, thus raising farm income (Minot, 1986). In Kenya, Minot (1986) noted that contracted tobacco farmers who were well supported had higher incomes than non-contract farmers. In a study of resettled farmers in Zimbabwe, Deininger *et al*. (2002) observed that resettled small-scale farmers with access to credit and extension services and other infrastructure had accumulated more assets and had higher incomes than their communal farmer counterparts. Deininger *et al*.'s (2002) findings supported the notion that if 'constraints' are removed, and small-scale farmers produce cash crops with adequate technical support and market access poverty can be reduced for rural populations. Miyata, Minot and Dinghuan (2009), in a study of apple and onion production in Shandong province, China, found that CF led to an increase in income for CF farmers after controlling factors like education, farm size and education. They further argued that the increase in income could be a result of technical assistance, specialised inputs and better prices received by farmers. In a study on training for smallholder tobacco producers, Gadzirayi *et al*. (2008) noted that training, access to finance and credit, and the age of farmers resulted in a threefold increase in productivity. Most small-scale farmers do not have access to training, good extension services and technical know-how, leading to low yields per hectare. Kumar and Kumar (2008) in a farm level

study in India found that contract farming improved both employment and on-farm incomes, while non-farm income was high for non-contract farming. They also found that infrastructure constraints affected the performance of contract farmers in relation to productivity. Saigenji and Zeller (2009) investigated the technical efficiency of contract farming in tea production in Vietnam and found that it increased productivity than compared to non-contract farming. They attributed this to the efficient use of inputs and improved technical know-how. Swain carried out a similar study in India and found the same results. Anim (2010) investigated the effect of extension services in CF in South Africa based on a sample of 396 maize farmers and found that extension services increased farm productivity.

CF benefits are unlikely to flow to the poorest members of society because of selection bias (Simmons, 2002). In addition, the very poor do not have access to farm assets for use in production. As such, there is a tendency to exclude the poorest parts of the community which tends to increase inequality within communities. Intervention by governments and development agencies through provision of requisite farming infrastructure could help reduce these risks and improve participation by the poor (Bijman, 2008). The net effect will be the reduction of poverty among the poor, more so in less developed countries where over 70 percent of the population is in rural areas and dependant on agriculture for their livelihood (Omolola, 2010).

The liberalisation of agricultural markets in the 1990s had tremendous effects on the production and marketing of farm produce (Simmons, 2002), and the half-hearted implementation of the reforms increased distortions in the input markets (Birner & Resnick, 2010) resulting in declining agricultural output (Tekere, 2003). The market distortions resulted in high transaction costs to small-scale farmers (Bijman, 2008). Small-scale farmers faced with the ravages of market forces could not access raw materials and markets. The liberalisation of agricultural markets have strengthened the need for CF as an institution that will take over a role formerly played by governments in supporting agriculture. Liberalisation of markets especially for export crops might also lead to exploitation of small-scale farmers since agribusinesses and government are better informed about the operation of this market.

As discussed above, CF is viewed as a solution to small-scale productivity and marketing problems; however, there is a school of thought that believes that CF arrangements are basically exploitative arrangements by large agribusinesses mainly because of the unequal bargaining power between small-scale farmers and well-resourced agribusinesses (Baumann, 2000). The farmers are said to carry a disproportionately high risk of production which can increase their indebtedness if the crops fail to generate enough income to cover borrowed inputs (Miyata *et al*., 2009). Miyata *et al.* (2009) further observed that contract farming can increase inequality in communities as it favours those with better resources. The food first school of thought further believes that CF is a threat to food security, as farmers shift production to cash crops. The

dissenting reason from CF critics does not override the benefits that can accrue to farmers, especially access to credit, technical support services and assured markets which have positive effects on farmers' productivity and income. Given the dissenting and supportive views on CF, this research study sought to assess and answer the research question below, and establish if CF can indeed solve issues of productivity, markets and low incomes for farmers.

In Zimbabwe, CF was found to have benefited 4 000 vegetable farmers producing vegetables for Hortico's export business in the Mashonaland Central and East regions (Woodend, 2003). Further, the same author found that a credit scheme operated by the Cotton Company of Zimbabwe (COTTCO) and Cargill along the same principles of contract farming also benefited cotton producers in Zimbabwe. In all cases, access to finance, technology and quality inputs were cited as key to the success of the schemes.

3.5. WHY PARTIES ENTER INTO CONTRACTS

Agriculture is a risky business which tends to reduce the flow of farming resources and outputs between firms and farmers. The parties enter into contracts to improve the coordination mechanisms of producing and marketing the desired crops, which in theory benefits both the firm and the farmer (Prowse, 2012). Prowse further argued that contracts lower transaction costs which motivate the parties to engage in contract farming activities. Contract farming also provides a framework for risk sharing and management by the parties, thus helping increase agricultural productivity and at the same time fighting poverty (Will, 2013). In a study of vegetable farmers, Masakure and Henson (2005) found that joining the Hortico contract scheme was mainly motivated by imperfect markets – at the time, Zimbabwe was experiencing an acute shortage of farming inputs. The same scenario prevailed at the start of tobacco contract farming in 2004. A broad view is the value maximisation objective by the parties – the farmers hope to benefit through access to farming resources and better paying markets while the firms aim to procure its inputs at a cheaper price and at the right quality. The development of value chains that demand high quality products with a high degree of differentiation have also forced firms into contract farming where they have control of the production process. Table 3.1 below details advantages enjoyed by parties in a contract farming arrangement.

Table 3.1: Advantages of contract farming

Advantages to farmers	Advantages to firms
Access to markets	Assured of raw materials supply
Access to farming inputs and extension services	Can enforce product quality standards through control of production process
Access to working capital finance	Flexibility in production planning (Prowse, 2012)
Access to new technology and skills	Enjoys economies of scale in procuring inputs and final produce
Assists farmers to meet sanitary and phyto-sanitary standards demanded by exports market (Prowse, 2012)	Circumvents land constraints where it is highly politicised
Spill-over effect of best farming and marketing practice can promote crop diversification	Smallholders have lower transaction cost in relation to labour
Form of collateral for credit (Prowse, 2012)	
Mutually beneficial arrangements will increase farmers' income	Reduces transaction costs and information asymmetry problems
Risk-sharing and management tool	Risk-sharing and management tool

Source: Author's own compilation.

Masakure and Henson (2005) in a Zimbabwean study noted that farmers are motivated to enter into contracts because of "market uncertainty, indirect benefits (e.g. knowledge acquisition), income benefits, and intangible benefits". Will alludes to the same reasons as motivating smallholders to enter contracts but adds training, access to credits, inputs and extension services. Despite these overwhelming benefits, contract farming is also thought of as being exploitative given the negotiating power in balance of the parties. Firms also have to deal with 'capacity constraints' of smallholder farmers. FAO (2013b) argues that these limitations can be mitigated through formation of farmer organisations to help improve bargaining power as well as increase capacity.

