# THE SOCIO-ECONOMIC ANALYSIS OF AGRITOURISM IN TWO RURAL COMMUNITIES IN THE LIMPOPO PROVINCE

by

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# DECLARATION

I declare that **THE SOCIO-ECONOMIC ANALYSIS OF AGRITOURISM IN TWO RURAL COMMUNITIES IN THE LIMPOPO PROVINCE** is my original work and that all the resources that have been used or quoted have been indicated and acknowledged by means of complete references.

_____        _____

SIGNATURE                                         DATE

(Mr. KI Mnguni)

## **DEDICATION**

This work is dedicated to my wife Glenda Ntsako Hlongwane

and my child Khanyisile Fortunate Mnguni.

# ACKNOWLEDGMENTS

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## BY

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## ABSTRACT

The main aim of the study was to analyze the socio-economic variables effecting agritourism business using data from two rural communities of the Limpopo province, Nwa'metwa and Lenyenye. The results showed that there are significant socio-economic differences among agritourism and non-agritourism farmers. The socio-economic variables used are literacy, gender, age, land size and family size.

Two multinomial models were used to model agritourism behavior. The two models, namely fully and partially registered agritourism farmers were estimated. Non-registered agritourism farmers were used as the reference group. These models denoted the relative probability of both fully and partially registered agritourism farmers to the probability of the non-registered agritourism farmers.

The logarithm results implied that older farmers were less likely to prefer to operate business as a fully or partially registered agritourism farmer compared to the non-registered agritourism group. Farmers' decisions in business operation were informed by their level of education, experience as well as social networks.

**Key terms:** Tourism; Agritourism; Rural communities; Rural development, Sustainable agricultural diversity, Socio-economic development; Rural economy; Tourism life cycle model; Modelling agritourism farmer behavior; Multinomial logit

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# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ANOVA | ANALYSIS OF VARIANCE |
| CDF | CUMULATIVE DISTRIBUTION FUNCTION |
| DFID | DEPARTMENT FOR INTERNATIONAL DEVELOPMENT |
| ESCOR | ECONOMIC AND SOCIAL RESEARCH UNIT |
| GDP | GROSS DOMESTIC PRODUCT |
| GOE | GOVERNMENT OF ETHIOPIA |
| LDFED | LIMPOPO DEPARTMENT OF FINANCE & ECONOMIC DEVELOPMENT |
| MEMB | MEMBERSHIP STATE |
| PDF | PROBABILITY DENSITY FUNCTION |
| RMN | REGIONAL MUNICIPALITY OF NIAGARA |
| SADEAT | SOUTH AFRICA DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM |
| SAG | SOUTH AFRICAN GOVERNMENT |
| SADC | SOUTHERN AFRICAN DEVELOPMENT COMMUNITY |
| SPSS | STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES |
| UNEP | UNITED NATIONS ENVIRONMENT PROGRAMME AND THE CONVENTION ON BIOLOGICAL DIVERSITY |

# CHAPTER 1

# INTRODUCTION

## 1.0 Background

South Africa has a unique biological diversity and has two core challenges of sustainability, i.e. the fight against poverty and exclusion, and a growing environmental crisis (Crane, 2007). There are various species, ecosystems and ecological processes occurring in this country, and they attract various tourists to visit the country regularly, especially the international tourists (Jonker, 2004), hence stimulating agricultural and rural development. South Africa is also regarded as a centre of attraction for most tourists although it is ranked the third most biologically diverse country in the world, and is of major global importance for biodiversity conservation (World Conservation Monitoring Centre, 1992 & SADEAT, 1997). There are many economic opportunities resulting from the beauty of nature and these include rural development. Furthermore, biodiversity also provides generic resources for food and agriculture, and therefore constitutes the biological basis for world food security and support for human livelihoods (Kepe *et al.,* 2001); UNEP, 2002).

Prior to the election of a democratic government in 1994, tourism in general had been protected from foreign competition (there were limited international investments in the tourism facilities), demanding and long-stay tourists (Jonker, 2004). For example, in the early 80's and 90's, the apartheid regime drastically slowed down the growth of tourism in South Africa as international boycotts and sanctions took effect. The segregation

policies enshrined in various apartheid laws also severely hampered the development of tourist markets among the previously disadvantaged. Places to visit available to the previously disadvantaged were often very limited and of poor quality (Lubbe, 2003).

Global economic restructuring has created a climate in which many local economies have to adjust, in order to maintain or enhance their socio-economic viability (Gopal *et al.,* 2008). As Butler *et al.,* (1998) noted, economic and social forces operating at global level determine both the nature and form of the rural landscape and how we value and use them. These changes, coupled with new ideas and approaches to leisure and recreation time are encouraging tourism development in rural areas at an ever increasing pace (Williams and Van Patten, 1998).

 Research shows that 75% of the world's poor live in rural areas. Yet top tourism destinations, particularly in developing countries, including the national parks, wilderness areas, mountains, lakes, and cultural sites are generally rural (Bruian *et al.,* 2003). More than half of the population in South Africa lives below the internationally established poverty line of $2 per capita per day (SADC, 2003), and therefore, tourism is an important feature of the rural economy, which can enhance the quality of rural life.

Strengthening the development of rural areas is associated with the introduction of new strategies and economic activities.  However, tourism is an economic good that can be used to unlock the rural development and help most remote marginal agricultural areas of the country. Bruian *et al.,* (2003) argue that it is important to develop tourism in rural

areas as this improves the wealth of the area. From an agricultural perspective, tourism is defined as the selling of agricultural products and services to the travelers/ agritourists.

Literature has shown that little research has been conducted around agritourism particularly in the developing countries, South Africa included. The empirical research has indicated that agritourism has massive socio-economic benefits to the country. As a result, this study will focus mainly on agritourism. In general, agritourism is the practice of attracting travelers and visitors to an area or areas used primarily for agricultural purposes, generally for educational and recreational purposes (Blacka *et al.,* 2001). However, these attractions often include the interaction between tourists and local farm producers or local agricultural products (RMN, 2003).

The scope of agritourism varies drastically depending on the type of farm, available land and how much of the business is aimed at the agritourism market. There are several agritourism activities that farmers practice to attract agritourists to their site of operations. These activities include wineries, aquaculture, farmer's markets, petting farms, roadside stands, pick-your-own operations (these are for example, fruits and farms or orchards where the farmers' customers harvest the commodities of their choice), overnight farm or ranch stays, and visiting agriculture-related festivals, museums, and other such attractions (Brown, 2002).

Hilchey (1993a) notes that long-term trends in consumer demand for tourism and recreation suggest that agritourism enterprises can help provide an important niche

market for farmers throughout the nation. Among other factors, Hilchey (1993b) also noted that there are three factors that are often the key to successful agritourism activities namely: social skills of farm-based entrepreneurs, farm aesthetics, and proximity of farms to urban centers.

## 1.1 Problem statement and justification

### 1.1.1 Problem statement

The poor state of the environment in rural areas of South Africa leads to a decrease in profits to the farmers and reversal of development gains. This reduces agricultural and rural development as well as the gross domestic products (GDP) of both national agricultural and tourism sectors (LDFED, 2004). Agriculture remains a crucial economic activity for majority of population in South Africa and its sustainability is mainly affected and challenged by uncertain climatic conditions and adoption of new technology by farmers. As a result, food security and the country's economy are threatened by inadequate resources in hands of farmers as well as in accessibility of agricultural funding. There is considerable literature indicating that farmers' production decisions are driven by adequate resources (Berger *et al*., 2006; Breen *et al*., 2005; Mitchell and Topp, 2003; Walford, 2002).

South Africa's agriculture is lagging behind other sectors and contributes only 2.7 percent to GDP. This poor contribution to GDP has been going on for years since 1960 (Global Insight, 2008). Therefore, the upliftment of the rural situation depends on the

decentralization of rural economy by means of farms' diversification, and the introduction of agritourism as a sustainable development strategy for a distressed rural community.

In addition to the identified problems, there is also a risk of agrochemicals usages. The use of agrochemicals violates the principles of organic farming. Agritourism farming like organic farming is an environmentally responsible approach to produce high quality food. It prohibits the use of toxic agrochemicals such as pesticides and herbicides for pest and weed control respectively, increasing demand for family and hired labour (Crabtree *et al.*, 2001). The uses of these agrochemicals poses both known and unknown risks to biodiversity which impact negatively on the success of wildlife and further reduce the habitat quality and biodiversity of agricultural and surrounding ecosystems (Edge, 2000). For example, most farmers in Greater Tzaneen areas practice conventional agricultural farming with the usage of toxic agrochemicals that they apply on their farms to increase product output, and this impacts on natural environment negatively.

