

## Marketing Constraints Facing Emerging Small-Scale Pig Farmers in Gauteng Province, South Africa

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**ABSTRACT** While many studies have identified marketing as a constraint in the agricultural sector in South Africa, few have attempted to investigate the extent to which emerging small-scale farmers are able to access high-value markets in the pig industry. The main objective of this study was to examine marketing constraints faced by emerging small-scale pig farmers in Gauteng province. The research also investigated the effects of socio-economic factors on pig farmers' annual net incomes. Thirty three farmers constituting about 65 percent of small-scale pig farmers were randomly selected in the study area. A structured questionnaire was used to collect data which was analysed using Statistical Package for Social Sciences (SPSS). The major marketing constraints faced by the emerging small-scale pig farmers include: lack of finance, poor marketing information access, lack of access to the existing high-value markets, poor market infrastructure and smaller herd sizes. The results of a multiple regression function indicate that, access to quality extension service and sizes of breeding herd have a positive and significant effect on the farmers' net incomes. Recommendations suggested include: provision of quality extension services for the farmers in order to equip them with important production and marketing skills and the supply of useful marketing information. Furthermore, the formation of farmers' cooperatives will enable the farmers to pool and market their products together to overcome the individual small production outputs problem and to attract favourable policies and support from government.

### INTRODUCTION

The South Africa agricultural sector is dualistic with commercial sector co-existing with traditional subsistence sector. The subsistence sector involves small-scale production, highly labour intensive with low capital intensity and little division of labour. The commercial sector on the otherhand involves high capital intensity, high levels division of labour and patronise both local and international markets. This concept of dualism system has created an unequal distribution of land, economic assets, support services, market access, infrastructure and income in all sectors of the economy (Ghatak and Intersent 1984).

Agricultural practices are one method of alleviating poverty in rural areas. In developing countries, agriculture plays an important role in the livelihoods of individuals through the production of agricultural goods for consumption and income. Although agriculture is important, many are still sceptical about the contribution of small and emerging farmers to the economy as compared to commercial farmers. The limited contributions to the economy by emerging farmers arise due to the constraints faced by the farmers which are many

and varied: marketing, financial, technical, economic, land, social and cultural aspects.

The problem of marketing constraints arise due to many factors such as limited knowledge and use of market information (Kohls and Uhl 2002: 286–332), lack of access to high-value reliable markets (Pandey and Tewari 2004: 8-106) and high transactional costs. Other factors include: distance from the markets which tends to influence transaction costs, high feed costs (GDACE 2009: 3-4), price and competition; lack of appropriate and affordable means of transport (Chaminuka, 2008: 11-14); poor quality of products (Kemmm 1993: 3-135; Cole 1971: 13); lack of storage facilities (Pandey and Tewari 2004: 8-106; Kohls and Uhl 2002: 286–332); adverse effects of culture (Cole, 1994: 390-392) and socio-economic factors (Chaminuka 2008: 11-14; Ogunsumi, 2007: 2); low educational levels of small and emerging farmers; agricultural marketing policies imposed, poor agricultural extension services (Jones and Garforth 1994: 5; Adhikarya 1994: 5; Norton et al. 2006: 240–241) and lack of financial support (Ghatak and Intersent 1984: 211-219; Brandson and Norvell 1983; Tracy 1993).

According to Kohls and Uhl (2002), marketing is a business activity associated with the flow of goods and services from producers to consumers. The marketing of agricultural products begins on the farm, with planning of production to meet specific demand and market prospects. Marketing is completed with sales of the fresh or processed products to consumers or manufactures in case of raw materials for an industry. The South African government's agricultural marketing policies play a crucial role in promoting pig enterprise for emerging farmers. It is through proper marketing channels, government interventions and other agricultural policies that pig industries can grow. Pig farmers in the Gauteng Province have proven capability to sustain and improve the pig industry but this has not been achieved, due to many constraints such as inadequate production infrastructure, high transactional cost, poor marketing channels and barriers to market information. Demand for pork in Gauteng Province has been increasing rapidly due to increasing income and urbanization. At the small-scale pig holders' forum held in the West Rand area of the Gauteng Province in September 2009, the main constraints as identified by the farmers was in the area of marketing. In the past decade, South African agriculture has experienced major policy changes. The centralised control of agricultural markets has been removed, trade has largely been liberalised and equitable access to services and resources for all groups of the population have been vigorously promoted. Since the deregulation of marketing in South Africa after 1994, the marketing of pork is free with an import tariff applied to all pork products from outside Southern African Customs Union (Vink and Kirsten 2000).