3.6. CONCLUSION

Value chains are important for the development of agriculture, fighting poverty and improving farmers' income. For value chain activities to thrive, government needs to create an enabling environment in terms of infrastructure, institutional support and contract enforcement. It is argued that when the environment is right, farmers will be able to access farm-related services like finance, technology, extension services and inputs. This will lead to increased farm productivity which will help promote food security and create surplus sold in markets, thus increasing farmers' income. Linkages with agro-processors and agribusinesses have also provided easy access to markets. Contract farming as an intervention in agriculture has helped provide these services to

farmers and heralds a new era in the development of agriculture and fighting poverty in small-scale producers. Prowse (2012), noted that the success of contract farming is contextual, and hence the need to assess the impact of contract farming on small-scale farmers' welfare in the Zimbabwean set-up.

CHAPTER 4
RESEARCH METHODOLOGY

4.1. INTRODUCTION

This section provides details on approaches and techniques used to determine the effects of contract farming on farmers' productivity, welfare, income and financing of tobacco production in the Mazowe district, Zimbabwe. A comparison of the performance of tobacco contract and non-contract farmers was done to ascertain if there is a significant difference in the performance of the two groups with all other factors being constant. A case study using quantitative analysis was used to assess the effectiveness of contract farming arrangements on small-scale farmers producing tobacco in the Mazowe district, particularly its effects on three variables – income, productivity and uptake of tobacco production. A survey was conducted to ascertain farmer characteristics, to test for the homogeneity of the groups and to explain the difference in the performance of the two groups. Using the survey data the researcher was able to isolate and ascertain the effect of the contract farming arrangement on farmer welfare as per theory and other empirical evidence advanced for such arrangements (Minot, 1986). Quantitative methods based on Analysis of Variance (ANOVA) were used to analyse CF effects on income and the productivity of farmers.

4.2. THE STUDY AREA

The study area was the Mazowe district, which is 80 kilometres from the capital city, Harare. Mazowe is in agricultural region IV, with fertile lands and good rainfall. Most of the areas are accessible by tarred road which used to support large-scale commercial farms before the land reforms. However most of the infrastructure was damaged during the land reform and is now in bad state. There are 23 wards in Mazowe, with a population of 232 885 people living on 4 555 square kilometres of land (ZimStat, 2012). The population is rural and dependant on agriculture for living. The major cash crops are tobacco, soya beans, and horticulture (in order of importance) while maize and groundnuts are the staple crops.

4.3. DATA SOURCE

TIMB as the regulatory authority of tobacco production and marketing provided secondary data that included the following variables – sales, hectrage, unit prices, tobacco grades and classifications. The data used in this study was extracted from the TIMB database with the help of the database administrator. Due to confidentiality and official secrecy prescribed by the TIMB act, the statistics were extracted without farmer identification details.

A mini survey was conducted on A1 contract and non-contract farmers in the Mazowe district. Participants were randomly selected from the booking schedules and the questionnaire administered on the day of sale. The questionnaires for non-contract farmers were administered at

Tobacco Sales Floor and Boka Tobacco Sales Floor where most of the farmers from Mazowe booked their tobacco for sales during the month of June. The choice of the interview sites was also important because the researcher could also observe selling and grievance handling procedures during the real auction process. Questionnaires for contract farmers were administered at three contracting firms' premises, namely Boost Africa, Tobacco Sales Floors and Mashonaland Tobacco Company, again purposefully selected because of concentration of farmers from Mazowe. Sample contracts used by the three firms were also collected for scrutiny.

4.4. DATA GATHERING

Data was gathered for the purposes of testing and answering the research question under investigation as well as to assess if contract farming had indeed improved productivity, income and increased uptake of tobacco farming by smallholder farmers. From the farmer's perspective, a contract farming arrangement is considered effective if it can improve the farmer's welfare in terms of income and yields. Their motivation to join the scheme is also based on the assumption that they will be better off by participating in such schemes. The following data on both groups of farmers from Mazowe was extracted from TIMB records into a Microsoft Excel file; acreage cultivated, output brought to auction, price, sales, yields per hectare, grading of the tobacco, rejected tobacco, personal details and land holding status. The data relates to the period 2009-2013. It could have been prudent to collect data from 2004 (the date of inception of contract farming), but the meltdown of the economy and hyperinflationary environment that prevailed could create distortions in data patterns. There were also gaps and inconsistencies in the data which could obscure the comparison of the two groups. Deliveries to auction floors and contracting firms were erratic with the latter suffering from a high level of side marketing. Again in the two farmers' categorises there were very few farmers who consistently produced and delivered tobacco for sale under the auspices of the TIMB.

A questionnaire (Appendix 2) was administered to contract and non-contract farmers. The researcher wanted to establish the demographics of the groups, asset holdings, sources of finance and the groups' education and training in the production of tobacco. These factors affect the production of tobacco as such data was collected to explain the analysis of a variance result. Further contract forms were analysed to gain full understanding of the contractual relationships.

4.5. THE SAMPLE

There are nine tobacco farming provinces in Zimbabwe with different climatic conditions and soil profiles. Mashonaland Central region is more suitable for the production of tobacco and has the highest concentration of contract farmers and was purposively selected for this study. The same logic was used to select the Mazowe district from Mashonaland Central's seven districts. Regions with different farming conditions might have different outcomes; however, the policy framework

should be equally applicable. Mashonaland Central has 10 646 contracted farmers – 5 081 are communal farmers who were the focus group of this study. Mazowe, a district in the province has 1 985 communal contract and 872 non-contract farmers producing tobacco on small plots of less than two hectares in size. Using random sampling, 100 farmers were selected from each group to represent ten percent of the population, adjusted to the nearest 100 to enable the researcher to compare identical sample sizes. From the samples, farmers who were not continuously involved in tobacco farming for the past five years and those erroneously categorised were removed from the list to avoid any distortions to the survey. There were about 383 farmers booked to sell on the auction floors and over 390 at contracting firms – the numbers interviewed were then limited to 38, which is about ten percent of the population.

4.6. DATA ANALYSIS

Data analysis was primarily quantitative and both descriptive statistics and inferential statistical analysis techniques, using SPSS statistics, were used to compute chi-square and analysis of variance to unpack differences or similarities in farmer characteristics and performance. Chi-square is an analysis tool suitable for testing the relationship among the two farmer groups based on the null hypothesis specified in section 4.6.1, which states that there is no significant difference between the expected and observed farmer characteristics. This test allows us to compare the farmer characteristics as well as explain if the differences are due to chance or other factors. At the 0.05 significance level, the researcher tested whether there are any differences in farmer characteristics that could explain the differences in their tobacco production levels and income. This allows the researcher to attribute any differences to other factors.