Some farms are located nearer to rivers and dams, and during rainy times, chemical pollution occurs in water and affects health status of downstream users negatively (humans and livestock), decrease fish productivity and disturb aquatic ecosystem in different ways. These recipients of negative external effects have no way of charging the upstream users, the farmers polluting water. Hence farmers using chemicals impose costs to other members of the society.

The agrochemicals used are also increasing the susceptibility of certain plants to diseases, and this poses a special threat to endangered plant species (Riley and Silver, 2001). Furthermore, there are some endangered bird species that could attract agritourists in places such as Limpopo. Examples are the big six namely: *Ephippiorhynchus senegalensis, Scotopelia peli, Torgos tracheliotus, Ardeotis kori, Polemaetus bellicosus and Bucorvus leadeateri* available in some areas of Limpopo province including Greater Tzaneen area, and they could be vulnerable to some agrochemicals (Engelbrecht, 2005). The prolific bird life of Greater Tzaneen area makes it a great attraction for bird lovers, researchers and tourists alike. To avoid the extinction of these bird species, conservationists and environmentalists should provide farmers with information such as the risks of chemicals that could harm the environment. Chemicals minimize biodiversity conservation, resulting in a degradation of rural tourism opportunities.

Environmental problems related to agricultural and rural development have been a major public concern in South Africa, as elsewhere, in recent years (Anim, 1998), and South Africa is considered as a major global importance for biodiversity conservation (SADEAT, 1997). Therefore, it is a tremendous responsibility of the farmers and employees to maintain and improve the management of natural resources (De Klerk, 2003).

## 1.1.2 Justification

This study was aimed at analysing the socio-economic variables effecting agritourism business in two rural communities of Greater Tzaneen area. The research findings are intended to be of benefit to the individual farmers and residents of the Greater Tzaneen, because agritourism business has potential to stimulate rural development. Agritourism promotes environmentally sound farming production methods that do not only increase productivity, but also arrest land degradation as well as reclaim, rehabilitate, restore and enhance biological diversity and monitor adverse effects on sustainable agricultural diversity (Clemens, 2004). Fadeyibi and Oredegbe (2009) indicated that agritourism is also a mitigating factor for farm income losses.

The great opportunities of agritourism can be attained in South Africa if there is sound and economic management of natural resources (renewable and non-renewable). This can lead to improvement of socio-economic development of most rural areas (Burian *et al.*, 2003). Agritourism does not promote any market externality (e.g. water and environment pollution) instead it promotes natural and healthy life. For example, all the downstream users whose health status are negatively affected by the usages of polluted water caused by agrochemicals used by the surrounding farmers (the non-agritourism farmers) can be improved if most farmers can adapt and adopt agritourism technology on the their farms, because this type of farming is critical and could succeed if farmers can take precautions against agrochemicals and any other sources that can pollute environment.

Moreover, the majority of rural areas is vulnerable to high level of poverty, and characterized by low levels of economic activity, infrastructural development, and access to essential services (Burian *et al.*, 2003). Approximately 70% of South Africans are rural and poor, and therefore, their incomes are constrained because the rural economy is not sufficiently vibrant to provide them with remunerative jobs (SAG, 2000). According to Gannon (1994); and Keiselbach and Lon (1990), agritourism existence can help to address various economic problems through economic diversification and stabilization, employment creation, infrastructural improvements, protection and improvement of both natural and built environment. With improved farming practices, more investors will be attracted into agricultural business, leading to more jobs created, thus attracting tourists who are eager to learn.

Agritourism has potential to improve South Africa's economic performance as well as contribute to rural development and employment creation (Kepe *et al.,* 2001). It can also be hypothesized that rural community life can be of high standard if agritourism can be developed by most local farmers, as well as introduction and development of better methods of farming.

## 1.2 Aim and objectives

### 1.2.1 Aim

The main aim of this study is to analyse the socio-economic variables affecting agritourism business using data from two rural communities.

**1.2.2 Objectives**

(i) To investigate the socio-economic differences between agritourism and non-agritourism farmers in two rural communities.

 (ii) To find out the impact of socio-economic variables on agritourism business.

**1.3 Hypotheses**

(i) There are socio-economic differences among agritourism and non-agritourism farmers.

(ii) Socio-economic variables namely literacy, gender, age, land size and family size have effect on agritourism business.

**1.4 Outline of the study**

This study is structured into five chapters. In Chapter two the focus is on the circumstances under which the economic thought on agritourism has developed. The chapter reveals that rural economy is overshadowed due to the fact that agritourism opportunities are not yet been fully realized by majority of South African farmers who are operating in the second economy. Literature indicates that unawareness of farmers about agritourism limits economic opportunities such as job creation, food security, farm revenues and the enrichment levels of the economic welfare of the marginalized rural areas.

Chapter three discusses the research methodology and design. The study adapted a case study design, and Multinomial Logit framework was used for modeling discrete choices

of farmers' category in terms of membership. The empirical model for estimating farmers' state of membership was also explained.

Chapter four represents the results and discussions of the empirical analysis and the estimated econometric models. The analysis of the results of the estimated models, fully and partially registered agritourism farmers relative to the non-agritourism farmers and their implications are analyzed. Summary and conclusion were presented in Chapter five.

## CHAPTER 2

## LITERATURE REVIEW

### 2.0 Theoretical concepts

Agritourism can be a way of sustaining the economy of the hinterland and giving city dwellers a rural experience in South Africa (Myles, 1999). It ventures the demand for travel experiences in rural settings and the marketplace is interested in learning more about agricultural landscape (Dossa, *et al.,* 2001). In most developing countries including South Africa, agritourism opportunities are not yet been fully realized. This may be caused by the insufficient availability of resources to the hand of the majority of farmers (Bruian *et al., 2003).*

There is an enormous potential for development in rural areas that may sustain rural economy (Ramsey and Schaumleffel, 2006), hence rural economy is overshadowed. Furthermore, since South Africa is dominated by small-scale farmers that operate in the second economy, the existence and practice of agritourism farming on their farms will empower their businesses and promote them so that they operate as professionally and successfully as any first world agritourism operators (Didiza, 2005).

### 2.1 Tourism area life cycle model

Life cycle is a graphical tool that represents a succession of phases in a normally long period of time for monitoring several areas of knowledge (e.g. agritourism).  Life cycle

concerns economic production by phases. The specific approach to life cycle modelling was launched in the 60's by the researchers analyzed tourism activity (Alvares and Lourenço, 2009).

Like most products, agritourism destination follows a determined product life cycle. This is supported by Butler's 1980 tourism area life cycle model. The model states that tourist areas go through a recognizable cycle of evolution. Evolution is brought about by a variety of factors, this includes changes in preferences and needs of tourists, the gradual deterioration and possible replacement of physical plant and facilities, and the change of the original natural and cultural attractions, which is responsible for the initial popularity of the area. Figure 2.1 illustrates different stages of tourism development.
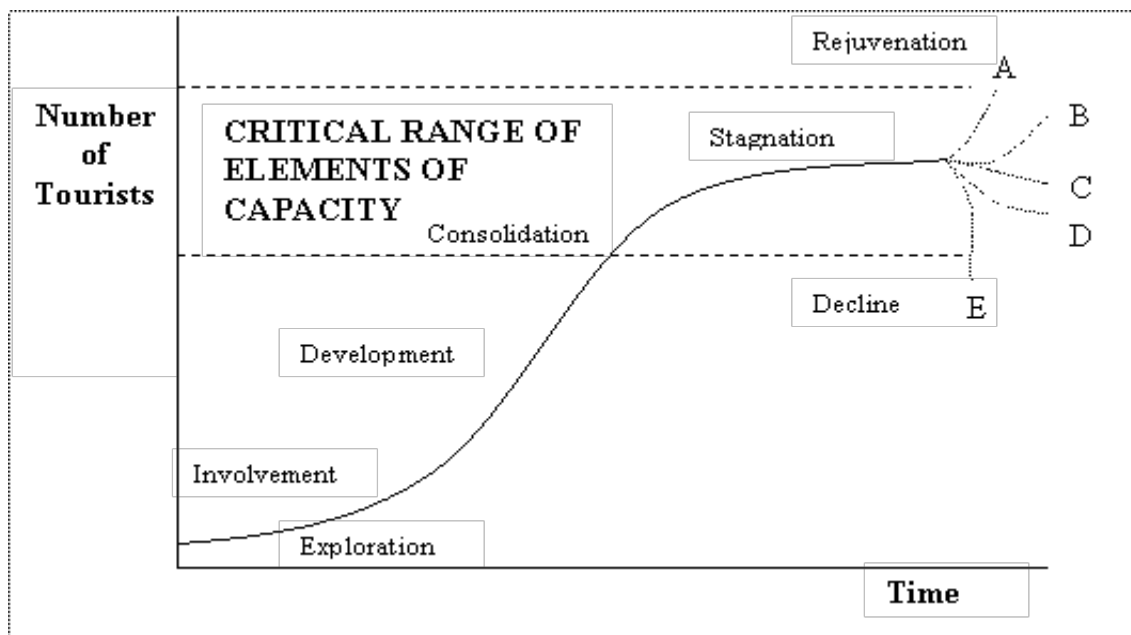


**Source: Butler, 1980**

Figure 2.1 Butler's tourism area life cycle model

In the initial stage, exploration, agritourism operator is expected to receive a small number of visitors due to the fact that business is new and not popular to the most agritourists. The agritourism products and services demanded are assumed to be imperfect due to the lack of agritourism facilities and knowledge.

