

## Transactional Costs Inhibiting Sustainable Entrepreneurial Agrarian Growth: Reflective Evidence from Small scale Farmers (SSFs) in South Africa

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**ABSTRACT** Small-scale farmers (SSFs) in peri-urban areas have limited access to factors of production in spite of their important role in South Africa's economy and in the welfare of both rural and urban households. Productivity of SSFs is often constrained by high transactional costs among other constraints. This study provides a reflection on challenges faced by successive small-scale farmers (SSFs) in South Africa, particularly as it relates to agricultural transactional costs. It examines the transactional cost patterns in terms of their sources and some spatial agglomerations. The results suggest that SSFs experience high transactional costs that significantly inhibit sustainable agrarian growth. Investments in farming skills, vocational training, entrepreneurial alternatives, training on financial and management skills may improve income opportunities for SSFs, and hence enhance their ability to reduce costs. Better roads, telecommunications and legal institutions are also required to cut costs and enhance investment in SSFs growth. Implications and recommendations are provided in-text.

### INTRODUCTION

There is a resurgence of interest in acknowledging and understanding the socioeconomic value of small-scale farming entrepreneurs in South Africa. The practice of small-scale agricultural farming is a basis upon which most households can enhance their food security (Douglas 2013) through increased incomes and fresh produce food supplies, ultimately supplying the retail sector and generating additional income for household needs (Mashamaite 2014). Small-scale farmers in rural South Africa have received little attention despite the fact that South Africa's rural and peri-urban areas are generally poor and unproductive relative to urbanized zones (GDARD 2014). This study provides a reflection on challenges faced by successive small-scale farmers (SSFs) in South Africa, particularly as it relates to agricultural transactional costs. To that end, the study dissects a number of issues related to this progressive component of the agro-based economic sector, which has great potential for employment creation and poverty alleviation. The study then turns to explain the transactional cost patterns, largely in terms of their sources and some spatial agglomerations.

In South Africa, SSFs (emerging entrepreneurial farmers) can be broadly viewed as repre-

senting households for which farming revenue comprises only a portion of their gross income (DAFF 2013). Farm output ranges from near subsistence to the production of modest marketable surpluses, distributed through the Johannesburg agricultural markets. Development and growth of small-scale agricultural entrepreneurs are perceived to be constrained primarily by funding issues, particularly as it relates to farming input costs (Douglas 2013). Although research has acknowledged access to funding as an important tool for overcoming growth and performance constraints (Ramoroka 2012; Mwobobia 2012; Ortmann 2006), South Africa still needs to direct considerable resources towards small-scale farming entrepreneurship.

One of the impediments of sustainable performance growth of SSFs can be attributed to the negative effects of transactional costs. Transactional costs affect access to markets for inputs, products and contractor services (Ramoroka 2012) and vary with gender, education, off-farm migration, length of residency in the area and proximity to formal markets (Mwobobia 2012). While transaction costs may be relatively low in informal markets, this does not imply that they are low in absolute terms. Transactions in informal markets tend to be highly personalized, with unique terms negotiated by both

parties. Ramoroka (2012) frequently refers to the influence of gender and social standing on the outcome of disputes, with women facing greater uncertainty. In contrast, transactions in formal markets are fairly impersonal. Each applicant is assessed on the same economic criteria of collateral, debt repayment capacity and transaction costs (Douglas 2013). A contract is drawn up and is legally binding on both parties, and disputes are handled by an impartial third party. It follows that people who live and farm in rural areas (mainly women) may encounter relatively high transaction costs, even in local markets (Mashamaite 2014). Consequently, when engaging in credit transactions they tend to borrow from friends and family in order to minimize costs.

To understand some of the challenges faced by SSFs, the research will analyze the impact of the transaction cost that impedes the growth and sustainability of SSFs. According to Moraka and Makhura (2011), transactional costs result from complexities of transactions. Transactional costs in production, marketing and processing typically arise because market prices do not fully reflect the true cost and returns to all market actors (Douglas 2013), who have an equal endowment and for whom market solutions may not be available to all. Some transaction costs are related to physical details of the transaction, such as transportation, packaging or handling (Pingali and Khwaja 2004). Others result from information asymmetries and contract related problems, which cause economic agents to incur expenditure associated with search, recruitment, coordination, supervision, management and litigation (Mwobobia 2012).

This study endeavors to provide some recommendations on the challenges faced by small-scale farmers and how to mitigate transactional costs. The research is based on the fact that the incumbent government continuously struggles to successfully establish progressive small-scale farming entrepreneurs in terms of their production levels, profitability and sustainable growth, and part of the reason for their lack of meaningful participation in post-apartheid economic mainstream, and the stagnant agricultural transformation. Further, it is essential to quantify the relative importance of transactional cost constraints faced by SSFs, as that would assist the planning and prioritization processes.

## Literature Review

Research has acknowledged the importance and contribution of small-scale farming and that if SSFs could overcome some constraints, they would enter the product markets and experience sustainable growth and performance (GDARD 2014). A number of empirical studies, among them those by Van Zyl et al. (1996) and Holden and Binswanger (1998) conclude that SSFs tend to be more productive than large farms. Moraka and Makhura (2011) present an extensive review of the literature on small farm productivity. The major reason cited for higher levels of efficiency is the higher productivity of farm-family labor and lower supervision costs compared to large farms. Small-scale farming is also a means of food production, located mainly in the former homeland areas and cover approximately thirty percent of the provincial land surface (Kamal 2013). SSFs face two main difficulties in trying to adapt to modern food systems. The first concerns their ability to commercialize from production systems that are often semi or fully subsistence, and the second concerns the actual crop or enterprise choice.