ANOVA is a technique used to compare means of two or more groups. In this study, this involves contract and non-contract farmers and a third group, the mixed group which sold to both auction and non-auction floors. While a t-test could be performed, it is cumbersome and would require repeated calculations. The ANOVA test holds under the following assumptions; a randomly selected sample with a normal distribution and variance between the groups should be the same – all of which fits the data in this study. In this study, mean on productivity and income with price as a proxy was estimated using one-way analysis of variance which is appropriate in the analysis of single variables. In this study, this technique helped in the determination of the analysing the performance of contract and non-contract farmers, as well as explaining if indeed the contract arrangement was effective in improving the welfare of farmers.

4.6.1. Farmer characteristics

Survey data was used to analyse the characteristics and nature of tobacco farmers in the Mazowe district with a view to find out and explain differences or similarities in their productivity and income. The questionnaire captured aspects that affect the farmer's capacity to produce a quality crop which attracts better prices as well as improves productivity. Studies on tobacco farming and

agriculture productivity show that the farmer's age, assets, extension services, technology, finance and access to input have a positive impact on a farmer's productivity (Gadzirayi *et al*., 2008). Using the Chi-square test, the researcher sought to check if there were significant differences between contract and non-contract farmers in the attributes. A Chi-square test measures the degree of association between the two variables in question (Keller, 2009). Chi-square tests were conducted to check if there was normality for such variables as sex of the farmer, age of the farmer, level of education, and productive asset holdings. The hypotheses are:

H_0: There is no relationship between contract and non-contract farmers.

H_1: There is a relationship between contract and non-contract farmers.

Descriptive statistics were also used to explain simple relationships and trends in observed phenomena such as farmers' service and selling trends requirements.

4.6.2. Comparison of contract and non-contract farmers' performance

Agricultural performance is normally measured by yields per hectare while the quality is measured by the price per kilogramme a given crop can attract from the market. To appreciate the trend in the performance of the two groups, first production and prices for the population (the whole country) were extracted and compared over a five-year period and the difference noted. This was done to observe the trend since the onset of tobacco production in 2004.

The objective was to determine whether the difference in production and average price are significant and whether one system is superior to the other. The researcher further performed an analysis of variance using sample data from 200 farmers to determine if indeed the contract farmers' productivity was superior to non-contract farmers. Mafuse, Munyati, Mataruse, Manyumwa and Chimvuramahwe (2012), in comparing the performance of cotton growers in the Zaka area of Zimbabwe, used a t-test to find out whether contract faming was superior to non-contract farming.

The data was first manually analysed to check for double entries and entry errors which could arise given that data is captured at source by contractors and auction floors into the TIMB system. Indeed there were farmers who traded in both floors and their consolidated records also appeared in the contract and non-contract farmers' databases. This gave rise to a third group of farmers which comprised contract and non-contract farmers. This third category was named the mixed group. The mixed group enjoyed the benefits of the two marketing systems, i.e. auction and contractors price. Using SPSS, the researcher carried out analysis of variance on the production of the three groups. Further, the same analysis was done to test which system was superior in terms of average price per kilogramme of tobacco sold over the five years.

Out of interest, the researcher further performed ANOVA for each of the five years to observe the trends in the yearly performance of the different categorises of farmers.

4.6.3. Extension services and on-farm support

Flue-cured tobacco is a highly technical crop requiring meticulous husbandry from the nursery right up to harvest time. Application of fertilisers and herbicides need to be applied at the right time and quantity if the final quality, which pays a better price, is to be harvested. Further curing of the crop requires specialised curing barns with careful management of temperature in the barn, colour and texture of the leaf. A tobacco farmer will constantly need support to achieve the desired quality. Using descriptive statistics the researcher sought to understand the sources of extension services and training received by the farmers. The results were collated and mean and simple percentages calculated to show how these services were distributed. These results were used to explain the productivity and quality of the tobacco crop in line with Gadzirayi *et al*.'s (2008) finding that these services were critical for higher productivity in agriculture,

4.6.4. Financial additionality

Financial additionality is defined by Green (2003) as an increase in loans to persons "who previously did not have access to credit''. Boocock and Shariff (2005) added that these should not be 'replacement finance'. In the survey carried out, farmers were asked to state the sources of finance they accessed for the production of the tobacco crop. The following sources were identified as, total finance being either from government grant, government loan guarantees scheme, bank loan, or contractor. There is financial additionality if a farmer can access a loan from any of these sources. To determine financial additionality the following formula was used:

> Farmers' source of finance = Personal finance + Contracting firm credit + Government loan/guarantee + Government grant + bank loan.

Therefore, if a farmer can access finance outside his/her personal finance, then there is financial additionality. If only one source provides the additional finance, then that source is said to have accounted for 100 percent additionality. Using descriptive statistics, the researcher compiled the farmers' sources of finance and tabulated the results which were then used to estimate the above formula on financial additionality.

4.6.5. Institutional services to farmers

Questions D3 and E1 in the survey sought to identify issues farmers considered critical in improving their production and marketing of tobacco, and the type of service they expected from the other three key stakeholders, government, TIMB and the contractor. The issues raised were tabulated and their frequency noted. Sample contract forms were also reviewed and matched with issues raised by the farmers to help form an opinion on the effect of institutional services like contract enforcement mechanism, arbitration and other support services to farmers. From this data, issues that constrain farmers' production efforts were also noted.

4.6.6. Limitations of chi-square and ANOVA techniques

The Chi-square test is sensitive to sample size which tends to the strength of the relationship or its substantive significance in the population. As a result the relationship between variables can be distorted, particularly with a large sample. In this study the sample size was small which could mitigate this problem, and hence further tests like Cramer's were deemed unnecessary.

When using ANOVA, the study cannot conclusively say that if there is no significant difference between the groups then they are the same. This became important in this study, particularly where price was found to be insignificant. However, this problem could be minimal in such a small analysis. A larger analysis could lead to a type 1 error which assumes an effect when there isn't one. To correct the problem, multiple comparisons were undertaken. Violation of assumptions highlighted in 4.6 might affect the results.