The second stage is development stage. The tourism phenomenon grows spectacularly and very quickly because it is assumed that tourists discover the destination and its attractions in majority. Due to a massive number of tourists arrival to the agritourism destination, more revenue is generated. The business rise from exploration to stagnation often happens very rapidly, as implied by the exponential nature of the growth curve.

The third stage is stagnation, in which saturation is reached. At this stage business is no longer generating enough profit than in the development stage because there is a stable demand for products and services. Immediately after stagnation stage, the possible trajectories indicated by dotted lines A-E are possible outcomes beyond stagnation.

The Law of Diminishing Returns could cause a destination to follow trajectories similar to those of C or D, and that the concepts and practices of destination recovery, as applied to destinations recovering from a disaster, could easily be applied to a destination in decline as a result of the Law of Diminishing Returns.

**2.2 Forms of agritourism enterprises**

When a farm is diversified into agritourism venture, the farm nature will turn to operate as a supplementary, complementary or primary enterprise (Blacka *et al.,* 2001). All these agritourism enterprises are indispensable to protect the environment and they are considered to be of benefit to the farm business as they are promoting sustainable consumption and production of agricultural goods and services in the societies (GOE, 2007).

**2.2.1 Supplementary enterprise**

As a supplementary enterprise, agritourism supports the farm's primary role, it could be a minor activity that would support the production of commodities that still generate most of the farm income (Lobo, 2001). For instance, if the farm primary enterprise is dairy production, farm owners may decide to invite school groups to the farm for several days or months to learn about the animals on the farm. If a farmer hosts guests occasionally on his farm, this would make agritourism a supplementary enterprise to his primary enterprise because the agritourism activities were a minor part of his farm product mix.

**2.2.2 Complementary enterprise**

As a complementary enterprise, agritourism activities would share equal footing with other enterprises in the farm product mix. If a farmer produces one or more different commodities, agritourism would generate the same profits as other farming activities (Blacka *et al.,* 2001). An example of this would be a mango producer who sells half of

his produce to a wholesaler (who then supplies different markets) and the remainder to paying guests through pick-your-own operation (it is an activity where the commodity buyers harvest the crops of their own choice. Consumers preferences are diverse in nature). The two enterprises (the wholesale market and the direct market) would be complementary enterprises because they are expected to spawn an equal amount on business.

### 2.2.3 Primary enterprise

As the primary enterprise, agritourism would be the dominant activity on the farm. For instance, a fruit producer may open a winery on his farm and invite guests to spend the day or the weekend tasting wine. As part of the wine tasting package, the farmer may also include overnight lodging in a cottage on his property. However, because agritourism would be the main part of his farm product mix, therefore, agritourism will be considered as a primary activity. The farm will benefit from additional revenues and from increased public exposure.

### 2.3 Agritourism in rural areas of South Africa

Rural areas have distinctive characteristics for social and economic interaction in the countryside (Bramwell, 1994). The rural economy of South Africa is primarily agricultural and it grows gradually. This growth results from the fact that the majority of farmers receive inadequate information. There are number of strategies that can be used to improve the economic status of rural economy.  Among those strategies, agritourism can be used.  Brown (2002) found that in developing countries agritourism has been

given little consideration mostly by small-scale farmers, and it consequently affects rural economy by limiting the economic opportunities such as job creation, food security, farm revenue, a viability of rural society and a sustainable and diverse environment.

In most cases almost all agritourism entrepreneurs' main motives for farming amongst others include the reasons of food security and to make as much profit as they can, but due to some certain constraints such as limited resources, most of them fail to achieve these objectives. Sufficient farming skills and planning are required in order for a farm to receive the best results from the time and money invested into an agritourism operation, because well-developed agritourism systems in rural areas have the potential to reverse negative economic trends by bringing in visitors and creating new jobs and local business ventures for rural residents (Ramsey and Schaumleffel, 2006).

South Africa's rural community development has been hampered by the demise of family farms, which has been a subject of significant concern among the agritourism business for sometime (Barboza, 1999: Lasley *et al.,* 1995). Agritourism can be a true rural economic and community development driver if the entire community supports it. For example, the non-agritourism farming coupled with rising input costs and is slowly but substantially eroding small farm incomes (Blacka *et al.*, (2001). As a result, some non-agritourism farmers are acquiring second jobs and others are leaving their farms altogether in order to maintain a living income and to sustain their household. Communities can support agritourism business by provision of labour to those farmers for the reduction of input costs. Thereafter, the availability of labourers will make non-

agritourism farmers to be involved or practice the agritourism farming. Hence, quality agritourism products will be produced at a cheaper price and can be marketed domestically and to the broader commercial markets.

Agritourism is increasingly recognized as a means of enterprise diversification for most agricultural producers and in most cases, it is developed and adopted by developed farmers, worldwide (Sullins *et al*, 2006). Agritourism has ability to increase cash flows to the farms and their surrounding communities, because of the excessive various products demanded by consumers within this sector. Hence, agritourism can be considered as an economic growth strategy that can improve levels of economic welfare of the marginalized rural areas in South Africa.

# CHAPTER 3

# STUDY AREA AND METHODOLOGY

## 3.0 Introduction

This study utilized data that was collected from two villages (Nwa'metwa and Lenyenye) in the Greater Tzaneen municipality area within the Mopani district area of Limpopo Province. The two villages were chosen due to the presence of agritourism farmers. Due to the natural beauty of this district, Mopani is generally considered as the destination with the greatest potential for tourism growth for the country. Farmers within Mopani district are equivalent in terms of business opportunities even though they are heterogeneously distributed in terms of business locations and status.