However, that efficiency is often rooted in traditional crop production, often for own consumption purposes. The difficulty for SSFs is whether the existing production structures can be geared toward the market and at what cost. The alternative is to remain in a form of production that is semi or fully subsistent (Kamal 2013). Over time, subsistence farming in any form is not a viable activity for safeguarding household food security and welfare (Pingali 1997). What policymakers then need to consider is what the best exit strategies are for farmers who cannot remain in farm production. South African farmers currently receive less support from the state than their counterparts in every industrialized country in the world with the exception of New Zealand (Van Zyl 1998).

## Small-scale Farmers

There are approximately 225,000 SSFs who are predominately Black people, also due to the apartheid legacy, which had an adverse effect on their growth and sustainability as opposed to their White counterparts (DAFF 2012). Emerging farmers in South Africa emanate from the group of smallholder farmers, who were previ-

ously excluded from the mainstream of the economy, and are predominantly emerging previously disadvantaged Black farmers (GDARD 2014). The majority of these previously disadvantaged farmers do not form a part of mainstream agriculture economy and generally practice subsistence agriculture in the former homelands (Hall 2007). Subsistence farming is often equated with a backward, non-productive, non-commercial agriculture that one finds in parts of the former homeland areas (Ramoroka 2012). In South Africa, “small-scale” is often equated with backward, non-productive, non-commercial, subsistence agriculture that one finds in parts of the former homeland areas (Pingali and Khwaja 2004). It is generally associated with Black farmers, as if they do not have the ability to become large-scale commercial farmers. On the other hand, White farmers are generally perceived to be large-scale commercial farmers, who are modern and efficient, and using advanced technology (Van Zyl 1998).

The concept of small-scale agriculture in South Africa is laden with subjectivity and has been associated with non-productive and non-commercially viable agriculture (Kamal 2013). In recent years, some effort has been made to find a socioeconomically accurate definition of a small-scale farmer that was relevant to South Africa (Hall 2007). An appropriate definition would then enable the government to make Black farmers the target of various support measures that would improve their access to resources, thus redressing the inequities created by past apartheid policies. The problem is that Black farmers are not a homogeneous group and a number of them cannot be defined as small-scale, whether ‘small’ refers to land size, income or labor utilization (DAFF 2012).

In general, most Black farmers, whether small-scale or not, have limited access to land and capital, and have received inadequate or inappropriate research and extension support (Hall 2007). This has resulted in chronically low standards of living and reliance to a greater or lesser extent on subsistence production. To achieve the government’s objectives of Black empowerment and poverty alleviation, policy must address problems faced by Black farmers in general and resource-poor farmers in particular (DALA 1998). Furthermore, increasing productivity in small-scale agriculture will have significant broader economic benefits (Kamal 2013). Sus-

tained and significant growth in employment and livelihoods in agriculture is unlikely to be achieved from formal wage employment alone. The rate and extent of development in a more diversified farm sector, but especially in small-scale agriculture, will determine such growth (DAFF 2012).

There is considerable international evidence of the efficiency and labor intensity of small-farm agriculture in a wide variety of agroecological circumstances. While this may not necessarily apply in all parts of South Africa, small-scale farming generally means that labor is substituted for machines (Kamal 2013). Therefore, production outlays that would have been allocated to paying interest, loan repayment and depreciation costs on machinery, are instead paid as wages to labor, or earned as self-employment incomes by family farmers. In addition, small-farmers tend to make crop choices different from those made by large farmers. In particular, they tend to allocate more of their land to staple foods, vegetables, and drought-resistant crops that are less risky and also more labor intensive, than the monocrop agriculture favored by large farms (DAFF 2013).

SSFs, on international evidence, also tend to use their land more productively for larger parts of the year than large-scale farmers. In particular, small-farmers’ access to family labor often encourages them to make year-round use of available irrigation water. Finally, small-farm production is indirectly labor-creating as well, because it results in income flows to low-income rural dwellers that tend to purchase services, building materials and consumer goods from local small-scale rural services and industries (DAFF 2012).

### Transactional Costs

The economic importance of transaction costs is widely recognized. Transaction costs, which reflect the costs for an economic organization both outside the firm and inside the firm, are one means by which one can measure the efficiency of different institutional designs in achieving economic outcomes in particular environments (Chikazunga 2012). Transaction costs can be defined as “expenses incurred when buying or selling securities”. They include brokers’ commissions and spreads (the difference between the price the dealer paid for a se-

curity and the price the buyer pays). The transaction costs to buyers and sellers are the payments that banks and brokers receive for their roles in these transactions (Pingali and Khwaja 2004). There are also transaction costs in buying and selling real estate. These fees include the agent's commission and closing costs, such as title search fees, appraisal fees and government fees (Pingali and Khwaja 2004). A transaction cost can be explicit in terms of production cost, transportation cost, marketing cost, or handling and packaging cost. It can also be implicit in terms of the cost of information and reputational cost. However, the impact of transactional costs may be some of the main reasons why SSFs failed to take advantage of South Africa's cultivation potential (Chikazunga 2012). Over and above, in South Africa, financial intermediaries have not been able to accommodate small-scale rural farmers because it is a risky, costly and difficult task associated with high transaction costs. Lack of information prevented large formal lenders who had capacity to serve the SSFs and the poor from doing so.