CHAPTER 5
FINDINGS

5.1. INTRODUCTION

The objective of this research was to test the effectiveness of contract farming arrangements by comparing the performance of contract farmers against non-contract farmers in the Mazowe district. The results of a survey carried out to establish the characteristics of the Mazowe population will be presented first. The objective of this survey was to find out if there were other factors that could explain the performance of the farmers besides the contract farming intervention. The results on secondary data from TIMB will then be presented to show if the farming groups were significantly different in their performance. Three groups emerged from this data, namely non-contract farmers who sold tobacco at the auction floors, contract farmers selling to contracting firms and the third group being a combination of the two (mixed group) who sold in both markets. Non-contract farmers with better crops could easily sell to contracting firms. Contract farmers could sell at auction as a pure case of side marketing; it is also possible to sell to auction after their quota has been met with the contractor.

5.2. FARMER CHARACTERISTICS: TESTING FOR RELATIONSHIPS

The Chi-square test for association was used to determine the differentials in the characteristics of tobacco contract and non-contract farmers. All tests conducted were above the 0.05 level (Table 3.1) showing that there were no significant differences between contract and non-contract farmers. The homogeneity within the sample reflects decision-making trends within the community where information on investment decisions is influenced by peer group meetings, capacity building efforts by donors, and hence similarities in asset holdings and other means of production. Dorward, Anderson, Clark, Keane and Moguel (2001) further argued that assets in rural communities are held to support livelihood and activities that support production, hence tobacco farmers hold similar assets and capabilities within the community. Therefore given the results one can then attribute differences in their production and income levels to targeted contract farming intervention. Table 5.1 below is a summary of the major results on those variables that affect the production of tobacco.

About 33 percent of tobacco producers are female while 67 percent are male and of those contracted to produce tobacco only 25.6 percent are women. This is in line with the 2000-2008 land redistribution under the fast-track land reform programme where 18 percent of women were allocated land (MAMID, 2013b). This is despite the fact that women make up about 61 percent of farmers in communal lands (FAO, 1995). Descriptive statistics show that contract farmers are marginally younger and have attained a higher level of education than non-contract farmers (Table 5.1). A figure of 66.7 percent of contract farmers have an O-level school certificate compared to

43.2 percent for non-contract farmers; however, the Chi-square test shows that there are no significant differences in the highest education level attained in the two groups. However, the Chi-square test shows that this difference is insignificant, meaning it does not have an effect on the productivity of the farmers and their income.

Table 5.1: Age and education

Current farmer status qualification					Current farmer status age			
	Contract farmers		Non-contract farmers		Contract farmers		Non-contract farmers	
	Frequency	Percent	Frequency	Percent	Mean	Median	Mean	Median
Did not go to school	1	2.6	1	2.7	41.77	40	45.7	44
Primary	12	30.8	20	54.1				
O-level	22	56.4	15	40.5				
A-level	1	2.6	0	0				
Diploma	2	5.1	1	2.7				
Degree	1	2.6	0	0				
Total	39	100	37	100				

Table 5.2: Summary of various chi-square test statistics for farmer characteristic

Cross tabulating variable	Chi-square test statistic	Conclusion
Sex of farmer	1.909 (p-value=0.167)	Sex of farmer is not a differential between contract and non-contract farmers
Age	7.343 (p-value=0.062)	Age distribution is not significantly different between contract and non-contract farmers
Highest level of education	8.277 (p-value=0.218)	Highest level of education distribution is not significantly different between contract and non- contract farmers
Cattle ownership	1.912 (p-value=0.171)*	Average number of cattle owned is not significantly different between contract and non-contract farmers
Possession/ownership of ox-drawn plough(s)	0.295 (p-value=0.587)	Ownership/possession of ox-drawn plough(s) is not significantly different between contract and non-contract

Cross tabulating variable	Chi-square test statistic	Conclusion
		farmers
Possession/ownership of scotch cart(s)	0.73 (p-value=0.786)	Ownership/possession of scotch cart(s) is not significantly different between contract and non-contract farmers
Possession/ownership of barns	0.104 (p-value=0.748)*	Average number of barns owned is not significantly different between contract and non-contract farmers

Work by Gadzirayi *et al*. (2008) using regression analysis found that the level of education had an insignificant impact on the productivity of tobacco farmers, noting that access to finance was a key variable affecting farmer performance – a result supported by this Chi-square test. While education is known to improve human capital, on-farm training, routine field visits and effective extension services could compensate for the educational deficiency (Anim, 2010). These findings explain why the level of education seems not statistically insignificant in the Chi-square test carried out, however, education might be a substantively significant point not revealed by Chi-square tests.

The other important production resources are tobacco barns for curing, cattle for draft power, scotch carts for on-farm transport and ox drawn ploughs for tillage. Again, the Chi-square test showed no material differences suggesting that the farmers' performance can be attributed to contract farming. As indicated elsewhere, Dorward *et al*. (2001) argued that accumulation of assets is generally aimed to support production and livelihoods in general. A choice to produce tobacco is followed by the acquisition of assets and capabilities aimed at supporting the new source of livelihood. However, these assets are still at subsistence levels for both sets of farmers given the slow progression and adoption of capital-intensive farming methods by small-scale farmers. Tobacco contract farming arrangements in Mazowe are restricted to provision of inputs and working capital which also explains the low levels of capitalisation for the farmers under contract, who have continued to use traditional forms of equipment used by their peers who are not contracted.

5.2.1. Financial Additionality

The survey also sought to establish the sources of finance and the results are shown below. All contract farmers indicated that they received finance from the contracting firm in the form of inputs and working capital to finance labour cost. However, 36 of those surveyed relied on personal savings as additional finance for the production of the crop. Most farmers were also cognisant of the fact that their labour, draft power and other assets were a form of financial contribution towards

the production of the crop. This indicates that contractors were not fully financing the tobacco crop. A review of the contracts showed that firms generally provide inputs and a portion of working capital, the assumption being that the farmers use household labour yet survey results show that farmers hire causal labour. There were no other sources of finance for the farmers as responses on government and bank loans, and donations were all zero (Table 5.3). Non-contract farmers had no other sources of finance, only relying on personal savings. This is a major difference between the two groups.

Given that contract farming was the only source available, we can conclude that there was 100 percent financial additionality attributed to the contract farming arrangement, while non-contract farmers had zero financial additionality as they all relied on personal savings to finance their crops. Additional sources of finance are important in tobacco production as the demand for hired labour increase as the crop approaches maturity and during harvest time. The quality of tobacco is very volatile during harvest and curing stages, hence the need for extra labour so that all processes are done timeously.

Table 5.3: Sources of finance for contract and non-contract farmers

	Contracting firm	Personal savings	Bank loan	Government loan/guarantee	Donation
Contract farmer	39	36	0	0	0
Non-contract farmer	0	37	0	0	0

This variable can easily explain both the production and price differences of the tobacco crop. Failure to acquire the right inputs timeously and other production resources can have negative impacts on the quality of the crop which can lead to lower prices at the marketing stage.