The Marketing of Agricultural Products Act of 1937, which was amended several times in the 1950s, 1960s and 1980s, was replaced by the Marketing of Agricultural Products Act (1996) which was more concerned with reducing state intervention in agricultural marketing and product prices. The main objectives of the new Act were to provide free market access for all market participants; promote efficiency of marketing of agricultural products; improve opportunities for export earnings and enhance the viability of the agricultural sector. The government focus has now shifted to improving the well being of individuals and securing of the nation's interest (The White Paper on Agriculture 1995). However, a dual market structure exists in the pig industry: the high-value markets (processors and supermarkets) for commercial pig farmers and low-value markets

(local auctions, pension point sales and abattoirs) for the emerging small-scale pig farmers. The large scale commercial farmers capture the high-value markets that pay premium price for quality products while emerging small scale farmers have limited access to such markets. This trend may be limiting the livelihood opportunities of many emerging farmers in the pig industry hence the need to investigate the extent to which emerging small-scale pig farmers are able to access high-value markets in the pig industry.

The main objective of the study is to identify and analyse the main marketing constraints faced by the small-scale emerging pig farmers in Gauteng Province. South Africa's pig farms are more intensive than the extensive sheep and cattle production, and are found near the metropolitan areas of Gauteng, Durban, Pietermaritzburg, Cape Town and Port Elizabeth. The predominant pig breeds are the South African Landrace, the Large White, the Duroc and the Pietrain (Kemmer 1993: 3-135). The specific objectives were to analyse the demographics; types of products sold; types of pig markets existing in the area; identify marketing constraints faced by the small-scale emerging pig farmers; determine factors limiting their access to the high value market of the pig industry; and analyse the effects of socio-economic factors on the annual incomes of the pig farmers.

## METHODOLOGY

The study was conducted in Randfontein, Mogale City, Merafong City, Westonaria, Vereeniging, Germiston, Nigel, Benoni and Springs, in the Gauteng province. These areas are mostly known for vegetable and piggery enterprises. The population of the study was all the emerging small-scale pig farmers in the selected areas. Simple random sampling was used to select thirty three (n=33) respondents of the small-scale emerging pig farmers from the different selected areas. A structured questionnaire, which was designed based on review of the related literature and objectives of the study, was used to collect data from the sample. The questionnaire was face validated by lecturers in the department of Agricultural Economics and Extension of North-West University. The data from completed questionnaires were coded, captured and analysed using the Statistical Package for Social Sciences (SPSS), with frequency counts, percentages, means, standard deviation and multiple regression analysis. The multiple regression model was specified as

shown. The assumptions of least square method regarding linearity, normality, and homoscedasticity were ensured.

$$Y_i = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_nX_n + e_i$$

Where:  $Y_i$  = Annual net incomes of the respondents (dependent variable);  $X_1$  = Age of farmers;  $X_2$  = Years of education;  $X_3$  = Gender of farmers (Male = 1, Female = 0);  $X_4$  = Size of herd;  $X_5$  = Distance of farming to the market;  $X_6$  = Type of market where animals are sold (High-value market = 1, Low-value market = 0);  $X_7$  = Price/Kg sold of product;  $X_8$  = Number of years in the pig farming business;  $X_9$  = Receive Extension Service (Yes = 1, No = 0);  $X_{10}$  = Products sold (Live pig = 0, Processed / Slaughtered = 1);  $X_{11}$  = Transactional cost;  $X_{12}$  = other employment (Yes = 1, No = 0);  $X_{13}$  = Own transport (Yes = 1, No = 0);  $X_{14}$  = Quality of product (Good = 1, Not good = 0);  $X_{15}$  = Use market information (Yes = 1, No = 0); and  $e_i$  = Error term.

**RESULTS**

Personal and socio-economic characteristics of small-scale emerging pig farmers (n=33) are presented in Table 1.