The district contributes significantly towards the activity of agriculture on the provincial level. About 50% of the farm income in the province from horticulture is earned in the district. Most important crops in terms of monetary value are citrus, vegetables and subtropical fruit. Moreover, the Greater Tzaneen municipality area is one of the two leading municipalities in terms of the agriculture, forestry and tourism. The area is characterized by extensive and intensive farming activities, mountainous, inaccessible terrain in the west and south, and un-even topography (gentle slopes) to the north and east, and the area also boasts a plethora of historical, cultural and ethnic attractions. Figure 2 is a map depicting the locality of the Greater Tzaneen Municipal.
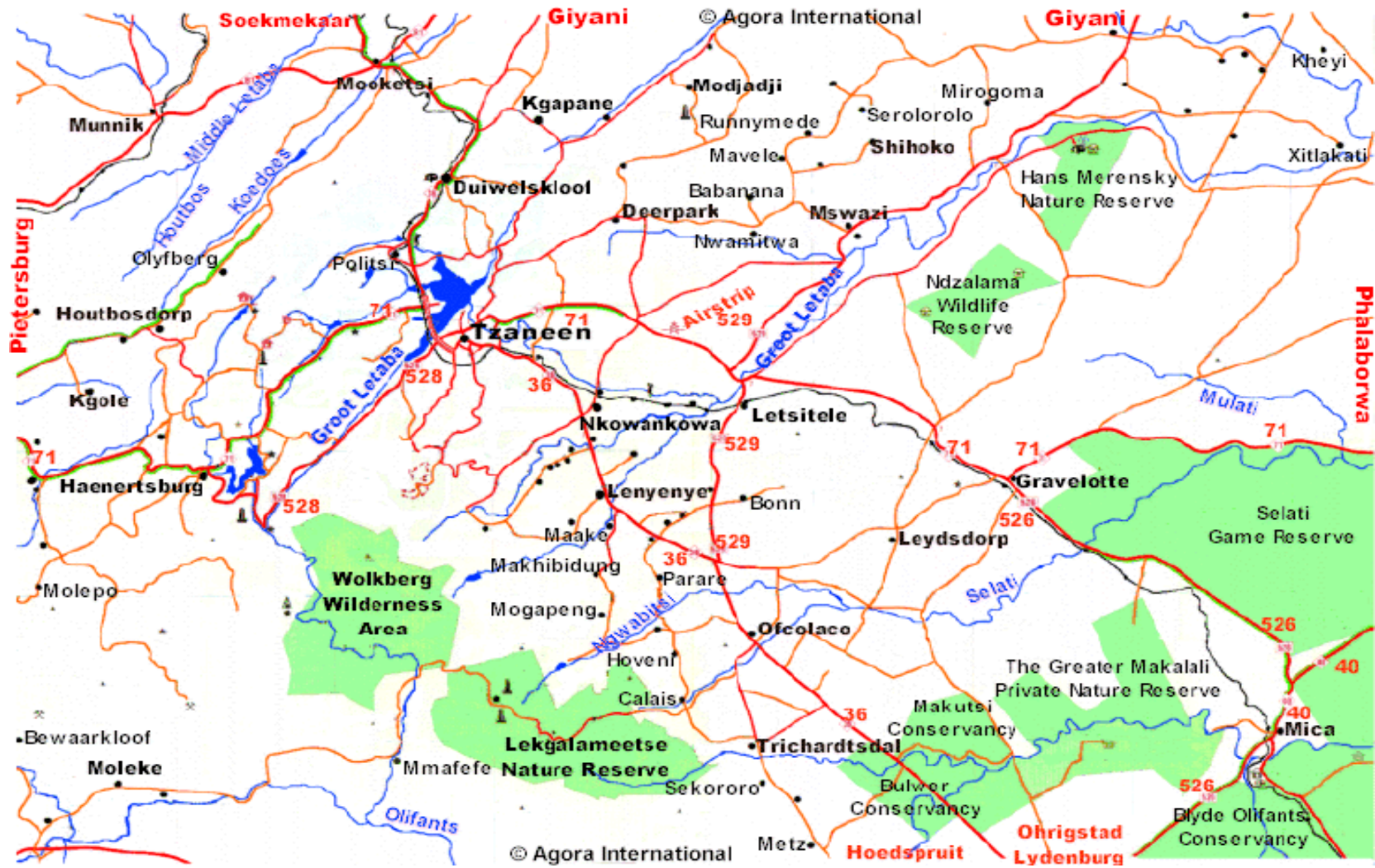
Figure 3.1 Detailed map of Tzaneen and surrounding area

**3.1 Research design**

This study adapted a case study design because only two villages were considered and used as farmers' representatives for the Greater Tzaneen municipality. Due to the determined relationship between dependent and independent variables, this research design was found to be descriptive in nature.

The total number of farmers in Nwa'metwa and Lenyenye was estimated to be 50 and 40 respectively. The statistics was provided by the local Department of Agriculture as it keeps the records of surrounding farmers. Questionnaires were distributed and administered to 90 farmers, but only 45 questionnaires were completed and used as a sample size. The follow up was also made to the non-respondent farmers and they continued showing no interest in participating in this study.

Farmers interviewed belonged to various associations such as Limpopo Tomato Grower Association, Organic farmers Association, Mango Growers Association, Citrus Farmers Association and Grains Farmers Associations and other farmers who did not register with any association. As these farmers were interviewed, they also provided extra information that was not contained in the questionnaire such as the participation level in their associations. Hence, this changed the structure of questionnaire as farmers categorized themselves to be operating in three groups namely; fully and partially agritourism farmers as well as non-agritourism farmers. Therefore, stratified sampling technique was applied to reach a satisfactory number of respondents as 15 questionnaires were completed on each group of membership.

## 3.2 Data collection

A questionnaire survey and personal interviews (face to face interview) were employed to gather relevant information from the black male and female farmers, 49% and 51% respectively. Data used for this study was collected in the year 2008. The total sample size (45) was made up of 15 fully registered agritourism farmers ($Y_1$), partially registered agritourism farmers ($Y_2$) and 15 non-registered agritourism farmers ($Y_3$). Therefore, $Y_3$ respondents represented the households that had not joined the agritourism group, but who resided in the same area.

$Y_1$ is considered to be the farmers engaged on agritourism business on full time basis for the period of more than 5years, while $Y_2$ is considered to be farmers who sometimes were involved in other jobs and they had been participating on agritourism business for the period of 5 years and less.

## 3.3 Econometric model

### 3.3.1 Framework for econometric analysis

The Multinomial Logit model has been used in agricultural production economics literature to model acreage share choices (Bewley *et al.,* 1987; Caswell and Zilberman 1985; Lichtenberg 1989; Segerson and Wu 1995), and land use decisions (Lubowski *et al.,* 2006). Therefore, it is also considered to be relevant for this study because the acreage share models built within the Multinomial Logit framework are mainly used for three reasons namely; they ensure that the predicted share functions (strictly) lie in the interior of the zero-one interval, they are parsimonious in parameters and they are

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empirically tractable. The Multinomial Logit framework is used for modeling discrete choices (McFadden 1974) and mainly employed for modeling farmers' membership category on discrete decisions.

### 3.3.2 Modelling agritourism farmer behaviour using multinomial logit model

Multinomial regression models can be used to assess the effectiveness of a range of predictor variables in explaining a defined set of outcomes. This study used a multinomial logit model to identify predictor variables that explain membership categories. The model simultaneously distinguishes agritourism farmers while explaining more subtitle differences between full member, partial member and non-members. Explanatory variables included in the model extended beyond farm and farmer characteristics to include measures of transaction costs that may either encourage or discourage collective action (Matungul, 2002).

The dependent variable under consideration (membership) is a nominal measure taking on three arbitrary and unordered values. Such a general unordered multinomial discrete choice problem can be described by the utility theory argument (Judge *et al.,* 2000). The ith farmer's utility received from agritourism membership type (fully registered, partially registered and non-members) can be presented by

$$Y^{*}_{ij} = x_{i.}\beta_j + \varepsilon_{ij} \qquad (1)$$

where, $Y^{*}_{ij}$ represent the utility that the $i^{th}$ farmer obtains from choosing the $j^{th}$ state of membership, $x_i$ is vector of explanatory variables, $\beta_j$ is a vector of their weights,

and $\varepsilon_t$ represents the residuals of the utility function. The farmer obtains from selecting a state of membership and is unobservable but the membership choices made are observed. If, farmers are rational in their decisions they would select the state of membership from a possible choice set $k$ that maximises their utility. The probability that an alternative $j$ is chosen by the $i^{th}$ individual if $Y^*_{ij} > Y^*_{ik} \ \forall k \neq j$ and $\varepsilon_{ij}$ are independently and identical distributed, each with the cumulative distribution function (CDF) and probability density function (PDF) of

$$f(z) = e^{-z} e^{-z^{-z}} \text{ and } F(z) = e^{-e^{-z}} \quad \text{(Crabtree } et\ al,\ 2001) \quad (2)$$

respectively given by:

$$P(Y*_{ij} = 1) = P(Y^*_{ij} > Y*_{ik}), \forall k \neq j$$

$$P \ \left[\in_{ij} - \in_{ik}\rangle - x_i(\beta_j - \beta_k), \forall k \neq j\right] = g_{ij}(x_{i.}\beta_j)$$

$$= e^{x_i\beta_j} / \sum_{j=1}^{k} e^{x_i\beta_j} \text{ for i=1...n and } j = 1,... k \quad (3)$$

This logistic function is characterised by independence of irrelevant alternatives (Dupraz *et al.*, 2002). The differences in the error term ($\varepsilon_{ij} - \varepsilon_{ik}$) follow a logistic function in multinomial logistic model where $X_i$ is a vector of explanatory variables and $\beta_j$ are the estimated parameters that weight the exogenous variables to estimate utility j. A problem with this model is that the parameter vectors $\beta_j$, $j = 1...k$ are not identified. The identification problem according to Green (1997) is mitigated by restricting the first parameter vector to zero (i.e. $\beta_1 = 0$) in which case the remaining parameters are identified with resultant multinomial probabilities represented by

$$P_{ij} = g^*_{ij}(x_i \beta_j) = e^{x_i \beta_j} / 1 + \sum_{j=1}^{k} e^{x_i \beta_j} \quad \text{for} \quad j \geq 2 \quad \text{(Dupraz } et \ al., \ 2002)$$