5.2.2. Supply of inputs and extension services

The quality of inputs determines the quality of the leaf brought to market. Tobacco buyers are sensitive to fertiliser and chemical use in tobacco production and hence tobacco with the wrong type of fertilisers will attract poor prices. Limited resources expose farmers to the risk and temptation of using low quality and forbidden fertilisers.

The survey results in Table 5.4 shows that 100 percent of contract farmers had access to extension services while 35.1 percent of non-contract farmers had no services at all. Government extension services are generally not reliable due to financial constraints facing government (MAMID, 2013 a & b) and hence the 64.9 percent might not be receiving adequate services. All contract farmers indicated that they received inputs from the contracting firm, yet non-contract farmers financed their inputs from their personal resources.

Extension services are crucial in the production of specialised crops like tobacco. Most government agronomists are not specialists in tobacco production which could compromise the quality of service provided to farmers. As discussed elsewhere donors offer very little support to tobacco producers which leaves the farmers with very little capacity building in terms of skills needed in the production and packaging of tobacco.

Table 5.4: Provision of extension services

Current farmer status (2013/14 season)		Frequency	Percent
Contract farmer	Government extension workers	1	2.6
	Contractor extension workers	34	87.2
	Both	4	10.3
	Total	39	100.0
Non-contract farmer	Government extension workers	24	64.9
	None	13	35.1
	Total	37	100.0

As shown in Table 5.5, 97.4 percent of contract farmers get their inputs from contracting firms while 97.3 percent of non-contract farmers source their own inputs. This confirms that the contract arrangement is a resource and marketing contract. The contracting firm provides inputs and extension services thereby exercising extensive influence on the farmer's operations which positively impacts on the quality of the crop. As a result we can attribute the difference in performance of the two groups if any to contract farming intervention.

Table 5.5: Sources of inputs

Current farmer status (2013/14 season)		Responses N	Percent cases
Contract farmer	Contractor	38	97.4%
	Self	1	2.6%
Non-contract farmer	Self	36	97.3%
	Friends	1	2.7%

More important is the fact that provision of inputs is important for the quality and yields of the crop. As in extension services and finance this is also an important explanatory variable in the different performance of the different farmer groups.

The results of the survey help to confirm two issues:

- The two groups are homogenous in terms of the farmer characteristics like age, education, asset holdings and training. The farmers have no other risk mitigation measure as the survey shows that 95 percent had no insurance.
- Contract farming intervention is the major difference between the groups in terms of supply of inputs, finance and technological transfers particularly in respect to erection of modern curing barns. The contracting firms also offer extension services to contracted farmers, a service that non-contract farmers have no access to.

Research in tobacco production indicates that access to these latter services is critical for farmer productivity and quality of the tobacco crop (Gadzirayi *et al*., 2008).

5.3. CONTRACT VERSUS NON-CONTRACT PERFORMANCE

Data extracted from the TIMB database shows that over a period of five years, contract farmers outperformed non-contract farmers in terms of production and price per kilogramme of tobacco delivered for sale. Production by contract farmers has been increasing since inception and in 2013 34 280 farmers produced 67.66 percent of the crop while 44 476 non-contract farmers produced the remainder (Table 5.6). The objective of the research was to test if indeed there was a significant difference between the two groups and if the contract farming arrangement had an impact on the farmers' income and productivity. Table 5.7 below presents the results from analysis of variance tests for the three groups. The researcher further performed an analysis of variance to test whether this was indeed a material difference.

Table 5.6: Production and average prices for contract and non-contract farmers: 2004-2013

Year	No. of contractors	Production (million kgs)	Usd/kg	Production (million kgs)	Usd/kg	Total production (million kgs)	Total usd/kg
2004	6	16	2.13	53	1.95	69	1.99
2005	6	28	1.87	45	1.44	73	1.61
2006	7	30	2.08	25	1.88	55	1.99
2007	11	44	2.26	30	2.4	73	2.32
2008	15	33	3.13	16	3.44	49	3.23
2009	13	42	3.03	16	2.86	58	2.99
2010	12	79	3.04	42	2.63	122	2.89
2011	12	74	2.97	58	2.42	132	2.73
2012	12	92	3.72	53	3.52	144	3.66
2013	15	113	3.74	54	3.54	167	3.67

ANOVA tests were run to determine if there are significant differences on the mean production over the five years from 2009-2013 and quality of produce with average price being a proxy for quality. Contract farmers who sold their produce to contracting firms outperformed non-contract farmers and the mixed group in terms of production volumes of tobacco to contracting firms' floors. However, the mixed group of farmers who delivered to both auction and contracting firms' floors had better prices, as they could access better prices offered at the two floors. Below are the results from the ANOVA test.

Table 5.7: Overall results

ANOVA						
		Sum of Squares	Df	Mean square	F	Sig.
MASS_sum_sum	Between groups	2.042E10	2	1.021E10	22.691	.000
	Within groups	6.481E10	144	4.500E8		
	Total	8.523E10	146			
price_perkg_mean_1	Between groups	2.871	2	1.435	9.277	.000
	Within groups	22.279	144	.155		
	Total	25.150	146			

Table 5.8: ANOVA F-tests results for 2009-2013

Year		F test statistic	Conclusion
Overall (sum over the five years)	Production	22.691 (p-value=0.001)	Contract farmers' production was superior to non-contract and mixed group
	Quality (Av price/kg)	9.277 (p-value=0.000)	Mixed group of farmers earned better prices per kg sold than contract and non-contract
2013	Production	7.575 (p-value=0.001)	Contract farmers' production was superior to non-contract and mixed group
	Quality (Av price/kg)	2.350 (p-value=0.1)	No difference in average price of a kg of tobacco
2012	Production	0.679 (p-value=0.510)	No difference in average production sold
	Quality (Av price/kg)	1.457 (p-value=0.238)	No difference in average value of a kg of tobacco
2011	Production	3.811 (p-value=0.025)	Contract farmers' production was superior to non-contract and mixed group
	Quality (Av price/kg)	0.904 (p-value=0.408)	No difference in average value of a kg of tobacco
2010	Production	4.851 (p-value=0.01)	Average of production sold on both types of floors was superior to that of contract and non-contract farmers
	Quality (Av price/kg)	5.299 (p-value=0.007)	Non-contract farmers had better prices than contract and mixed group
2009	Production	1.878 (p-value=0.159)	Contract farmers' production was superior to non-contract and mixed group

Test for individual years show that on average production under contract is superior to non-contract production, however, the average price was almost the same in all markets. Given high volumes contract farmers can benefit from high sales volumes if compared to non-contract.