**Table 1: Personal and socio-economic characteristics of small-scale emerging pig farmers (n=33)**

Personal characteristics	Description	Percent
Gender	Males	70
	Females	30
Age	≤ 40	3
	41-50	21
	51-60	43
	>60	33
Educational Level	<Grade 12	33
	Grade 12	40
	Tertiary	27
Years in Pig Farming	≤5 years	52
	6-10 years	18
	11-20 years	24
	>20 years	6

The results of the marketings aspects such as type of market where products are sold, types and quality of products sold by the farmers, size of production and annual incomes from pig sales are presented in Table 2.

The results of the marketing constraints, total levies and access to extension services among farmers were shown Figure 1.

A deterministic regression function was fitted to the data and the regression estimates of the relationship between dependent variable (farmers'

**Table 2: Marketing aspects among the farmers (n=33)**

Item	Description	Percent
Type of market used	Low value market	97
	High value market	3
Quality of productsold	Good (1 <sup>st</sup> grade)	93
	Not good (lower grade)	7
Types of product sold	Live pigs	88
	Slaughtered/processed	12
Size of breeding herd	≤ 100	82
	101-200	12
	>200	6
Annual net income	≤ R50, 000	49
	R50, 001-R100, 000	18
	R100, 001-R150, 000	15
	R150, 001-R200, 000	6
	>R200, 000	12

annual net income) and independent variables (socio – economic factors) were determined. The results of the regression analysis are presented in Table 3. Fifteen independent variables were used. However, only two variables had statistically significant effect on the farmers' annual net incomes. The significant variables are: access to extension services and size of breeding herd. None of the assumptions of least square method was violated, hence no multi-collinearity and autocorrelation were observed. There was significant relationship between the independent and dependent variables (F-statistics the independent variables account for 73 percent change in farmers' annual net incomes and 27 percent is accounted for by other factors besides those in the equation ( $R^2 = 0.730$ ). Durbin-Watson value is 2.0, which indicates that there is no autocorrelation.

**DISCUSSION**

From Table 1, the results indicate that most of the small-scale emerging pig farmers in the study area are males (70 percent). Seventy six percent of the farmers were over the age of fifty, with the lowest age being 37 years and the highest age 76 years. This scenario poses a challenge to the future of agriculture specifically regarding efficiency and the succession plan to these elderly farmers when they leave agriculture due to retirement. The results in Table 1 indicate that, the majority of the farmers (67 percent) have grade 12 and tertiary level of education. The results of the analysis indicate that, the majority of the farmers (51.5 percent) have been in the pig farming business for less than five years with 6.1 percent of them having been in the pig farming business for more than twenty years.

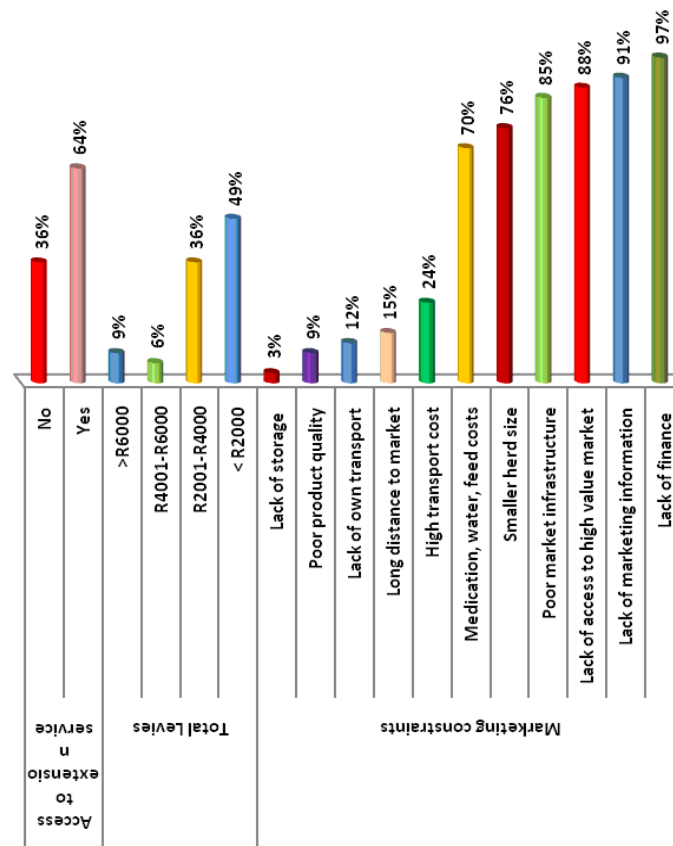


Fig. 1. Marketing constraints, total annual levies and access to extension services among small-scale pig farmers.