For farmers, transaction costs are those associated with participation in the increasingly vertically coordinated markets. Such costs can be household specific, such as access to assets, or they can be the same for all farmers in a particular location, such as land quality, or producing a specific product, such as perishable fruit and vegetables (Chikazunga 2012). It is the bundle of transactional costs that farmers face that determines market participation. Interactions between the unique features of food system participation and other household and location-specific characteristics can further exacerbate transaction costs. Farmers will not enter markets when the value of participating is outweighed by the costs of undertaking the transaction (Sadoulet and De Janvry 1995).

Variances across regions matter in determining the level of transactional cost. Farmers in high-potential areas may experience a lower total level of transaction costs than those in low-potential areas. High-potential areas generally have better transport and communication infrastructure and hence relatively lower search and information costs (Kamal 2013). Where road density is low (often the case in low-potential areas), accordingly transaction costs associated with accessing markets and information tend to be high. Poor road infrastructure increases trans-

portation time and therefore costs. The price that farmers receive will be net of some of these costs if not all, reducing the incentive to enter commercial agriculture. Distance to a paved road can have a significant negative effect on fertilizer use because of the transaction costs associated with the time it takes to search for inputs (Strasberg et al. 1999). Poor communication prevents efficient access to market information, increasing search and monitoring costs.

Transaction costs also vary by product (Strasberg et al. 1999). High-value crops, which are often perishable (such as fish and vegetables), are typically associated with high transaction costs. On the one hand, these stem from transportation costs due to poor infrastructure such as rural roads and a lack of a cold chain. Such costs can be further exacerbated the higher the distance to markets. On the other hand, intangible transactional costs arise when an asset-specific investment has been made, such as a milk-cooling tank, or when the seller is facing a monopsonistic buying structure (Kamal 2013). This increases the risk of buyers behaving opportunistically and defaulting on the contract. There are a number of household-specific variables that are not so much transaction costs in themselves but have a significant impact on them, such as aversion to risk and uncertainty, social networks and organization, age, gender and education, and intra-household interaction. Such variables also influence the costs of information seeking, negotiating, monitoring, and enforcement.

There are approximately 3.1 million farmers in South Africa of which about 40,000 are commercial farmers (DAFF 2012). They occupy approximately 82 million hectares of arable land and contribute to ninety-five percent of South Africa's formal marketed agricultural output. There are over 225,000 SSFs and approximately 2.8 million subsistence producers who are the smallest category of farmers who produce fresh produce primarily for own consumption. The South African government provides support for the growth and sustainability of the small-scale farmer on various levels. However, the support provided has not yielded the desired result, hence the small representation of agricultural production contributed by small-scale farmers. The South African government will have to investigate successful support provided to SSFs in other countries like Argentina.

According to the World Bank Group, the Argentinian government developed a Small Farmer Development Project (known by its Spanish acronym, PROINDER) sought to strengthen rural development and poverty reduction using targeted assistance to SSFs while building capacity in national and provincial sector authorities and institutions (World Bank 2014). PROINDER used a decentralized, demand-led grants mechanism to finance on-farm infrastructure and productive investments with appropriate technical support. Intensive technical assistance and training of national and provincial authorities were designed to build capacity for rural strategy development and create long-term, sustainable political and institutional commitment to the small farm sector (World Bank 2014). The project achieved tremendous success, as 12,000 infrastructure and productive sub-project investments benefited close to 74,000 SSF families in 23 provinces, and in all, it helped over 355,000 people and the beneficiary families' incomes to increase by between twenty and forty percent (World Bank 2014).

### Overcoming Transactional Costs

Because transaction costs vary by SSF size, commodities and regions, there is no single innovation or intervention, public or private that could out rightly reduce them (Strasberg et al. 1999). However, there are a number of ways in which market entry by SSFs can be developed. These include contract farming, development of farmer organizations for marketing, development of the supply chain for high-value exports produced by smallholders through an appropriate mix of private and public sector initiatives, and facilitating private sector provision of market information via improved telecommunications (Rondot et al. 2004). The role of the government is crucial in specifying property rights and enforcing contracts in order to promote specialization and reduce the costs of market exchange (North 2000). Moreover, government policy needs to create incentives and send signals that encourage private sector participation in developing rural economies.

Transaction costs tend to be highly context specific, and because they are not always separable from production costs, it makes identifying policy priorities difficult. The prevalence and level of individual farmer transaction costs is a function of both the consumption patterns and

the stage of economic development that prevails in the agricultural sector (Rondot et al. 2004). Furthermore, transactional costs are very difficult to measure, making it difficult to understand precisely the sources of the costs and hence the difficulty to assign the corrective action required (Gale 2009). It makes more sense for the public sector emphasis to be on public good provision, generating market efficiencies and institutional reform to encourage private sector participation. It is the combination of both public and private action that will enable SSFs to enter competitive markets while also generating rural growth to stimulate nonfarm employment (Baral 2013). Agricultural transition must be managed within a framework of rural development (Gale 2009).

This study recognizes the type of public good provision and the institutional reform that are necessary precisely to create a more level playing field where many more SSFs are able to trade in competitive markets. Efficient land markets and secure property rights are essential to capture sustainable growth of SSFs (Holden and Binswanger 1998). Those rights must be matched by access to agro-focused credit and finance and the dissemination of technology and good practices in input usage (Rondot et al. 2004). This can be countered by measures targeted at expanding the markets through lowering transactional costs, improving external linkages, or providing storage and processing technologies. Effective rural financial institutions will also assist in risk spreading and in the sharing of the benefits of SSF growth more widely across the province and region.