5.4. INSTITUTIONAL SERVICES TO FARMERS

Farmers' responses on services showed that the major issue of contention is the classification, grading and pricing of tobacco (Table 5.9), which they feel had no relationship. Further, this aspect is not fully understood by farmers. A figure of 56.41 percent of contract farmers felt that regulation could address such issues as prices pointing to weak contractual relations between the parties. Lack of financial support affects non-contract farmers the most as 67.56 percent raised it as an issue and they believe government can help facilitate loans for tobacco production.

Table 5.9: Service issues raised by farmers during survey

Issue	Contract farmers		Non-contract farmers	
	Frequency	Percentage	Frequency	Percentage
Classification, grading and pricing of tobacco	33	84.6	31	83.78
Full financial and material support	18	46.15	25	67.56
Regulation and policy	22	56.41	24	64.86
Government agronomist must provide training	0	0	10	27
Corruption	10	25.64	12	32.64
Debt recovery by contractors is harsh	12	30.77	0	0

5.5. INTERPRETATION OF FINDINGS

5.5.1. Productivity

The objective of this research was to evaluate the effectiveness of contract farming arrangements and their impact on the welfare of tobacco contract farmers. To achieve this, a comparison of contract and non-contract farmers was done to determine which group had superior performance as compared to the other. To assess the impact, it was critical to establish the degree of homogeneity within the groups. The results on farmer characteristics show that there is no significant difference between the groups under study. The only difference is the contract farming intervention measured in terms of input supply, provision of extension services and access to working capital to pay expenses like labour – issues that could impact on productivity. Survey results show that contract farmers had access to these facilities in addition to their own resources, which explains their superior performance in terms of productivity when compared to non-contract farmers. Research on tobacco production stresses the importance of extension services training in tobacco production. Further, tobacco production is capital intensive which requires extensive investment in farm infrastructure. While the two groups seem to have curing barns, financial limitations might compromise the quality of barns constructed by non-contract farmers.

5.5.2. Market access and prices

Contract farmers who sold their tobacco to both auction and contracting firms had better prices. This result shows that side marketing is rampant as supported by the results of the survey (Table 5.10) showing that 25.64 percent of contract and 29.71 percent of non-contract farmers sell at both floors. Selling at both markets enables farmers to benefit from better prices prevailing at different markets at different times. Farmers have a right to withdraw their crop from sale and hence can seek better prices elsewhere. This can be done by the well-informed farmers.

Table 5.10: Where did you sell your tobacco in 2014?

	Contract farmer		Non-contract farmer	
Contract	29	74.36%	1	2.72
Auction	0	0	25	67.57%
Both	10	25.64%	11	29.71%
	39	100%	37	100%

Contract farmers sell at the auction floors if they exceed their quota with the contractor or to avoid loan repayments if their sales go through another grower. Non-contract farmers easily access contracting firms looking to purchase the best crop, further supporting the finding that farmers who sell at both markets have a better price. From the table above, one can insinuate that there is potential collusion of farmers in marketing their crops given the social relations in communities. Lack of traceability and homogeneity of the tobacco crop also increase chances of collusion, which tends to affect tobacco prices at both auction and non-auction markets. Increased supply of tobacco to contracting firms results in a fall in prices as the forces of supply and demand come into play, thus affecting the prices received by contracted farmers. As prices in the non-auction floor decline they converge with those in the auction market – a situation supported by the finding that prices in the two markets are not significantly different. However, this assertion and its implications can be a subject of analysis in a separate research.

5.5.3. Sustainability of contract farming

Table 5.11 shows that only 48.7 percent of contract farmers were willing to continue under contractual-based farming, a sign of high dissatisfaction among contract farmers. There is also no mitigation against any risk faced by farmers, thus increasing their indebtedness during bad seasons. Over 90 percent of the farmers have no insurance (Table 5.12).

Table 5.11: Do you wish to produce tobacco under contract next season?

	Contract farmer			Non-contract farmer		
Decision	**Yes**	**No**	**Response missing**	**Yes**	**Not decided**	**Response missing**
Responses	19	18	2	32	4	1
Percentage	48.7	46.2	5.1	86.5	10.8	2.7

Table 5.12: Do you insure your tobacco?

Current farmer status (2013/14 season)		Frequency	Percent
Contract farmer	No	36	92.3
	Yes	3	7.7
	Total	39	100.0
Non-contract farmer	No	35	94.6
	Yes	2	5.4
	Total		100.0

Services like insurance require institutional and regulatory support for them to flourish and be beneficial to both parties.

5.6. CONCLUSION

Contract farming arrangements contributed to better yields for farmers; however, there was an insignificant difference in the price received by the farmers. Farmers exhibited similar characteristics mainly because contracting firms offered inputs and working capital, leaving the contracted farmers at the same level in terms of capital equipment. The inputs, extension services, working capital and farm visits offered to contracted farmers seem to explain the difference in productivity levels of the farmers.

CHAPTER 6

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1. INTRODUCTION

Contract farming arrangements have the potential to uplift small-scale farmers' welfare and quality of life through provision of agricultural production resources and access to markets. High productivity (yields) levels point to increased efficiency on the farm, leading to reduction in cost and an increase in income to contract farmers due to increased output despite them getting almost the same prices with non-contract farmers. This is more critical for African countries where financial support to agriculture is low, and countries like Zimbabwe that face economic challenges can benefit from such arrangements. This (CF) intervention works well where the necessary public goods, institutions and land markets operate efficiently – issues of concern in Zimbabwe.

6.2. SUMMARY

NEPAD endorsed contract farming as a tool to improve productivity, increase small-scale farmers' income and alleviate poverty in Africa (NEPAD, 2013b). This research sought to investigate the effectiveness of contract farming in improving productivity and income of tobacco farmers in the Mazowe district of Zimbabwe through a comparative analysis of contract and non-contract farmers. The objective was to evaluate if contract farmers had superior performance to non-contract farmers which would confirm the argument presented by various researchers that contract farming improves the welfare of farmers (Minot, 1986; Miyata *et al*., 2009). Using descriptive and inferential statistics an evaluation of tobacco farmers in the Mazowe district showed that the contract farming arrangement resulted in contract farmers performing better than non-contract farmers in terms of productivity. Prices attained by contract and non-contract farmers were not significantly different.

Over the five-year period, ANOVA results showed that contract farmers had superior production mainly because they had access to inputs, working capital and extension services. Non-contract farmers did not have these services at their disposal, instead relying on generalised government extension services. More important was the fact that contracting firms provided financial access to contract farmers while the other groups had no other source of finance apart from their personal resources. This tends to compromise on the quality of inputs and farm infrastructure needed for tobacco production leading to low output and poor quality tobacco which attracts poor prices at the auction floors.