(4)

and

$$P_{ij} = g^*_{ij}(x_i \beta_j) = 1 / 1 + \sum_{j=1}^{k} e^{x_i \beta_j} \quad \text{for } j = 1 \tag{5}$$

which is similar to the binary choice case when $j = 2$. The log-likelihood model to be estimated is represented by:

$$In(L(\beta; y)) = \sum_{i=1}^{n} \left[ x_i \beta_{yi} - In(1 + \sum_{j=2}^{k} e^{x_i \beta_j}) \right] \tag{6}$$

and the marginal effects of the explanatory variables $x_{ij}$ are derived from equation (1) and are represented by the partial derivative:

$$\partial P_{ij} / \partial x_i = P_{ij} \left[ \beta_j - \sum_{j=2}^{k} P_{ik} \beta_k \right] \tag{7}$$

Therefore, the marginal effects measure the expected change in the probability of a particular choice being made with respect to a unit change in an explanatory variable (Green, 2000; Long, 1997). Alternatively the log-odds are less complicated in function from than partial derivatives. Normalising on the first alterative choice with $\beta_1 \equiv 0$, the log-odds ratios are calculated as follows:

$$In(P_{ij} / P_{i1}) = x_i \beta_j \tag{8}$$

The other alternatives besides the first one can be normalised using the general log-odds formula:

$$In(P_{ij} / P_{i1}) = x_i (\beta_j - \beta_k) \qquad \text{(Judge } et \ al., \ 2000) \tag{9}$$

### 3.3.3 Empirical model

Following the explanatory data analysis, and with reference to previous participatory studies, a number of predictor variables were identified for inclusion in the model (Molinas, 1998; Delvaux *et al*., 2000). The state of membership (MEMB) chosen by a farmer is the model's dependent variable taking the values of 0 for fully registered agritourism members, 1 for partially registered agritourism members, and 2 for non-registered agritourism members. The empirical model for estimating the state of membership that maximises a respondent's utility was postulated as:

$$MEMB^{*}_{ij} = \beta_0 - \beta_{1i}AGE_{1i} - \beta_{2i}GEND_{2i} - \beta_{3i}WLFB_{3i} - \beta_{4i}HMFMFB_{4i} + \beta_{5i}HBYF_{5i} + \varepsilon_{ik} \quad (10)$$

Where

$MEMB^{*}_{ij}$ = Farmer state of membership (fully, partially and non-registered agritourism members);

$AGE_i$ = Age of the farmer (years);

$GEND_i$ = Gender of farmer, 1 if farmer is male

= 0, female farmer;

$WLFB_i$ = Language used by farmer for business purposes, 1 if a farmer prefers Afrikaans,

= 2, Sepedi,

= 3, Xitsonga,

= 4, Tshivhenda,

= 5, More than one,

$$= 6, \text{other};$$

*HMFMFB$_i$*     = Number of family members employed farming business;

*HBFY$_i$*     = Farm size (Ha);

$\beta_0$     = constant;

$\beta_i$     = weighting coefficients; and

The explanatory variables considered and used for the empirical estimation consist of socio-economic factors. It assumed that coefficients of AGE, GEND, WLFB and HMFMFB are expected to be negative, while variable HBFY is expected to have positive coefficient. These estimated coefficients probably answer the questions that motivated the study. The theoretical bases upon which the expected signs of the coefficients are based can be explained as follows:

(i)     AGE

The influence of AGE on farmer state of membership decision has been found in the literature to be varied. Some studies have found that AGE had no influence on a farmer's decision to participate in either agritourism or non-agritourism activities (Bekele & Drake, 2003; Anim 1999; Lee *et al*., 1997). Other studies, however, found that AGE is significantly and negatively related to farmers' decisions (Anley *et al.*, 2007, Carter *et al.*, 2007; Burton *et al.,* 1999; Lapar & Pandely, 1999: Feartherstone & Goodwin, 1993; Gould *et al.*, 1989). Based on this captured literature, this study hypothesize that the AGE

of the farmers has negative impacts on different types of farming business, especially on agritourism business.

(ii)    GEND

The empirical studies have shown that GEND describe the socially determined attributes of male and female farmers, including their roles. McGehee and Kim (2004) found that there is GEND differences among farmers in farming business, and women founded to be more motivated than men counterparts to be involved in any type of farming, agritourism farming included (Chiappe and Flora, 1998). Bekele and Drake (2003) found that some household gender was not a significant factor influencing farmers' decision to adopt agritourism. Therefore, GEND may be negatively associated with the type of membership category as most farmers both males and females are not yet exposed to the agritourism farming.

(iii) HMFMFB

Empirical adoption literature shows that household size has mixed impacts on farmers' adoption of agricultural technologies (Nhemachena, 2009). Larger family is expected to enable farmers to implement various adaptation measures when these are labour intensive (Carter *et al.,* 2006; Anley *et al*., 2007; Birungi, 2007). Mixed farming system like agritourism farming system is considered to be labour intensive and hence expects a positive influence of family size on the adoption of agritourism technology and business. This implies that farm households with more labour are better off than farm households

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with few labours because they increase opportunity cost of labour among the household member.

(iv) WLFB

In business industry, english is most preferable and used by seller and customer. It is assumed that WLFB will have negative sign since most farmers use local languages in their businesses rather than english. The farmers market in Greater Tzaneen area is dominated by local people, and besides most farmers do not have formal education and it is difficult for them to speak english.

(v) HBFY

During data collection, the respondents highlighted that the factors of production were in place excluding capital in the form of cash. Most farmers needed financial assistances to expand their businesses. Out of this fact, it is then assumed that HBFY might have positive sign since land size and human capital (labour) were not the constraints for the performed farm activities. Most respondents were concerned about their farm structures, the way their farms were organized.

### 3.3.4 Characteristics of variables used for this study

Variables explaining MEMB* are represented by the broad categories of farmer and farm characteristics. Previous studies have shown that farmer participation in organized

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schemes depends on farm and farmer characteristics (Bergstro *et al*., 1999). A number of variables such as HBFY and HMFMFB were used to represent farm characteristics as they determine the potential net benefit of participating in collective action. HBFY includes the cropland that belongs to the household (family farm), both under cultivation and fallow.

Large farm sizes were expected to improve household's ability to produce surplus crops for the market after factoring in subsistence constraints (Promar International, 1999). They were also predicted to make it feasible for farmers to produce extensive commercial crops, than intensive agritourism crops. Furthermore, certification of agritourism crops becomes complicated and extensive when they are produced in close proximity to non-agritourism crops on small farms.

HMFMFB also has implications for decisions to adopt agritourism technology. Agritourism farming like organic farming prohibits the uses of pesticides and herbicides for pest and weed control respectively, increasing demand for family and hired labour (Crabtree *et al*, 2001). As a result, agritourism farming is categorised as labour intensive. HMFMFB is proxy for the household's supply farm labour in this study (Molinas, 1998). Empirical studies have shown that potential income benefits from farm size impacts strongly on smallholder decisions (Brady *et al*., 1995).

Conventional farmers are more likely to consider agritourism farming if it is more profitable, if there are strong market signals from both the local and export market and if

it is technically feasible and sustainable in the long term (Mackay, 2002). Variables representing individual characteristics of the head of household are AGE, GEND and WLFB. Empirical studies have shown that younger people are more likely to be involved in collective action as they are more innovative and risk-tolerant than old people (Molinas, 1998). In this study WLFB is measured by dummy variable indicating the ability of the household head to read and understand english, the lingua franca of commerce and business in the Limpopo Province (Matungul, 2002).

Members and non-members of agritourism, face different transaction costs. Participating in agritourism activities presents whole new set of transaction costs that non-members do not incur, such as membership fees and the opportunity cost of time attending agritourism meetings. Other sources of transaction costs considered in the study relate to problems of price uncertainty in fresh produce markets, tractor availability for tillage, finding and supervising additional labour for agritourism crop production, acquiring information and manure and securing transport to distant market. These problems are rated by respondents as serious (3), moderate (2) or no problem (1).

Interactions between farmer characteristics and transaction cost may occur. For example, AGE may be negatively associated with transaction costs as older farmers tend to have more experience and stronger social networks. Educated farmers are better able to assemble and interpret information and are expected to face lower transaction costs than less educated farmers when accessing markets as individuals or through collective action. A characteristic like WLFB may be important but non-significant if it contributes equally

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to the above mentioned sources of transaction costs of both individual and collective action. Indeed, it may not be possible to anticipate the direction of impact that many of these farmer characteristics will have on agritourism membership.