### Problem Statement

The burden to meet the requirements of a more exacting food system has brought with it a renewed interest in small-scale farming welfare. For the small-scale farmer there are difficulties in reaching the markets, arising from poor public good provision that hinders market exchange and draws in a new set of transactional costs that emerge from dealing with the retail market that is characterized by stringent rules, regulations, and players. These transactional costs are a significant variable that can inhibit SSFs entry into competitive markets. Even fresh produce commodities are becoming differentiated products because of the particular requirements to meet the quality, size, and delivery standards,

and new transaction costs have emerged that have raised the cost of entry even more into certain fresh produce markets.

The issue of agrarian constraints and small farmer development is by no means new. Various underdeveloped economies, particularly African countries have witnessed agricultural changes over the years (Pingali and Rosegrant 1995), divesting from the traditional self-sufficiency subsistent farming to activities where farm outputs are more responsive to market and social demands (Timmer 2004). It is therefore understood that with increasing economic growth and dynamic consumption patterns (Pingali and Khwaja 2004), farming systems may not remain inert but rather be ready to change for them to survival. Farming remains absolutely important to the South African economy with over 8 million people directly or indirectly dependent on agriculture for their employment and income, and a staggering 638,000 people formally employed in farms.

The agricultural sector's significance is largely because of its potential to create jobs (Moraka and Makhura 2011), and its key focus on the New Growth Path (NGP), a plan by the government to create 5 million new jobs by 2020. Although the larger portion of the population lives in rural and peri-urban South Africa, twenty years after democracy only five percent of agricultural production can be associated to SSFs, who are predominately Black people in the rural settings. There has been a steady decrease in agricultural contribution over past four decades to currently a mere two percent of GDP, in spite of the growing consumption patterns of the South African population. This implies that the economy is maturing, moving towards the secondary and tertiary sectors and disregarding small-scale farming entrepreneurs. Existing developmental plans are predominantly focused on commercially oriented farming.

Agriculture plays an important role in the South African economy and in the welfare of both rural and urban populations of the country. The agricultural sector is important in South Africa, because it contributes approximately four percent to the country's Gross Domestic Product. Agriculture can contribute significantly to economic growth, by means of food production, job creation, and reducing poverty (Moraka and Makhura 2011).

However, from an African economic perspective small-scale farmer due to a lack of adequate resources is likely to encounter higher transac-

tional costs than commercial farmers. The importance of this research is to understand the nature and the effect that transactional costs have on SSFs in relation to productivity, profitability and sustainable growth. Transactional costs place constraints on SSFs in terms of agricultural production levels, profitability and sustainable growth. This research endeavors to make recommendations to the government in terms of formulating policies to reduce the effect transaction cost has on SSFs and develop support programs for them. If they do not have sufficient financial resources, it makes it difficult for the farmers to procure seeds, fertilizers, farming equipment and to pay the labor force for the production of fresh fruit and vegetables. The findings of this research will not only highlight weaknesses or identify gaps but also make the requisite recommendations applicable in terms of policy development for the South African government to assist with the growth and sustainability of SSFs.

## METHODOLOGY

The study followed a quantitative research paradigm, defined by Bryman and Bell (2011:26) as a "research paradigm that emphasizes quantification in the collection and analysis of data and viewing the relationship between theory and research as deductive".

### Data Collection

The data for this research was collected from areas such as De Deur, Vereeniging, Walkerville, Vanderbilpark, Doornkop, Randfontein, Meadowlands, Eikenhof, Orange Farm, Klipfontein, Modderfontein and Ekurhuleni, all these being farming regions of Gauteng. The research sampling frame was the well-known Johannesburg Fresh Produce Market of South Africa. The researchers distributed and collect the questionnaires after appointments with target SSFs were made. Due to the nature of this research, the targeted research participants were the SSF representatives and owners. In particular, those owners or officials who were running the farming operations. This was done to ensure the competence of the respondents in evaluating the SSFs (Moraka and Makhura 2011). Of the total of 143 questionnaires distributed, 68 usable questionnaires were retrieved for the final data analysis, representing a response rate of 47.6 percent.

## Data Analysis

### *Age Structure of Respondents and their Levels of Education*

The age groups and the level of education of the sample used in this study are reported in Table 1. Only 5.9 percent (n=4) of the respondents were under the age of 30 years, a quarter (25.0%; n=17) of the respondents were aged between 30 and 39 years, 27.9 percent (n=19) reported their age to be between 40-49 years, and a paltry 10.3 percent (n=7) of the respondents reported that they were 60 years and above. The bulk of the respondents, 30.9 percent (n=21) were aged 50-59 years. From the data illustrated in Table 1, it can be said that the small-scale farmers in South Africa are mainly within the age brackets of 40-59 years (27.9% + 30.9% = 58.8%). This consequence is logical since operating a small-scale farm is a challenging endeavor with mainly experienced individuals who are well-grounded former subsistent farmers and rural family heads (Parker and Castleman 2009).

Pertaining to formal education levels, Table 1 data reports that 72.1 percent (n= 49) of the respondents have attended high school, suggesting that they have some level of education, only 7.4 percent (n= 5) have a diploma or degree and 20.6 percent (n= 14) have an agricultural qualification in crop production. The worrying reality is the fact that almost all the respondents neither have formal academic qualifications nor any training in agriculture. This implies that the majority of the individuals who own small-scale farms only had either primary school qualification or a matric certificate (17.6% + 72.1% = 89.7%), or no formal qualification at all. This scenario stifles capacity to learn and divest, and the ability to further train and formalize small-holder farming enterprises (Swinnen 2005).