Table 3: Parameter estimates of the multiple regression analysis of the effects of socio-economic factors on the net incomes of the small-scale pig farmers

Variables	Standardized coefficient, Beta	t- test	p- values
Constant	-151681	-.252	.804
Gender	.105	.497	.625
Age	-.217	-.965	.348
No. of years of education	.307	1.451	.165
Type of other employment	-.035	-.189	.853
No. of years in pig farming	.361	1.740	.100
Types of product sold	-.190	-1.113	.281
Type of quality product sold	.104	.566	.578
The price/kg of the product sold	.106	.557	.585
Type of market animals are sold	.179	.939	.361
Distance of farm to market	-.024	-.160	.875
Own transport	-.018	-.111	.913
Transactional costs	.065	.379	.710
Access to extension service	.342	1.952	.068
Market information	-.250	-1.355	.193
Size of breeding herd	.450	2.433	.026

Dependent variable: Annual net income from pig sales.  $R^2 = 0.730$ ; Adjusted  $R^2 = 0.500$ ;  $N=33$ ; Durbin-Watson statistic=2.0; F-statistic=3.067 ( $p = 0.015$ )

The results in Table 2 indicate that the majority of the respondents (97 percent) sold their products at low-value markets. This included selling at abattoirs, local auctions, local butchery and local residents. Only 3 percent of the respondents sold products at the high-value markets which include commercial processors and supermarkets such as Pick 'n Pay, Spar and Woolworths. Even though respondents were found to be selling good quality products (Table 2), accessing the high value markets is a challenge. The majority of the respondents' products were considered as first grade (93 percent) yet not considered by the high-value markets. The underlying reason for their inability to participate in the high-value markets may therefore be due to the smaller sizes of production which is consistent with the finding of Gauteng Department of Agriculture, Conservation and Environment that, the failure of emerging farmers to participate in commercial

pig farming and high-value markets is due to the huge financial investment required for infrastructure development (GDACE 2009: 4).

The majority of the farmers (82 percent) have breeding herd sizes of less than 100 animals (Table 2). The scenario indicates that much more needs to be done by the government for the farmers regarding financing of production infrastructure for quality and large scale production in order to access the high-value markets. This result also justifies the finding of Kemm (1993: 1-135) that, farmers who produce on a relatively large and effective scale are able to access high value markets and larger profit margins. Farmers may consider cross-breeding techniques in order to enhance the size of the breeding herd. This technique has been effective for commercial pig producers. Furthermore, 49 percent of the farmers with smaller breeding herds had annual net incomes of = R50000, while 12 percent of the farmers with many animals had annual net farm incomes of > R200000 (Table 5). Some of the farmers reported income as low as R4, 056 per annum. The variation is due to the fact that farmers with fewer animals sold pigs in auctions only once or twice a year compared to farmers with many animals who sold pigs every two weeks at the local auctions.

The results in Table 2 also show that, most of the respondents (88 percent) were selling live pigs with only 12 percent of them selling slaughtered/processed animals. It was found that, farmers who sold slaughtered/processed animals were faced with high transaction cost. These costs included: high slaughter fees, high storage fees and high transportation costs, consistent with the finding of Pandey and Tewari (2004: 8-106) and Chaminuka et al. (2008: 11) that, lack of farmers' own storage facilities increase the storage fees paid by producers. The results of the analysis show that farmers who obtained higher net farm income were aware of the price trends before selling their products. This is similar to the findings of Kemm (1993: 1-135) that, accessibility of market information on price trends before selling products, is essential for farmers. Kemm further highlighted that knowing price trends will prevent farmers from selling pigs at the wrong time, when profits too low.