Contract farming provided 100 percent financial additionality in the Mazowe tobacco farming district. There were no loans from any other source to contract and non-contract farmers, showing that contract farming is an alternative financing mechanism for agriculture. This is critical for a country like Zimbabwe facing liquidity and economic problems, and where both the government and banks are unable to provide loans or any form of financial service to the farmers. The research

also found that government was not able to provide extension services to all farmers with 35 percent of non-contract farmers reporting that they received no services at all. This is understandable given the withdrawal of donors and other partners in supporting agriculture in A1 and A2 farming models, thus creating a financing gap for capacity building. This also emphasises the importance of contract farming as an important institution in tobacco production.

The research also found that the success of contract farmers will depend on effective institutional support, sound financial infrastructure, enabling regulatory environments and contract farming policy issues raised by farmers. Further, the research noted that 46.2 percent (Table 5.7) of contract farmers would wish to pull out of the contract farming arrangement citing the heavy-handedness of contracting firms when it comes to debt recovery irrespective of the conditions leading to default. Contracting firms even attach farmers' assets in order to recover loans advanced. This shows a poor risk-sharing mechanism, as the research found out most farmers who participated in the survey had no insurance to manage any form of on-farm risks (Table 5.8). This fact points to weaknesses in institutions, particularly given that Zimbabwe has no contract farming legislation and policy to support both farmers and firms (MAMID, 2013a).

Despite the fact that those under contract would wish to opt out if contractual conditions did not improve, over 86 percent of non-contract farmers were looking forward to joining contract farming arrangements so that they could access finance and inputs. This is also supported by the rapid increase of contract farmers from 1 373 to 34 280 in 2013 (TIMB, 2014; Dawes *et al*., 2009) showing increased uptake of tobacco production by communal farmers.

6.3. CONCLUSION

Contract farming as a policy initiative and intervention has the capacity to uplift the production of small-scale farmers and increase their production and incomes. Findings from this research show that contract farmers had better production volumes when compared to non-contract farmers. This performance was attributed to intervention by contracting firms. In order to maximise benefits there is a need for investment into agriculture, both in physical infrastructure and soft infrastructure like financial services and research and development. NEPAD recommends budgetary allocations of at least ten percent for countries to move towards this goal. Support institutions should also be put in place to include a legal framework as well as contract enforcement mechanisms.

6.4. POLICY IMPLICATIONS

Contract farming has the potential to unlock small-scale farmers' potential in agriculture through provision of inputs, extension services and transfer of technology. This is in line with the government strategy of "improving farmers' access to production finance and services, as well as linking farmers to markets" (Government of Zimbabwe, 2013). However, for this to be possible there is a need for a holistic approach to investment in agriculture which will create a conducive

operating environment for the farmer and contracting firm. It is important to establish sound institutions and a legal framework to support both farmers and firms in contract development and enforcement, provision of public goods supportive of agriculture and risk management mitigation measures. Government needs to invest in infrastructure and other public goods, learning from such initiatives as the Beira Agricultural Corridor and SAGCOT (Government of Tanzania, 2011).

Land reform has been a topical issue in Zimbabwe since the onset of the war of liberation, and its logical conclusion is important for investment in agriculture. Land reform efforts to allocate land to peasants without the necessary infrastructure and support service impacts negatively on productivity. However, this could change if government finalises land titling, provides public goods and creates an enabling environment for farmers to access finance and markets. Research has shown that land tenure and security is critical for on-farm investment by farmers (Richardson, 2005), an issue that is necessary for capital and labour intensive crops like tobacco. Banks are currently not lending to smallholders because of high transaction costs, non-securitisation of rural land and the non-transferability of the 99 lease agreements. A vibrant land market is critical for use of land as collateral. The government needs to finalise land tenure and ownership for small-scale farmers, who are now the majority of tobacco producers and players in the agricultural sector, to allow them to enter into long-term contracts.

Contract farming arrangements are currently providing short-term contracts restricted to season inputs, a situation that could change with security of tenure. Long-term contracts can be bankable in the sense that farmers can use them as collateral in accessing farm implements and capital improvements. Tobacco production is capital intensive and involves the construction of immovable infrastructure like curing barns; without supportive land tenure systems investors cannot invest in such projects which leads to low quality produce by the farmers.

Risk management is critical in agriculture; this calls for government investment in risk mitigation facilities like weather stations for insurance. Given that farmers have no mechanisms to deal with the risk of potential debt default, conflicts with contracting firms will always be unavoidable.

6.5. RECOMMENDATIONS

Survey results have shown that a significant number of contract farmers surveyed, wish to leave the contract farming arrangement; the major reason cited being contractual problems. Farmers surveyed indicated that this is because of high indebtedness which arises when their tobacco is bought at below costs or during a bad season when there is crop failure. Further, the farmers argue that there is no relationship between TIMB classifications and the prices received.

For a mutually beneficial relationship, the contracting firms should consider the following:

- Including insurance in contracts to cover for weather related risks like storms which affect the quality and prices of the crop.

- Providing adequate production resources, inputs and working capital to guarantee timely tobacco processing. Lack of labour at harvest and curing stages greatly affects the quality of the crop and the subsequent prices.
- Educating farmers on quality, packaging and tobacco handling to minimise conflicts at the marketing stage.
- TIMB to sanction contracts with balanced risk-sharing mechanisms. Contractors should advances credits to farmers with capacity to produce, cure and deliver tobacco. The current situation where farmers with inadequate curing barns are allowed to take debt can only increase farmer indebtedness
- Government and TIMB should also work mechanisms that allow farmers to share curing facilities taken over from large-scale commercial farmers who lost during the land reform.
- Government can also provide services like soil testing and other agro-based technical know which will form the basis of contracting between the parties.
- Institutional support is also critical for the success of the contract farming arrangement.
- Government needs to develop contract farming legislation to add weight to intended policy initiatives. At the moment, 15 pieces of legislation and a host of statutory instruments are used to administer contractual relations between farmers which tend to create confusion and complicate arbitration should problems arise (MAMID, 2013a).

6.6. LIMITATIONS

This research was restricted to one geographical region due to limited resources. However, tobacco production is widespread in the country's five regions with different weather patterns, infrastructure and soil structures. More farmers in regions not traditionally known for tobacco production have vigorously taken to tobacco production, and given the lack of soft and physical infrastructure, the results from this study might open up the need for a wider country study. The data used was for the period 2009-2013 even though contract farming started in 2004. For more robust results a longer period could be necessary.