### *Profiling the Surveyed Small-scale Farmers*

Reported in Table 2 are the characteristics of the surveyed SSFs in terms of farming experience (years), age of the farm (years), farm size in hectares, and size of workforce (labor). In terms

**Table 1: Age of respondents and level of education**

| <i>Respondent's age</i> | <i>Frequency</i> | <i>%</i> | <i>Education level (respondent)</i> | <i>Frequency</i> | <i>%</i> |
|-------------------------|------------------|----------|-------------------------------------|------------------|----------|
| Below 30 yrs            | 4                | 5.9      | No education (informal)             | 0                | 0.0      |
| From 30-39 yrs          | 17               | 25.0     | Basic education (primary school)    | 12               | 17.6     |
| From 40-49 yrs          | 19               | 27.9     | Matric education (grade 12)         | 49               | 72.1     |
| From 50-59 yrs          | 21               | 30.9     | Crop-production certificate         | 14               | 20.6     |
| 60 yrs +                | 7                | 10.3     | Undergraduate degree/diploma        | 5                | 7.4      |
|                         |                  |          | Postgraduate degree/diploma         | 0                | 0.0      |
| Total                   | 68               | 100      | Total                               | 68               | 100      |

**Table 2: Profile of the surveyed small-scale farmers**

| <i>Farming experience</i>    | <i>Frequency</i> | <i>%</i> | <i>Age of farm(years)</i>        | <i>Frequency</i> | <i>%</i> |
|------------------------------|------------------|----------|----------------------------------|------------------|----------|
| Less than 5 years            | 7                | 10.3     | Less than 3 years                | 1                | 1.5      |
| 6 – 10 years                 | 39               | 57.4     | Between 3-6 years                | 7                | 10.3     |
| 11 – 15 years                | 17               | 25.0     | Between 7-10 years               | 23               | 33.8     |
| 16 – 20 years                | 4                | 5.9      | Over 10 years                    | 37               | 54.4     |
| Over 20 years                | 1                | 1.4      |                                  |                  |          |
| Total                        | 68               | 100      | Total                            | 68               | 100      |
| <i>Farm size in hectares</i> | <i>Frequency</i> | <i>%</i> | <i>Size of workforce(labour)</i> | <i>Frequency</i> | <i>%</i> |
| Less than 10 hectares        | 57               | 83.8     | Less than 5 employees            | 29               | 42.6     |
| 11 – 20 hectares             | 4                | 5.9      | 6 - 10 employees                 | 23               | 33.8     |
| 21 – 30 hectares             | 0                | 0.0      | 11 - 15 employees                | 6                | 8.8      |
| 31 – 40 hectares             | 0                | 0.0      | 16 - 20 employees                | 4                | 5.9      |
| 41 – 50 hectares             | 2                | 2.9      | 21 - 25 employees                | 5                | 7.4      |
| 50 hectares and more         | 5                | 7.4      | 26 and above                     | 1                | 1.5      |
| Total                        | 68               | 100      | Total                            | 68               | 100      |

of farming experience, most of the respondents reported that they were experienced in their small-scale farming activities. A staggering 57.4 percent ( $n=39$ ) had 6 to 10 years experience, twenty-five percent ( $n=17$ ) had 11 to 15 years, while a mere 10.3 percent ( $n=7$ ) had less than 6 years experience. The data also confirms that very few (1.4%,  $n=1$ ) were involved in their own farming activities more than 20 years ago (Mashamaite, 2014). Of these small-scale farming operations, 33.8 percent ( $n=23$ ) of them had been in existence for 7 to 10 years, while a majority 54.4 percent ( $n=37$ ) had been in operation for over 10 years. A meager 11.8 percent ( $n=8$ ) had been in operation for less than 6 years.

Data on farm size for this specific sample profile (Table 2) shows that the majority (83.8%,  $n=57$ ) of the SSFs in the South Africa's Gauteng province occupy small land space of less than 10 hectares each. This is consistent with literature and indicative of the land ownership structure within the South African economy (Van Zyl 1995), particularly as it relates to the agricultural sector (Pingali 1997). In general, most SSFs have limited access to land and capital, and have received inadequate training, research and extension support (Lipton 2005). Farming is conduct-

ed mostly on vacant land and some respondents use the land for farming under a lease or rental agreement with the owner of the land. The data (Table 2) also shows that only 7.4 percent ( $n=5$ ) of the respondents conduct farming activities on more than 50 hectares. SSFs in Gauteng have limited farmland and can therefore not expand, and they have limited resources coupled with inadequate support from government for factors of production.

Most of the participating respondents (42.6%) indicated that they have a labor force of less than 5 workers at their farms. One third of the respondents (33.8%) reported that they have 6 to 10 laborers, 8.8 percent have 11 to 15 laborers and a small 1.5 percent reported that they employ over twenty-six percent of the labor on their farms. These results are consistent with both Stanton (2000) and Hosken (2014) who argue that small organizations such as SSFs are important in job creation in spite of them recruiting fewer employees per entity.

