CONTRIBUTION OF HUNTING TOURISM TO TANZANIA'S ECONOMY

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ABSTRACT

A study to assess contribution of hunting tourism to general economy was conducted in Tanzania. This aimed at assessing the significance of Hunting Tourism (HT) to economic growth, community development and household income in Tanzania. Purposively Tanzania and Selous Game Reserve was selected to study contribution at macro and micro levels. Simple random sampling technique applied to select districts, wards, villages and households where data was collected for micro level study. At macro level secondary time series data was collected using literature review technique and at micro level structured questionnaire and focus group discussion techniques were applied. A total of 90 households were randomly selected from three villages around Selous Game Reserve namely: Msolwa station, Miguruwe and Ngarambe. At macro level data analysed by using descriptive statistics, trend analysis, Johansen test for co-integration and granger causality test. At micro level descriptive statistics, trend analysis and multiple regression of household income against other source of income were done. Generally results show that there is declining of hunting tourism business due decrease of hunting clients and animal hunted yearly; however, revenue collection is increasing. This is attributed by government policy due to changes in wildlife policy and fee structure. Apart from that since 1988 to 2013 the industry has been growing with annual average growth rate of 0.073%. However, the average annual contribution of HT to GDP growth has been decreasing from 1988 to 2013. Also unidirectional long run relationship exist between hunting tourism revenue and GDP which run from hunting tourism to GDP thus revealing the significance of hunting tourism to economic growth (GDP) of Tanzania. Conversely, the results indicate that contribution of HT to community development and household income was very little and insignificance. This is due to poor monitoring of benefit sharing scheme and none adherence of hunting regulation by hunting companies. Therefore, hunting tourism is more

beneficial at macro level (GDP) as it contributes to economic growth but not beneficial at micro level as little contribution is experienced, this has an implication to the participatory approach management policy and its incentive to the participating communities. The participation dis-incentive also has implication in the ongoing constraints in conservation strategies. This study recommends good monitoring system to make the industry more beneficial to community and household level.

DECLARATION

I, MARY REVELIAN, do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my own original work done within the period of registration and that it has neither been submitted nor being concurrently submitted for degree award in any other institution.

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DEDICATION

This work is dedicated to my beloved parents Revelian Kashangaki and my deceased mum, Gaudioza Mulokozi Kashangaki, who jointly laid the foundation of my education. Also I dedicate it to my lovely husband Hans S. Chopoti, my kids Haika Alberter Hans, Andrew Mugisha Hans, Aulin Adronick and Madelinne Lulu Hans for their cheerful time and prayers during my study period.

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LIST OF ABRIVIATION AND ACRONOMY

ADF	Augmented Dickey Fuller Test
BOP	Balance of Payments
CITES	Convention on International Trade in Endangered Species of Flora and Fauna
CREST	Centre for Responsible Travel
GDP	Gross Domestic Products
HT	Hunting Tourism
MNRT	Ministry of Natural Resources and Tourism
NAOT	Tanzania National Audit Office
NBS	National Bureau of Statistics
OLS	Ordinary Least Squares
SAM	Social Accounting Matrix
SGR	Selous Game Reserve
TAWICO	Tanzania Wildlife Cooperation
TNRF	Tanzania National Resources Forum
TWD	Tanzania Wildlife Division
TZS	Tanzania Shillings
URT	United Republic of Tanzania
VAR	Vector Auto Regressive Model
VIF	Variance Inflation Factor
WD	Wildlife Division
WMA	Wildlife Management Areas

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

Tourism industry is the largest and fastest expanding sector of the world economy (Mazumder *et al.,* 2012). According to World Travel and Tourism Council (2010) in 2009, the industry contributed 3.8% in the global domestic product. The industry is considered as a pivotal of many country economies as it reduces disparities in the balance of payment (BOP) deficit. Hence government, businesses, policy makers and other stakeholders in the world are attracted to invest in the industry (Mazumder *et al*., 2012). The tourism can be in form of nature tourism (photographic and hunting tourism), beach tourism and cultural tourism (Lindberg, 1991).

Nature tourism (ecotourism) is a tourism that involves traveling to relatively undisturbed or uncontaminated natural areas with the specific object of studying, admiring and enjoying the scenery and its wild plants and animals, as well as any existing cultural areas. It mark feature of natural attractions and isolate that the traveler lacks at home (Lindberg, 1991). Hunting tourism (HT) is a form of nature tourism that involves direct consumptive uses of wild animals by tourist (Lindberg, 1991). Merwe and Saayman (2008) cited by Warren (2011) define HT as an activity where wildlife is hunted by means of a rifle, bow or similar weapon primarily for its horns and/or skin in order to be displayed as trophies and remembrance of the hunt.