6.7. FURTHER AREAS OF RESEARCH

Use of contracts in tobacco production is a recent phenomenon in Zimbabwe. There is still widespread mistrust and conflict particularly in quality and pricing determination, and most contracts seem to avoid the tackling of this important issue. There is a need for research to provide guidance in this area and the transformation from auction to workable contract-based marketing and production. For the two marketing systems to co-exist there is a need for effective policy and legislation supported by good institutions; this all calls for research to help in the development of functional institutions geared towards serving the farmers. Marketing of tobacco has continued to

use auction-based infrastructure, however, as contract farming develops there is need for further research to develop structures that will help reduce transaction costs in the marketing and production of tobacco.

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APPENDIX 1

MAJOR CROPS AND LIVESTOCK BY SECTOR, PRODUCTION IN TONNES, AREA IN HECTARES AND YIELD IN KG/H, 2011

Crop/ sector		LSCF	SSCF	A2	A1	OR	communal	Total
Maize	Production	22 565	31 436	143 089	257 521	123 598	960 368	1 538 577
	Area	45 494	17 398	233 123	209 100	94 073	411 285	1 010 473
	Yield	2 016	553	1629	812	761	428	657
Sorghum	Production	574	1 107	1 793	17 760	3 888	197 866	222 988
	Area	413	255	1 398	5 827	876	41 780	50 549
	Yield	720	230	780	328	225	211	227
Sunflower	Production	96	455	1 451	2 393	4 710	17 058	26 164
	Area	46	128	797	827	2 221	4 218	8 237
	Yield	478	281	549	346	472	247	315
Groundnuts	Production	526	8 052	9 208	31 907	19 362	260 748	329 803
	Area	249	2 528	7 213	11 200	8 187	68 127	97 507
	Yield	474	314	783	351	423	261	296
Soya beans	Production	4 805	317	26 230	5 654	949	6 717	44 672
	Area	8 145	100	37 812	4 929	440	2 423	53 849
	Yield	1 695	317	1 442	872	463	361	1 205
Cotton	Production	187	6 142	7 744	42 301	17 346	172 840	246 559
	Area	118	3 290	4 812	18 404	10 942	102 701	140 267
	Yield	631	314	621	435	631	594	569
Edible dry Beans	Production	597	1 457	7 390	6 089	2 990	35 262	53 786
	Area	487	303	3 344	1 890	1 178	8 827	16 028
	Yield	815	208	452	310	394	250	298
Tobacco	Production	17 825	1 979	30 167	27 578	18 671	21 067	117 287
	Area	27 410	1 680	30 817	31 963	17 290	15 897	125 056
	Yield	1 538	849	1 022	1 159	926	743	1 066
Livestock cattle		191 831	123 618	330 112	816 794	439 003	3 872 264	5 773 620
Sheep		15 101	3 882	15 906	34 798	14 137	225 181	309 005
Goats		11 275	38 649	116 639	470 573	217 742	3 593 255	4 665 875
Pig		24 973	6 032	50 850	24 562	24 537	260 220	391 174
Donkey		75	3 479	3 712	72 554	15 925	466 552	562 297
Poultry		309 035	219 301	737 060	1 879 466	880 053	10 059 835	14 084 750
Employees in 2010		100 692	6 401	141 937	145 512	43 348	376 747	792 745
Wages (US$,000) in 2010		50 783	1 505	57 701	33 076	7 054	52 246	199 784

Source: Zimstat, 2012.

APPENDIX 2:

SURVEY QUESTIONNAIRE

Good day and thank you for your time. I am Moses Moyo, a student from the University of Stellenbosch Business School in South Africa. I am conducting a survey to gain understanding of tobacco production and marketing needs in Zimbabwe. Information from this survey will assist policy makers understand the demands of financing tobacco which is a major export crop and employer in Zimbabwe, this will help in the development of contract farming in Zimbabwe.

It will take about 20 minutes to complete this questionnaire. Information you provide will be kept confidential and your contact details will not be captured in this questionnaire or in any other form. Participation in this survey is out of your free will and should you decide not to answer or complete the process you are free to say so.

Should you have any queries about the survey, you can contact me, Moses Moyo at mobile number: 0772 416 529; Stellenbosch Business School Lecturer, Professor Sylvanus Ikhide at +27 (0)21 918 4485, or Mrs D W Jacobs the programme administrator on +27 (021) 918 4256.

Section A: Demographics

Instructions: Circle the appropriate code or write the response in the spaces provided

A1: Current Farmer status (2013/14 season) 1=Contract farmer 2=Non-contract farmer
A2. Sex 1=Male 2=Female
A3. Age --------Years

A4. Highest qualification of education attained

1=Did not go to school	2=Primary	3=O level
4=A level	5=College certificate	6=Diploma
7=Degree		

A5. Number of people in your household._____

Section B. Livestock and Assets

B1. How many of these assets and livestock do you own? ***(Write 0 if none)***

(a) Cattle_____ (b) Donkeys_____
(c) Ox drawn plough_____ (d) Scotch cart_____
(d) Tractor_____ (f) Motor vehicle_____
(g) Motor bike_____ (h) Generator_____
(i) Water pump_____ (j) Barns_____
(k) Cell phone_____ (l) Radio_____
(m) TV_____ (n) Sprays_____

SECTION C: Tobacco farming

C1.Source of labour for the 2012/13 season: How many members worked for you in the 2012/13 tobacco growing/production season?

1= HH members_____ 2= Hired/casual/ contract workers_____ 3= Permanent workers_____

C3. Rank the sources of finance for your tobacco farming activities for 2012/13 season. ***Rank 1 is the source which provides most***

Rank	1	2	3	4
Source code (see codes below)				

1=Gvt grant *2=Gvt loan* *3=Bank loan* *4=Contractor*

5=Personal savings *6=Other, specify*

C4. Do you have a bank account? 1=Yes 2=No

C5.Who provides you with extension services?

1=Government (Gvt) extension workers 2= Contractor extension workers
3=Both 4=None

C6. What were your sources of inputs (seeds/seedlings, pesticides/herbicides, fertilisers) for the 2012/13 tobacco season?

1=Gvt 2=Contractor 3=Self 4=Friends

C7. Have you attended any tobacco production training courses?

Training type	Trainer

Section D : Contract farming

D1. What are the advantages of contract farming?

1=Source of finance

2=Access to markets

3=Extension services

4=New technology

5=Other, specify_____

D2. Are you going to/would you consider to produce tobacco under contract next season?

0=No 1=Yes 2=Not decided yet

D3. What the disadvantages of contract farming?

_____

_____

_____

D4. Where do you sell your tobacco?

1=Contractor 2=Auction 3=Both

Section E: General

E1. List services you wish to receive from TIMB, Government and contractor.

TIMB	Government	Contractor

E2. Do you insure your tobacco?

0=No 1=Yes

Thank you, I value and appreciate your participation.