# CHAPTER 4

## RESULTS AND DISCUSSION

### 4.0 Introduction

This chapter discusses the results analyzed using Statistical Package for the Social Sciences program (SPSS Version 17, 2009). The multinomial logit analysis of the socio-economic study of agritourism in Nametwa' and Lenyenye village was performed. The analysis contains 3 categorical dependent variables which represent farmers' choice in terms of business operation and this was showed in Table 1. The analysis covered the descriptive statistics, correlation matrix, ANOVA (mean values) and multinomial regression model. Each table was displayed in this chapter.

**Table 1: Dependent variable classified by three categories**

| Category | Description |
|---|---|
| 0 | Fully registered agritourism farmers |
| 1 | Partially registered agritourism farmers |
| 2 | Non-registered agritourism farmers |

**Table 2: Variable names and definitions of variables used**

| Variable | Description |
| --- | --- |
| AGE | Age of the farmer (years) |
| GEND | Gender of farmer (Male=0, Female=1) |
| WLFB | Which other language/s do you use in your farming business?    Afrikaans=1, Sepedi=2, Xitsonga=3, Tshivhenda=4, More than one=5, other = 6) |
| HMFMFB | How many family members are employed in your farming business? (number) |
| HBYF | How big is your farm? (Ha) |

**Table 3: Case processing summary**

|  | N | Marginal Percentage |
| --- | --- | --- |
| Membership category |  |  |
| 0 | 15 | 33.3% |
| 1 | 15 | 33.3% |
| 2 | 15 | 33.3% |
| Total | 45 | 100% |

The above table showed the case processing summary that represents the number and percentage of cases in each level of the response variables. These response variables were

categorised into three groups as presented in Table 1. The total number of observations that were used in the analysis was 45 and it indicated the 100% marginal percentage of the observations. Each membership category represented by 33.3% from total number of the observations.

**Table 4: Descriptive statistics for explanatory variables included in the analysis**

|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| AGE | 45 | 33 | 71 | 52.36 | 11.807 |
| GEND | 45 | 0 | 1 | 0.49 | 0.506 |
| WLFB | 45 | 2 | 5 | 4.56 | 0.990 |
| HMFMFB | 45 | 0 | 10 | 2.42 | 2.291 |
| HBYF | 45 | 1 | 155 | 36.26 | 42.895 |

The above table represents the descriptive statistics of the explanatory variables used in the analysis. Out of the total number of sample size used for the study, it was found that farmers who participated differed in terms of age, the minimal farmers' age was 33 while the maximum age was 71years. The majority of these farmers were multilingual because they used more than one language for business communication, english included. This added more advantage for business growth because most agritourists and non-agritourists customers use different languages and prefer to be assisted by people who do understand and talk their language even if not perfectly. The evidence of this is also provided by the Table 4. The table showed that very few respondents used one language (Xitsonga) for

communication. This was indicated by mean 4.56. Further, none farmers spoke either Afrikaans or other language than the one indicated in Table 2.

Any farm related business, either agritourism business or any hardcore farm business depends on the factors of production such as labour and land for production and service rendering. The agritourism and non-agritourism farmers operated their businesses on a land size ranges from 1 hectare to 155 hectares together with their family members employed full time and on part-time bases. Farmers who operated individually in the business were 2.24 %. The average size of holding was 36.26 hectares. The research results also found that the majority of farmers participated were women.

## 4.1 Descriptive statistics summary

Farmers who participated in this study differed in terms of age, the minimal farmers' age was 33 and the maximum age was 71years. The majority of these farmers were multilingual and they used more than one language for business communication. Both agritourism and non-agritourism farmers operated their businesses on a land size ranges from 1 hectare to 155 hectares together with their family members employed full time and on part-time bases. The majority of farmers participated were women.

**Table 5: Correlation matrix**

| | | MEMB | AGE | GEND | WLFB | HMFMFB | HBYF |
|---|---|---|---|---|---|---|---|
| MEMB | Person Correlation | 1 | | | | | |
| | Sig. (2-tailed) | | | | | | |
| | N | 45 | | | | | |
| AGE | Person Correlation | -0.399** | 1 | | | | |
| | Sig. (2-tailed) | 0.007 | | | | | |
| | N | 45 | 45 | | | | |
| GEND | Person Correlation | 0.381** | -0.502** | 1 | | | |
| | Sig. (2-tailed) | 0.010 | 0.000 | | | | |
| | N | 45 | 45 | 45 | | | |
| WLFB | Person Correlation | -0.222 | 0.125 | -0.056 | 1 | | |
| | Sig. (2-tailed) | 0.1420 | 0.415 | 0.717 | | | |
| | N | 45 | 45 | 45 | 45 | | |
| HMFMFB | Person Correlation | -0.144 | 0.209 | -0.241 | 0.095 | 1 | |
| | Sig. (2-tailed) | 0.345 | 0.169 | 0.111 | 0.536 | | |
| | N | 45 | 45 | 45 | 45 | 45 | |
| HBYF | Person Correlation | -0.802** | 0.480** | -0.415** | 0.237* | 0.312* | 1 |
| | Sig. (2-tailed) | 0.000 | 0.001 | 0.005 | 0.028 | 0.37 | |
| | N | 45 | 45 | 45 | 45 | 45 | 45 |

**Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed)

Table 5 represents the correlation coefficients between pairs of relevant variables observed from all respondents. The results of the correlations show positive and negative relationship among the selected socio-economic variables. Further, the analysis of the correlation matrix indicated that few of the observed relationships were very strong. The strongest relationship was between the socio-economic variables AGE and HBYF followed by MEMB and GEND. These pairs of variables were both significant at the significance level of 0.01. The highest positive correlation between AGE and HBYF is indicated by 0.480, followed by MEMB and GEND at 0.381. These variables were

statistically significant at the significance level of 0.001 and 0.010 respectively. These results mean that both pairs of variables were significantly and positively related because older farmers both agritourism and non-agritourism farmers were likely to operate their farming businesses on large farms than the young farmers (youth). The results also indicated that both male and female farmers participated more or less equally in three forms of state of membership.

Furthermore, the correlation matrix shows that variable MEMB was negatively correlated with both AGE (-0.399) and HBYF (-0.802) at the significance level of 0.007 and 0.000 respectively, The negative correlation of MEMB with variable AGE and HBYF mean that most farmers who participated were younger people and they operated their businesses in small farm sizes.

Moreover, there was a negative relationship between AGE and GEND (-0.502) at the significance level of 0.000, while GEND had negative correlation with HBYF (-0.415) at the significance level of 0.005. These results implied that most respondents were young and less educated, further the negative correlation between GEND and FBYF showed that young farmers operated farming business without relevant skills. The results also suggested that young farmers skills might impacted businesses growth negatively.

**4.2 Correlation matrix summary**

The socio-economic variables used in this study have indicated that older agritourism and non-agritourism farmers operated on large farms, while young farmers were found to be

less educated. Therefore, these conclusions are possible because of the sign of the correlation coefficients.

**Table 6. ANOVA (Mean values)**

| Variable | Fully registered $n_1=15$ | Partially registered $n_2=15$ | Non-registered $n_3=15$ | Sig. |
|----------|------------|-------------|--------------|------|
| AGE | 61.13 | 46.20 | 49.73 | 0.001 |
| GEND | 0.20 | 0.60 | 0.67 | 0.020 |
| WLYF | 5.00 | 4.20 | 4.47 | 0.076 |
| HMFMFB | 2.67 | 2.73 | 1.87 | 0.525 |
| HBYF | 85.67 | 20.73 | 2.37 | 0.00 |

N = 45

Analysis of Variance (ANOVA) was conducted to find out if there were socio-economic differences among fully, partially and non-registered agritourism farmers in terms of socio-economic factors (independent variables). To test this hypothesis, the significance of the differences between the mean values of respondents assigned was used. The null hypothesis was mathematically expressed as $H_0$: $\mu_{1i} = \mu_{2i} = \mu_{3i}$ with the alternative hypothesis $H_1$: $\mu_{1i} \neq \mu_{2i} \neq \mu_{3i}$. Results in Table 6 showed that the mean of the variables (AGE, GEND, WLYF and HBYF) differed significantly, while variable HMFMFB was statically found to be insignificant (p = 0.525). The results implied that there are socio-economic differences among the three groups of farmers, and they also mean that

variables AGE, GEND, WLYF, HMFMFB and HBYF have unique relationship with fully, partially and non-registered agritourism farmers. Therefore, $H_1$: $\mu_{1i} \neq \mu_{2i} \neq \mu_{3i}$ was accepted.