Hunting tourism considered economically viable as it contributes to national economic growth through stimulation of other economic industries, support of socio-economic development and raise employment level (Lindsey *et al*., 2007; Mazumder *et al.,* 2012).

According to Baldus and Cauldwell (2004) economically viability of the industry is due to its nature, as it attracts few tourists with higher financial status.

Hunting tourism has economical values globally, for example in 1985 hunting tourists in USA spent over $ 10 billion for the purposes of hunting expedition (Edwards and Allen, 1992). According to Wilkie and Carpenter (1999) state that hunters from Europe and USA pays over $14 000 to $60 000 for 10 to 21 days hunting expedition in Africa.

In African countries Hunting Tourism contributes 0.06% to Global Domestic Product (GDP) in the eleven (11) main big game hunting countries (IUCN, 2009). This generates an estimate of $ 200 million which is equivalent to 100 billion, whereby half of it generated in South Africa and the rest from other Sub Saharan countries (IUCN, 2009). The industry employs around 3 400 guides and 15 000 local staffs in Africa which save around 18 500 tourist hunters (IUCN, 2009). While according to Booth (2010) hunting tourism generated $ 3.2 billion of the ten among fourteen Southern African Development Community counties (SADC) in 2000/01, while in 2008 approximately $ 190 million in seven SADC countries were generated.

In 2004 hunting tourism generated approximately $ 28 million in Tanzania (Baldus and Cauldwell, 2004)) and $ 30 million in 2006 according to Economic Survey (2006). This makes a contribution of 0.3 % to Tanzanian GDP yearly (IUCN, 2009).

Local communities cannot be spared from the benefits accrued from hunting tourism. According to Bohne (2008) these benefits can be grouped into direct benefits like job creation and indirect benefits whereby hunting employee provide other employment opportunity to other people, stimulate other sectors of economy and improve social relationships as well as future bequest benefits. Also, it impacts the social development

through supporting community projects (Sengelela, 2013). For instance Kibebe (2005) reported that hunting companies contributed in building class room, teachers' houses and health clinics in Simanjiro District.

Despite the positive contribution of HT to national economy, community development and household income still there are arguments of its significance to economic growth and community development in African countries, particularly Tanzania. Insufficiency in clear economic analysis of its contribution to economy may be a reason for the claims. Therefore, this study intends to conduct economic analysis of HT in Tanzania. However, because of the limitation of the time and resource it was not possible to go into details of the study. The intention remains to see the disparity between macro level and micro level contribution to the welfare of the Tanzanians in general as described at macro analysis and that of the communities who bear the burden of management. For the local analysis the communities adjacent to Selous game reserve were purposeful selected to represent the rest of communities surrounding existing wildlife conservation areas in the country.

1.2 Problem Statement

Hunting tourism in Tanzania take place in hunting blocks located in game reserves, wildlife management areas, game controlled areas and open areas under the framework of Investment Policy of Tanzania (URT, 1997), which require government and local community to benefit economically (URT, 1997). This leads into development of rules and regulation that requires hunting companies to contribute to community development projects yearly and 25% of revenue accrued from hunting tourism to be taken back to local community for the same purpose. Apart from that hunting companies are obliged to employ local people around hunting blocks.

Despite of that, there are still mixing feelings on the economic potential of hunting tourism in Tanzania. This is due nonexistent of detailed study which has comprehensively analysed (statistically) economic contribution of HT at both levels (macro and micro).

Existing literatures example, Booth (2010) analysed economical contribution of hunting tourism in Tanzania since 1999 to 2006 using simple linear trend line regression revealed that the industry is static with more conservation value than economic value at both levels. Economic at Large (2013) and IUCN (2009) report that HT contributes insignificantly to national economy and community development in Tanzania using comparative advantage between HT and other form of tourism as well as HT visa agriculture correspondingly. Contrary, Lindsey e*t al.* (2007); Kibebe (2005); Fred (2004) and Baldus and Cauldwell (2004) reported that contribution of hunting tourism is beneficial to Tanzania economy specifically in raising GDP and community development. Besides, authors such as Ndoinyo (2002); Tomlinson (2002), Sachedina (2008) and Packer *et al*. (2010) argued that the industry is more destructive than beneficial to Tanzania and according to them, it should be stopped.

However, to the best of my knowledge detailed study which has comprehensively analysed (statistically) on the contribution of HT to economic growth at both levels (macro and micro) in Tanzania is nonexistent. As a result there might be some biases in conclusion reached as to whether the industry is beneficial or not to the welfare of the Tanzania's communities. It is therefore interesting to have a comprehensive analysis of the contribution of hunting tourism to general economy (at macro and micro levels) using GDP, community development indicators, and household income to assert the ongoing debates of stopping or enhancing the activity in the country. Unfortunately this study is confined into statistical analysis at macro level based on time series data whereas at micro level because of lack of records the analysis used cross-section design. Although with such

kind of study setup is difficult to make a direct comparison but the data can give us clue of how the adjacent communities to wildlife protected area are rewarded to gain their willingness so as to fully participate in protecting/conserving the available resources including trophy animals in the areas where they are harbored. The villages around Selous Game Reserve used to assess the contribution of HT at micro level.