Marketing constraints and challenges include factors which hinder farmers from producing for high-value markets. The farmers included in the study identified eleven marketing constraints (Fig. 1). The respondents classified lack of finance as the most significant constraint (97 percent), and attributed this to lack of assets to secure contracts with financial institutions. Lack of stable income and lack of

information dissemination for prevailing financial sources also contributed to their inability to access credit. This has therefore caused failure to meet market requirements for pig production consistent with the finding of Pandey and Tewari (2004: 8-106) that, lack of access to credit can hinder farm production and marketing. Access to credit may increase production and create access to some farm operational needs.

Lack of access to market information was also mentioned as one of the main constraint facing the farmers (91 percent). Dissemination of information in disadvantaged communities of South Africa is poor. This is in line with the results of Pandey and Tewari (2004: 8-106), who stated that, there is no channel to receive the exact information about the prices of agricultural products at the earliest time in disadvantaged communities. Lack of access to the existing high-value markets was also identified by the majority of the farmers (88 percent) as a major constraint (due to small sizes of the breeding herds). About 85 percent of the respondents indicated the lack of market infrastructure as a major constraint. Seventy percent of the respondents mentioned other constraints which includes lack of medication for pigs, water and high feed costs. High feed costs can make pig production less profitable as it represents between 70 and 80 percent of total variable costs in pig production.

All the respondents (100 percent) stated that, high amount of levies, paid to auctioneers is the main challenge for the participation in the auctions at the low-value markets. Farmers participating in the local auctions pay levies depending on the auctioneers' fee. About 49 percent of the farmers with very small herd sizes paid annual levies of = R2000. The highest total annual levy paid by the individual farmers with large herd sizes of 150-200 was R275,011.00. The results in Figure 1 indicate that, the majority of the farmers have access to extension services. According to Adhikarya (1994: 5), agricultural extension service has become a fundamental instrument for delivering information and advice as an input into modern farming. Extension services assist farmers to improve their knowledge, efficiency, productivity and profitability and, contribution to the good of their family, community and society.

The results of the regression analysis indicate that, access to extension service has a positive and significant impact on annual net incomes of the small-scale emerging pig farmers in the study area. This implies that a unit increase to extension services access will result in 34.2 percent increase in the farmers' net incomes with other factors held constant. This result is consistent with the findings of Adhikarya (1994: 5),

which emphasized that, extension service is a form of assistance to help farmers improve their know-how, efficiency, productivity, profitability and contribution to the good of their family, community and society. From the results of the regression analysis, a unit increase in size of breeding herd will result in 45 percent increase in the farmers' net income with other factors held constant. The above statement is supported by Kemm (1993: 1) who found that, farmers who produce on a relatively large and effective scale and keep feed expenses low are able to achieve larger profit margins. Due to the small sizes of the breeding herds of the farmers in the study, they are unable to take advantages of economies of size to increase their net incomes.

The study has clearly shown that lack of finance, access to high value market, small sizes of breeding herds and lack of access to market information were the outmost marketing constraints facing emerging pig farmers in the study area. Accessing high value market was a challenging factor for the small-scale emerging pig farmers in the study area due to minimum size of breeding herd, even though the farmers were selling good quality products. Therefore, farmers result in selling at low value markets - abattoirs, local auctions and to community members. The farmers who sell slaughtered/processed animals face high transactional costs. Small-scale pig farmers in the study area pay high levies at auctions and the more animals they sell, the higher the levies paid to auctioneers.

From the results of the functional analysis, the most important determinants of increases in the net incomes of the small-scale emerging pig farmers are size of breeding herd and access to quality extension services. Thus an increase in size of breeding herd and extension services access will improve farmers' net incomes and chances to participate in high value markets. It is therefore recommended that, the South African government through the Department of Agriculture should facilitate the farmers' access to reliable source of funding to enable them acquire larger and efficient production infrastructure for larger breeding herds. An effective and efficient Agricultural Quality extension services should also be provided for the farmers in the areas of pig production, marketing and marketing information services. Furthermore, the formation of farmers' cooperatives will enable the farmers to pool and market their products together to overcome the

individual small production outputs problem and to attract favourable policies and support from government.

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