## 4.3 Analysis of Variance summary

There are socio-economic differences among fully registered, partially registered and non-agritourism farmers. This was statistically proven and showed by the analysis of variance Table. The mean of the socio-economic variables AGE, GEND, WLYF and HBYF differed significantly, while variable HMFMFB was statically found to be insignificant.

**Table 7: Results of the Multinomial Logistic Regression (Parameter estimates)**

| Membership category | | B | Std. Error | Wald | df | Sig |
|---|---|---|---|---|---|---|
| Fully registered | Intercept | 521.081 | 19380.369 | 0.001 | 1 | 0.979 |
| agritourism | AGE | -4.926 | 1.885 | 6.826 | 1 | 0.009 |
| farmers | GEND | -128.747 | 18477.079 | 0.000 | 1 | 0.994 |
| | WLFB | -64.510 | 1169.555 | 0.003 | 1 | 0.956 |
| | HMFMFB | -164.031 | 16.975 | 93.373 | 1 | 0.000 |
| | HBYF | 89.589 | 0.292 | 94343.721 | 1 | 0.000 |
| | | | | | | |
| Partially registered | Intercept | 559.048 | 19205.283 | 0.001 | 1 | 0.977 |
| agritourism | AGE | -5.419 | 1.822 | 8.819 | 1 | 0.003 |
| farmers | GEND | -130.743 | 18476.983 | 0.000 | 1 | 0.994 |
| | WLFB | -64.843 | 1047.670 | 0.004 | 1 | 0.951 |
| | HMFMFB | -161.145 | 16.791 | 92.108 | 1 | 0.000 |
| | HBYF | 89.248 | 0.000 | | 1 | |
| -2 log Likelihood | 6.559 (P < 0.000) | | | | | |
| Chi-Square | 92.316 (P < 0.000) | | | | | |
| α | 5% | | | | | |

The reference category is: Non-registered agritourism farmers (2)

The Table 7 represents the multinomial logistic regression with two parts, labeled membership category fully registered agritourism farmers (category 0) and partially registered agritourism farmers (category 1). Category non-registered agritourism farmers (category 2) was chosen and used as the comparison category. Table also shows the raw regression coefficients (B), their standard errors, and the Wald test and associated p-values (sig.). The coefficient signs for the variables AGE, GEND, WLFB and HMFMFB

in both categories (1 and 2) are negative, while that for HBYF is positive as expected. If B's are negative, the corresponding variables reduce the odds and vice-versa.

An important feature of the multinomial logit model is that it estimates k-1 models, where k is the number of levels of the outcome variable. In this instance, non-registered agritourism farmers was used as the reference group, and therefore two models were estimated, namely fully and partially registered agritourism farmers to the non-registered agritourism farmers. The estimated models correspond with the multinomial logistic regression models equations listed hereunder:

$$\log[P(MEMB^*=0/P(MEMB^*=2)] = 521.081 - 4.926AGE - 128.747GEND -$$
$$64.510WLFB - 164.031 \ HMFMFB + 89.589HBYF \quad\quad (11)$$
$$\log[P(MEMB^*=1/P(MEMB^*=2)] = 559.048 - 5.419AGE - 130.743GEND -$$
$$64.843WLFB - 161.145 \ HMFMFB + 89.248 \ HBYF \quad\quad (12)$$

These empirical logarithm equations (11 and 12) denote the relative probability of both fully and partially registered agritourism farmers to the probability of the non-registered agritourism farmers. In the fully registered agritourism farmers relative to the non-registered agritourism farmers model, the multinomial logit estimate that one unit change in the variables AGE, GEND, WLFB, HMFMFB and HBYF in equation 1, the log of the ratio of the two probabilities, $P(MEMB^*=0/P(MEMB^*=2)$ will be decreased by 4.926, 128.747, 64.510, 164.031 and increased by 89.589.

However, in partially registered agritourism farmers relative to the non-registered agritourism farmers model (equation 2), the multinomial estimate that one unit change in the variables AGE, GEND, WLFB, HMFMFB and HBYF, the log of the ratio of the two probabilities, P(MEMB*=1/P(MEMB*=2) will be decreased by 5.419, 130.743, 64.843, 161.145 and increased by 89.248. Therefore, these logarithm results imply that older farmers were less likely to prefer to operate business as a fully or partially registered agritourism farmer compared to the non-registered agritourism group. Furthermore, farmers' decisions in business operation were also informed by their level of education, experience as well as social networks. The more a farmer is educated and strong in terms of social networking, the lesser risk he or she can fail to operate farming business in either fully or partially agritourism farming.

**Hypothesis test for regression coefficient (testing that variables have no effect)**

A hypothesis test was conducted to determine whether the socio-economic variables namely literacy (WLFB), gender (GEND), age (AGE), land size (HBYF) and family size (HMFMFB) have effect on agritourism business. The p-values associated with these socio-economic variables parameters in comparison to the significance level ($\alpha = 5\%$) in the estimated multinomial logistic results presented in Table 7 was used to test the hypothesis. If there is significant linear relationship between farmers' membership categories (1 and 2) and the socio-economic variables, then regression coefficients will not equal to zero. Therefore, the null hypothesis can mathematically be written as $H_0$: $B_{1i}$ = 0 and alternative hypothesis as $H_1$: $B_{1i} \neq 0$.

Table 7 shows that there is a significant relationship between fully registered agritourism farmers and variables AGE, HMFMFB and HBYF. The p-values associated with variables AGE, HMFMFB and HBYF (0.009, 0.000 and 0.000, respectively) are less than the significance level (0.05). Therefore, these results imply that that null hypothesis can be rejected.

In partially registered agritourism farmers' category, variables AGE and HMFMFB showed a significant relationship among other variables. The p-values associated with AGE and HMFMFB are 0.003 and 0.000, respectively. These two p-values are both less than significance level (0.05). These results also suggest that null hypothesis be rejected. Furthermore, $H_0$: $B_{1i} = 0$ can be rejected since Chi-square test is highly significant (p =0.000). Variables GEND and WLFB were statistically found to have insignificant relationship with the estimated models, fully and partially registered agritourism farmers relative to non-registered agritourism farmers.

## 4.4 Summary of implications of results

Two models were estimated, namely fully and partially registered agritourism farmers to the non-registered agritourism farmers. These models denote the relative probability of both fully and partially registered agritourism farmers to the probability of the non-registered agritourism farmers. In the fully registered agritourism farmers relative to the non-registered agritourism farmers model, the multinomial logit estimated that one unit change in the variables AGE, GEND, WLFB, HMFMFB and HBYF, the log of the ratio

of the two probabilities, P(MEMB*=0/P(MEMB*=2) was decreased by 4.926, 128.747, 64.510, 164.031 and increased by 89.589.

However, in partially registered agritourism farmers relative to the non-registered agritourism farmers model, the multinomial estimated that one unit change in the variables AGE, GEND, WLFB, HMFMFB and HBYF, the log of the ratio of the two probabilities, P(MEMB*=1/P(MEMB*=2) was decreased by 5.419, 130.743, 64.843, 161.145 and increased by 89.248. Therefore, older farmers were less likely to prefer to operate businesses as fully or partially registered agritourism farmers compared to the non-registered agritourism group. Farmers' decisions in business operation were informed by their level of education, experience as well as social networks. Finally, there is a significant relationship between socio-economic variables and agritourism business.

# CHAPTER 5

## SUMMARY AND CONCLUSION

The study analysed the socio-economic variables affecting agritourism business using data from Nwa'metwa and Lenyeye communities. Two logarithm models were estimated, namely fully and partially registered agritourism farmers to the non-registered agritourism farmers. These models denote the relative probability of both fully and partially registered agritourism farmers to the probability of the non-registered agritourism farmers. In the fully registered agritourism farmers relative to the non-registered agritourism farmers model, the multinomial logit estimated that one unit change in the variables AGE, GEND, WLFB, HMFMFB and HBYF, the log of the ratio of the two probabilities, $P(MEMB*=0/P(MEMB*=2)$ was decreased by 4.926, 128.747, 64.510, 164.031 and increased by 89.589.

However, in partially registered agritourism farmers relative to the non-registered agritourism farmers model, the multinomial estimated that one unit change in the variables AGE, GEND, WLFB, HMFMFB and HBYF, the log of the ratio of the two probabilities, $P(MEMB*=1/P(MEMB*=2)$ was decreased by 5.419, 130.743, 64.843,161.145 and increased by 89.248. Therefore, older farmers were less likely to prefer to operate businesses as fully or partially registered agritourism farmers compared to the non-registered agritourism group. Farmers' decisions in business operation were informed by their level of education, experience as well as social networks.