1.3 Justification of the Study

The findings from this study are aimed at helping the country to understand the economic contribution of hunting tourism to general economy of Tanzania. Also to inform the policy makers and planners in terms of need to adjust wildlife policy, hunting regulation and benefit sharing scheme for the benefit of all Tanzania's without casting a heavy management burden to the adjacent communities in the wildlife protected areas.

1.4 Overall Objectives

To assess the contribution of hunting tourism in Tanzania's economy from 1991 to 2014

1.4.1 Specific objectives

  i.   To examine trends of hunting tourism in Tanzania from 1991 to 2014

 ii.   To evaluate contribution of hunting tourism to GDP growth of Tanzania from 1991 to 2014

iii.   To determine the contribution hunting tourism in community development from 1991 to 2014

 iv.   To determine the contribution of hunting tourism contribution to household income from 199 to 2014

1.4.2 Research questions

  1.   What is the trend of hunting tourism in Tanzania?

  2.   What is the contribution of hunting tourism to GDP growth of Tanzania?

3. Is there any long run relationship between Hunting Tourism and GDP growth in Tanzania?

4. How much does hunting tourism contribution in community development?

5. How much does hunting tourism contribution to household income?

CHAPTER TWO

2.0 LITERATURE REVIEW

2.2 Overview of Hunting Tourism in Tanzania

Tanzania is the only country practicing HT in East Africa, (Adams, 2004; Lindsey *et al.,* 2007). It is managed by Wildlife Division under the Ministry of Natural Resources and Tourism. This business of the hunting tourism is done by outfitters and few residents who own the hunting blocks (MNRT, 2012). The hunting concession is offered for five year and it is renewable.

Apart from that all hunters who are undertaking hunting within Tanzania territory requires to purchased hunting license before hunting activities commencement (Koponen, 1994 cited by Nelson *et al.,* 2007). The hunting license range from seven days, ten days, fourteen days, sixteen days, twenty one and twenty eighty days depending on customer's needs. Basing on the above safari package different wild animals purchased for hunt.

2.2 Management of Hunting Tourism in Tanzania

The regulation of HT in Tanzania started way back in 1890s when the German observers recorded a decline of wildlife population and came up with conservation measures such as development of tourism hunting regulation and legislation. This requires a license to be purchased by all hunters who is undertaking hunting within Tanzania territory (Koponen, 1994 cited by Nelson *et al.,* 2007).

Since then hunting regulations as been amended where they were a need in corresponding to Wildlife policy for betterment of all Tanzanian. Currently Wildlife policy recognizes the contribution of communities in conservation around hunting areas. Hence 25% of

revenue collected from tourist trophy hunting is returned back to support community development project. On the other hand, hunting companies are obliged to support local community's development activities by contributing not less than USD 5 000 per block every hunting season and have to employ people around hunting block (MNRT, 2007).

2.3 Contribution of Hunting Tourism to Tanzania Economic Growth

2.3.1 Economic growth

Economic growth is defined by Samuelson and Nordhaus (2001) as an increase in total output of nation over a time. It is measured by Gross Domestic Products (GDP). According to Jhingan (2007) GDP is define as 'the total value of goods and services produced within the country during a year'. Gross Domestic Product can be measured by income, production or expenditure methods. Different variables are used to determine economic growth. According to Baro and Sala- i-Martin (2004) mentioned them as fertility rate, life expectance, education attainment, consumption ration, inflation rate, international openness, terms of trade, investment ration and real gross domestic investment ratio to real GDP.

2.3.2 Problems of using GDP as a measure to economic growth

(a) GDP does not include households' production like activities done by house mothers, home workers and the like. These people may or may not be paid and if paid their payment are not recorded.

(b) GDP does not count illegal production/business such as prostitution and casino however a lot of cash spent on them.

(c) Presence of informal sector/underground economy. In Tanzania there are a lot of unregistered business practices such as selling goods on road side, this business are not recorded during computation of GDP.

(d) The contents of GDP. During computation of GDP the amount of income used in national defense and police protection are included while this sectors are not productive. This lowers the performance of GDP. In some cases GDP omit side effects of economic activities, example amount of pollution caused by industries and motor vehicles are not included in the GDP.

(e) Omitted environmental damage/externalities and social values.