### *Profiling the Surveyed Small-scale Farmers*

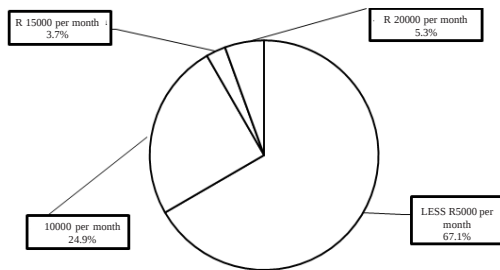
Table 3 indicates that sixty-seven percent of the respondents use labor force for production,

**Table 3: Land, farming methods and produce**

|                                           | Percentage representation | Remarks                                                                                                                                                                   |
|-------------------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Source of Land Use</i>                 |                           |                                                                                                                                                                           |
| Vacant land                               | 61                        | 61 percent of the respondents use vacant land in their respective areas for farming activities                                                                            |
| School gardens                            | 23                        | 23 percent of the respondents use open-space behind their respective residents/schoolyards areas for farming activities                                                   |
| Rent                                      | 16                        | 16 percent of the respondents have a rental agreement with the owner of the land. The land is privately owned by the lessor                                               |
| <i>Classification of the Farm Produce</i> |                           |                                                                                                                                                                           |
| Class 1                                   | 27                        | 27 percent of the respondents produce class 1 products and comply with the quality requirements                                                                           |
| Class 2                                   | 31                        | 31 percent of the respondents produce class 2 products                                                                                                                    |
| Class 3                                   | 11                        | 11 percent of the respondents produce class 2 products                                                                                                                    |
| Lower/unknown                             | 31                        | A significant amount of respondents produces products of a lower class; not aware of how to classify their products as proscribed by the Agriculture Product Standard Act |
| <i>Methods of Farm Production</i>         |                           |                                                                                                                                                                           |
| Manual labour                             | 67                        | 67 percent of the respondents till their farming space manually and do the farming activities through manual labour                                                       |
| Use of machinery                          | 13                        | A meager 13 percent of the respondents have mechanized their farming operations                                                                                           |
| Use of both machines and                  | 21                        | 21 percent of the respondents have succeeded to mix both manual labour machinery and manual labour on their small farms                                                   |

twenty-one percent use both labor and machines for production. Only thirteen percent of the respondents use machines for the production of produce. This reflects the reality picture of the majority of farming operations within African settings, also confirmed by Gale (2009) as well as Douglas (2013).

As reported in Figure 1, 67.1 percent of the respondents have an operating cost of less than R5,000 per month, 24.9 percent of the respondents have an operating cost of over R10,000 per month and only 5.3 percent have an operating cost of over R20,000 per month.



As reported in Table 4, forty percent of the respondents receive training on agriculture from the government, seventeen percent of respondents received land for farming, while the rest of the support provided by the government relates to supplying the respondents with fertilizer, pest control (pesticides), seeds and equipment.

Table 5 indicates the debtors' ratio in days, which measures how quickly cash is being collected from debtors. The longer it takes for a company to collect, the greater the chance that the debt may not be paid. That has a direct impact on the liquidity position of the SSF. The data shows that 69.1 percent of the respondents receive payment for their product on the same day of selling. This table also reports that 20.6 percent of the respondents receive payment within 7 days and the remainder within 30 days. The data also shows that 73.5 percent of the respondents pay their suppliers on the same day of receiving the goods and services. This means that the SSFs mainly use cash to pay the respective suppliers for the operational farm inputs. This cash-on-delivery scenario always creates

**Table 4: Nature of government support towards**

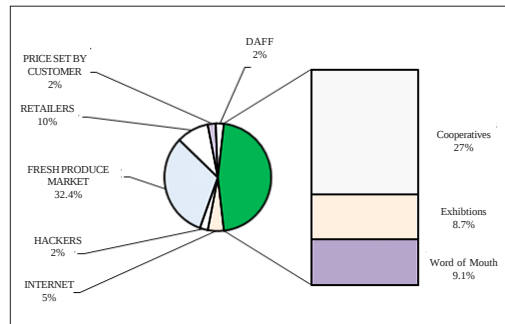
| <i>Nature of support</i> | <i>Percentage representation</i> | <i>Remarks</i>                                                                                                                                          |
|--------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Training                 | 40                               | Most of the respondents indicated that they receive training relating to agriculture from Government                                                    |
| Land                     | 17                               | 17 percent of the respondent receive land from Government, but they do not own the land on which they farm                                              |
| Equipment                | 9                                | 9 percent of the respondents indicated that they receive farming equipment from Government, not large industrial machineries, forks, spades, rakes etc. |
| Fertilizers              | 9                                | 9 percent receive fertilizers from Government                                                                                                           |
| Seeds                    | 9                                | 9 percent receive seeds from Government                                                                                                                 |
| Input cost               | 8                                | 8 percent receive some form of grant to pay for factors of production                                                                                   |
| Pack house               | 4                                | Government has provided an infrastructure for respondents to conduct post-harvest activities                                                            |
| Pest control             | 4                                | 4 percent receive pest control requirements from Government                                                                                             |

**Table 5: Payment terms in days**

| <i>Customers payment days</i> | <i>Frequency</i> | <i>%</i> | <i>Age of farm(years)</i> | <i>Frequency</i> | <i>%</i> |
|-------------------------------|------------------|----------|---------------------------|------------------|----------|
| Same day                      | 47               | 69.1     | Same day                  | 50               | 73.5     |
| Within 7 days                 | 14               | 20.6     | Within 7 days             | 12               | 17.7     |
| Within 14 days                | 4                | 5.9      | Within 14 days            | 4                | 5.9      |
| Within 30 days                | 3                | 4.4      | Within 30 days            | 2                | 2.9      |
| Longer than 30 days           | 0                | 0.0      | Longer than 30 days       | 0                | 0.0      |
| Total                         | 68               | 100      | Total                     | 68               | 100      |

various challenges for their cash positions as they end up needing some credit finance.