The study confirmed that there are socio-economic differences among fully registered, partially registered and non-agritourism farmers. The socio-economic variables used in this study have indicated that older agritourism and non-agritourism farmers operated on large farms, while young farmers were found to be less educated. Both agritourism and non-agritourism farmers operated their businesses on a land size ranges from 1 hectare to155 hectares together with their family members employed full time and on part-time bases. The research also found that there is a significant relationship between socio-economic variables and agritourism business. Further, the majority of farmers who participated were multilingual and they used more than one language for business communication. Among the farmers who participated, women dominated.

Lastly, there is less agritourism literature available in the country. Therefore, it is recommended that researchers participate on agritourism studies so that more information be available for the public and policy makers. It is hoped that this study results will provide guideline and serve as baseline information to the Greater Tzaneen municipality policy makers for the formulation of policy measures on  farmers who are currently and interested on practicing either agritourism or non-agritourism business.

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**APPENDIX**

**SOCIO-ECONOMIC ANALYSIS OF AGRITOURISM IN TWO RURAL COMMUNITIES IN THE LIMPOPO PROVINCE.**

## <u>SURVEY QUESTIONNAIRE</u>

Dear farmer, it would be a great pleasure if you could take part in assisting in this research by answering this questionnaire. The main purpose of the study is to analyse the socio-economic factors affecting agritourism business in your area. Information provided will help a great deal in the study.

Many thanks for your interest and time.

**Questionnaire no..............**

**Researcher: Khehla Mnguni**

**1. Farmer characteristics**

Age ……………years.

Gender

| Male = 0 | Female = 1 |
|---|---|
|  |  |

Do you read and write English?

| No = 0 | Yes = 1 |
|---|---|
|  |  |

Which other language/s do you use in your farming business?

|  | No = 0 | Yes = 1 |
|---|---|---|
| **Afrikaans** |  |  |
| **Sepedi** |  |  |
| **Xitsonga** |  |  |
| **Tshivenda** |  |  |
| **More than one** |  |  |
| **Other** |  |  |

What is your highest educational qualification?

| None | Primary school | Secondary school | College | University |
|---|---|---|---|---|
|  |  |  |  |  |

**2. Farm characteristics**

    i.    How many family members are employed in your farming business?

            ………………………………………….

    ii.    How big is your farm?………………………………ha

### iii. Farm income

a. Please provide the following information for agritourism products produced during the various production seasons in 2004, 2005 and 2006.

**Table 1**

| Vegetables e.g. Cabbages, Onion, etc. | Planted area under Dry land **(hectares)** | | | Planted area under Irrigated **(hectares)** | | | Quantity harvested Dry land **(metric tones)** | | | Quantity harvested Irrigated **(metric tones)** | | | Net farming income **(Rand)** | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 |
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| **Total net income earned from vegetables** | | | | | | | | | | | | | | | |

**Average net income earned from vegetables …………………………………**

**Table 2**

| Subtropical fruit, e.g. mangoes, banana, etc. | Planted area under Dry land (hectares) | | | Planted area under Irrigated (hectares) | | | Quantity harvested Dry land (metric tones) | | | Quantity harvested Irrigated (metric tones) | | | Net farming income (Rand) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 |
| | | | | | | | | | | | | | | | |
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| **Total net income earned from subtropical fruits** | | | | | | | | | | | | | | | |

**Average net income earned from subtropical fruits …………………………………**

**Table 3**

| Field crops, e.g. maize, sorghum, etc. | Planted area under Dry land (hectares) | | | Planted area under Irrigated (hectares) | | | Quantity harvested Dry land (metric tones) | | | Quantity harvested Irrigated (metric tones) | | | Net farming income (Rand) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 |
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |
| **Total net income earned from field products** | | | | | | | | | | | | | | | |

**Average gross income earned from field products …………………………………**

b. Please provide the following information for the animals produced and sold during the various production seasons in 2004, 2005 and 2006.

**Table 4**

| Animals, e.g. goats, cattle, chickens, etc. | Number of animals sold to abattoirs | | | Number of animals sold elsewhere | | | Net farming income (**Rand**) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 |
| | | | | | | | | | |
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| | | | | | | | | | |
| **Total net income earned from number of animals sold** | | | | | | | | | |

**Average net income earned from animals sold ……………………………**

c. Please provides the information about tourism services that took place during the various periods in 2004, 2005 and 2006.

**Table 5**

| Transport type, e.g. vehicles, donkeys, horses, etc. | Number | | | Net income generated from the transport usages (Rand) | | |
|---|---|---|---|---|---|---|
| | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
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| | | | | | | |
| | | | | | | |
| **Total net income earned from transport** | | | | | | |

**Average net income earned from transport ………………………………….**

**Table 6**

| Residence | Number of guest houses | | | Number of guests accommodated | | | Net income (**Rand**) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 |
| Accommodation | | | | | | | | | |
| **Total net income earned from accommodation** | | | | | | | | | |

**Average net income earned from accommodation ………………………………….**

Total farming income earned between 2004, 2005 and 2006……………………………

How satisfied were you with the profit of agritourism products and services?

| Very dissatisfied = 1 | Dissatisfied = 2 | Somewhat satisfied = 3 | Satisfied =4 | Very satisfied = 5 |
|---|---|---|---|---|
| | | | | |

### 3. Transaction costs

Do you have rented land for agritourism business?

| No = 0 | Yes = 1 |
|--------|---------|
|        |         |

**If** yes, how many hectares are rented? …………………………………………………..

How much do you pay for leasing? …………………….……………………………………

What is your total land size?.........................................................................................................

Do you have a secured transport to distribute agritourism products?

| No = 0 | Yes = 1 |
|--------|---------|
|        |         |

**If** no, how serious do you encounter transportation problems?

| Not serious at all = 1 | Not serious = 2 | Moderate = 3 | Serious = 4 | Very serious = 5 |
|------------------------|------------------|---------------|--------------|-------------------|
|                        |                  |               |              |                   |

Do you have a secured market for your products?

| No = 0 | Yes = 1 |
|--------|---------|
|        |         |

**If** no, how serious do you encounter market problems?

| Not serious at all = 1 | Not serious = 2 | Moderate = 3 | Serious = 4 | Very serious = 5 |
|------------------------|------------------|---------------|--------------|-------------------|
|                        |                  |               |              |                   |

How do you market your products?

**………...……………………………………………………………………………………..**

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.........................................................................................

Do you encounter price uncertainty in the market?

| No = 0 | Yes = 1 |
|--------|---------|
|        |         |

**If** yes, how serious is this problem?

| Not serious at all = 1 | Not serious = 2 | Moderate = 3 | Serious = 4 | Very serious = 5 |
|------------------------|-----------------|--------------|-------------|------------------|
|                        |                 |              |             |                  |

Do you have access to tractor for tillage purposes?

| No = 0 | Yes = 1 |
|--------|---------|
|        |         |

**If** no, how serious is this problem?

| Not serious at all = 1 | Not serious = 2 | Moderate = 3 | Serious = 4 | Very serious = 5 |
|------------------------|-----------------|--------------|-------------|------------------|
|                        |                 |              |             |                  |

Do you have additional labour for agritourism crop production?

| No = 0 | Yes = 1 |
|--------|---------|
|        |         |

**I**f no, how serious is this problem?

| Not serious at all = 1 | Not serious = 2 | Moderate = 3 | Serious = 4 | Very serious = 5 |
|------------------------|-----------------|--------------|-------------|------------------|
|                        |                 |              |             |                  |

Do you have access to manure when needed?

| No = 0 | Yes = 1 |
|--------|---------|
|        |         |

**If** no, how serious is this problem?

| Not serious at all = 1 | Not serious = 2 | Moderate = 3 | Serious = 4 | Very serious = 5 |
|------------------------|-----------------|--------------|-------------|------------------|
|                        |                 |              |             |                  |

Do you have access to agritourism/organic information?

| No = 0 | Yes = 1 |
|--------|---------|
|        |         |

**If** no, how serious is this problem?

| Not serious at all = 1 | Not serious = 2 | Moderate = 3 | Serious = 4 | Very serious = 5 |
|------------------------|-----------------|--------------|-------------|------------------|
|                        |                 |              |             |                  |

What are the main constraints do you face?

**Answer:……………………………………………………………………………………….**

**…………………………………………………………………………………………**

**…………………………………………………………………………………………**

**…………………………………………………………………………………………**

What are the most essential services do you need?

**Answer:……………………………………………………………………………………….**

**…………………………………………………………………………………………**

**………………………………………………………………………………………………**

**……………………………………………………………………………………**