Table 6 reports that fifty-nine percent of the respondents sell their product to the local community, thirty-one percent is marketed through Fresh Produce Markets (the Johannesburg Vegetable Market) and seven percent of the respondents sell their produce near large farms (Farmgate). It is interesting to note that six percent of the respondents sell their produce directly to retail stores (supermarkets) and two percent to processing plants, taking into consideration the strict quality control systems for fresh produce retail stores have. In fact, the retail sector remains the largest and best opportunity still waiting for these SSFs to commercialize and supply them directly with fresh produce.



**Fig. 2. Sources of information**

Figure 2 shows the respondents' sources of information. The majority of the respondents (32.4%,  $n = 22$ ) obtain the prices of commodities from the Johannesburg Fresh Produce Markets (JFPM) and also within their respective area of production.

**Table 6: Market access and representation**

| Channel           | Percentage representation | Remarks                                                                                                                                                                               |
|-------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Local             | 59                        | 46 of the respondents market their products through this channel. Indicating that after harvesting the respondent sells their products to Hawkers or has an area from where they sell |
| Farmgate          | 7                         | 6 of the respondents sell products at point of production, directly to the customer                                                                                                   |
| Market            | 31                        | 26 respondents sent produce to Fresh Produce Market (PS: some respondents reported that they use both local channels and Fresh Produce Markets as a channel)                          |
| Retail stores     | 6                         | 5 respondents supply local retail stores                                                                                                                                              |
| Processing plants | 2                         | 2 respondents supply processing plants where the products are being processed                                                                                                         |
| Exports           | 0                         | None of respondent export products                                                                                                                                                    |
| Other             | 0                         | No other channel were reported on from the respondents                                                                                                                                |

### Major Sources of Costs

This section provides an overview of the major challenges that the respondent small-scale farmers consistently experience. These are the resultant challenges that affect their entrepreneurial operations and their performance.

Figure 3 shows that the respondents suffer nearly 18 major challenges of which a lack of finance, lack of equipment and lack of information are the most common challenges identified by the respondents.

### DISCUSSION

The results identified that the size of the SSFs is a major constraint to their farming endeavors. Those SSFs with fairly larger arable land allotments reported reduced relative operational costs, and were more farm intensive and growing towards commercial operations. Promoting an efficient rental market for land will most likely allow those SSFs with small holdings to also increase the scale of their operations, possibly raising their incomes and also those of the potential lessors (Fenwick and Lyne 2008). In addition, SSFs endowed with land but could secure capital, labor and contractor services with the help of the financial services sector. In line with Kimura (2011), strategies that are flexible and adaptive, involving complementary incremental changes to SSFs' operations could be an appropriate way of achieving the growth of this subsector.

On the market side, the SSFs explained the commission structure under which the fresh produce market (JFPM) operates and that their sole

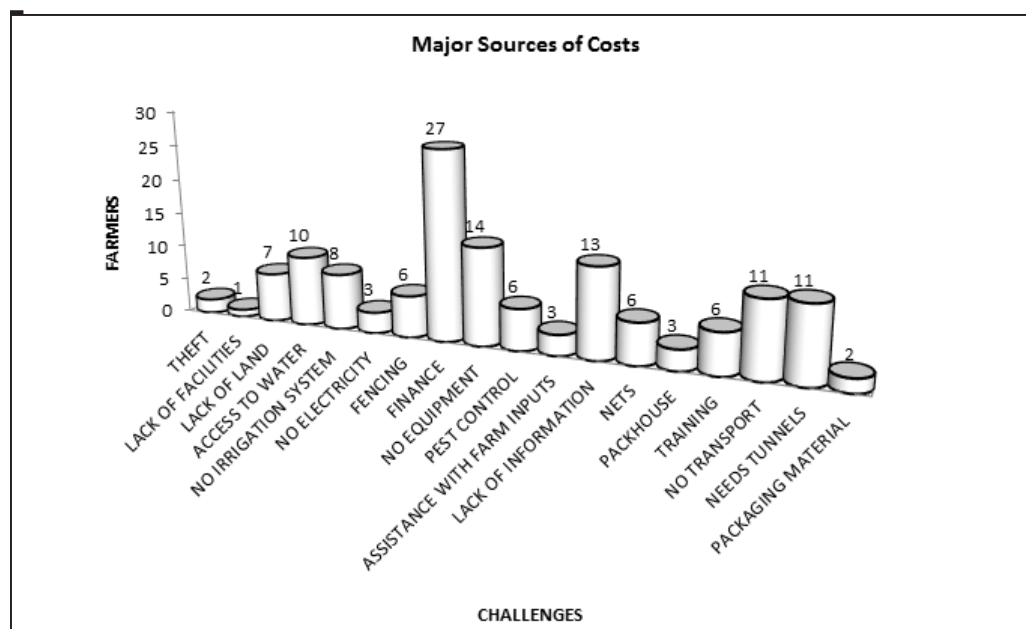


Fig. 3. Major sources of costs

income is less commission dues of 12.5 percent for services rented. With 12.5 percent as one of the major transaction cost incurred by the SSFs, it would be advisable for SSFs to go for alternative markets. It is that the SSFs are not well represented at national fresh produce markets and that they contribute less than five percent of the total turnover. The respondents mentioned that SSFs have major production challenges relating to good agriculture practice, product quality, branding, logistics and market access. They also mentioned that in general, SSFs' products do not compete well with the commercial farmers because of their experience at production level. Both the market authorities and market agents have their respective transformation strategies in place to assist SSFs to increase their participation in the mainstream agricultural economy.

The results confirmed that most of the SSFs operate from small pieces of land without using advanced and expensive technologies. Access to farmland remains a problem and lack of land ownership constrains the ability of SSFs to mobilize loans for production, consistent with Gale (2009). Farming is conducted mostly on vacant land (63% of the respondents) and some of the respondents' farms are under a lease or rental agreement. Ownership of arable land contrib-

utes to the economies of scale of production, which leads to lower transaction costs per unit output sold. Small-scale farming is labor intensive, and the results showed the need for farm mechanization. There are various factors that can affect agricultural productivity either directly or indirectly. Agricultural output (the final product) and input (water and electricity, fertilizers, irrigation, pest control, labor, packaging and transportation) affect the growth of productivity directly and are the main source of transaction cost that affects SSFs' productivity levels.

Without profitability, the survival and sustainability of small-scale farming is under threat. For the majority of the SSFs, the profits from farming operations have gone primarily to those who found ways to reduce costs first and expand production fast. With most of the SSFs experiencing relatively high operating costs, expansion becomes impossible under the conditions without support (Birch-Thomsen 2006). The result of the survey also revealed that small-scale farming is fundamentally a hard cash business, as money received and money paid is in cash. With most SSFs not adequately educated and not keeping financial records, the effects of transaction costs are not known to them. Their operations then turn to be subsistent in nature,

hampering growth possibilities and deterring entrepreneurial growth.

### CONCLUSION

Sustainable agrarian growth must meet the needs of present and future generations of SSFs for their products and services while ensuring productivity, profitability, environmental health, social and economic equity. Such costs as the price of electricity, scarcity of water, high interest rates, increase of minimum wages in the agriculture sector, increase in the cost of factors of production, the lack of land and the high price of land, to mention a few, increase the transaction cost for SSFs. In addition, the lack of effective support from the government makes survival, never mind sustainable growth, an enormous task for SSFs in Gauteng.

Purposive reduction of transaction costs would potentially increase SSF participation in farming production. This must be an imperative agenda for sustainable entrepreneurial agrarian growth in South Africa. First, while reducing transactional costs would in principle allow for a greater number of SSFs to trade, the ability to enter mainstream agro-markets is not the same as the ability to stay. That is as much a function of other factors as it is of transaction costs. Therefore, interventions for assisting SSFs need to be cost effective. Public money should not be spent in declining and non-competitive sectors. Second, transaction costs are household, commodity, and location specific and are subject to constant change. Interventions aimed at targeted reductions in specific transactional costs should not be in the public domain. Public sector interventions are best left for public good provision and institutional reforms to correct incomplete or absent markets. The reduction of transaction costs associated with the specificities of the agro-food consumption is best left in the hands of the farmers themselves.

To better target interventions and take corrective action, a holistic view is required that analyzes the relationships between the sources of costs, chain efficiencies, and SSFs' productivity. Transactional costs have been shown to play a key role in this, but the researchers' understanding is still insufficient, both in terms of analyzing their relationship with production costs and in terms of whether they can be reduced over time. It is combinations of transaction costs that determine market entry, and very

often the sources of transaction costs are not separable, which makes targeting policy difficult. Because of measurement problems, the researchers do not yet know how to address the issues, as these are critical issues that require further research. Interventions aimed at stimulating the growth of SSFs must emphasize the heterogeneous nature of the farmer, take a broader look at the whole value chain, identify the bottlenecks impacting SSFs, and be more context-specific.

### IMPLICATIONS OF THE STUDY

The results would imply that the government should review current agricultural policies and agrarian reforms on farmer-support, particularly as it relates to SSFs. The support should address the cost challenges relating to all areas of farming and particularly focus on costs related to access to finance, land, equipment, information and markets. The status quo as reported in this study shows that transactional costs are varied with the different areas and distances to markets. The alternative way forward could then be reported on an area-case basis. This measure would place the government in a better position to make informed decisions and provide these SSFs with required support per area and not have a generic response to the cost-challenges faced by SSFs in Gauteng.

The government is well positioned to strategically restructure and align the support programs to enhance fiscal effectiveness in assisting SSFs in Gauteng. A forum can be established to review the existing mandates, review consolidated field officers' reports and make informed recommendations to the government in order to change policies where required and improve on the support provided to small-scale farmers. The SSFs are also encouraged to form cooperatives to not only bulk-cut costs, but also attract and engage financial institutions for favorable funding opportunities. The SSF forum could engage other interested organizations for alliances and organizational collectives that provide production support in relation to markets and agricultural practices.

A total diversion to organic farming and tunnel farming has been suggested as an alternative to SSFs' thrust towards commercial markets. Considering the lack of land in Gauteng and the respective advantages of organic and tunnel

farming, as it relates to cost reduction, productivity and profitability, a recommendation would point towards the need for the prudent government to invest in this type of farming for SSFs.

### LIMITATIONS OF THE STUDY

The main limitations of this study included time constraints, availability of respondents, geographical challenges in terms of the large area under study, and costs associated with effectively collecting the required data. Some of these limitation challenges were overcome by setting appointments well in advance with respondents, conducting joint interviews and taking advantage of conferences and expos, and agricultural marketing days for SSFs.

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