2.3.3 Theories of economic growth

The explanation of growth rate of output over long period of time usually referred to couple of complimentary approach such as growth theory and other growth accounting. Growth theory models the interactions among factor supplies, productivity growth, saving and investment in the process of growth, while growth accounting quantifying contribution of different determinants of output growth. According to Ricardo's theory of economic growth which state that saving and investment which is accumulation normally come from profits, due to that dynamism in the economy should focus on the profitability. Also Ricardo's theory of comparative advantage state that export expansion leads to higher economic growth, it emphasis on the country specialization on the production of goods of its comparative advantages than the other country. Measuring profitability of hunting tourism in economic growth requires uses of econometric models, among of them being cointegration testing and Granger Causality test. These test the relationship among the variables and determine the direction of their relationship under study if they are associated or have a long run relationship over time. Testing hunting tourism–led growth hypothesis determine the significance of variable in predicting/ forecasting the other by using Johansen test for cointegration model.

2.3.4 Comparative advantage theory

Apart from that, hunting tourism is an international business and guided by international trade theory. National Competitive Advantage theory is a new international trade theory and the one which guide the study. This theory explains the links among natural country advantages, government action, and industry characteristics that enable such exchange to happen (Porter, 1990). It explains why a nation achieves international success in a particular industry by identifying four attributes that promote or hinder the creation of competitive advantage thus are: Factor endowments, Demand conditions, Relating and supporting industries and Firm strategy, structure, and rivalry. These factors are called Porter's Diamond, and state that the success will occur when mentioned attribute exists (the greater the attribute, the higher chance of success). These four diamonds are influenced by chance or government policy thus, reinforces the system by complimenting each other and in doing so create the conditions appropriate for competitive advantage.

Government policy can affect demand through product standards, influence rivalry through regulation and antitrust laws and impact the availability of highly educated workers and advanced transportation infrastructure. With advanced factors is more likely to lead to competitive advantage and the result of investment by people, companies, and government. Even though there are implications for the business to grow like location, first mover and policy implications the theory is appropriate for an area to develop using available resources (Porter, 1990).

2.3.5 Empirical review to economic growth

Economic growth which is an increase in total output of a nation over a time (Samuelson and Nordhaus, 2001) and according to Aghion and Howitt (2009) is commonly measured as the annual rate of increase in a country's GDP. There are three methods of measuring

gross domestic products. Gross Domestic Product can be measured by income, product or expenditure methods. There are variables that determine country's economic growth. Baro and Sala-i-Martin (2004) mention them as fertility rate, life expectancy, education attainment, consumption ratio, investment ratio and real gross domestic investment ratio to real GDP.

Various studies have been done to examine the contribution of hunting tourism to Economic growth using GDP. For example Balaguer and Cantavella (2002) revealed that tourism in Spain has a long run relationship with economic growth within the country and their relationship is unidirectional running from tourism to GDP. Mazumder (2009) using I-O techniques studied the contribution of tourism in Malaysian economy and revealed its significance in economic growth. Not only that Taylor *et al.* (2006) studied the contribution of Ecotourism in the economic growth of Galapagos and Valle and Yobesia (2009) looking the contribution of tourism in Kenya economy using SAM techniques revealed that tourism has significant impact to the economic growth of the countries. Other studies were done on the export such as Ranis *et al.* (2000) who revealed that economic growth and human development form two chain because economic growth lead to human development and vice versa using cross-country regressions. Onafowora and Owoye (1998) cited by Mjema (2013) state that in Sub Sahara African countries, trade liberalization and promotion have potential to stimulate economic growth. Also Sachs and Warner (1995) cited by Mjema (2013) studied the impact of trade liberalization on economic growth by using binary variables to indicate if a country openness or closeness matters in trade, the result shows that countries which allow cross border trade enjoy better growth rates than closed ones.

Other related studies such as Hatemi (2001); Konya (2006); Khalafalla and Webb (2005); Awokuse (2006) and Mjema (2013) which looked at the impact of international trade (export) on GDP in various countries like Japan, OECD countries (Haiti, Rwanda and

Sierra Leone, and from GDP to exports in Angola, Chad and Zambia), Malaysia and Bulgaria, Czech Republic and Poland and Tanzania using Granger Causality reported a positive relationship between exports and economic growth.

2.4 Impact of Revenue Collection from Hunting Tourism in Tanzania

It is known that Tanzania is simultaneously one of the most economically poor and biologically rich countries in world (IUCN, 2009). Hence, it uses hunting tourism as an effective conservation tool with social, economic, and environmental benefits (Nelson, 2004). The revenue collected from hunting tourism goes direct to central government.

According to Baldus and Cauldwell (2004) in 2004 the taxable income from hunting tourism was approximately US$ 28 Million and average income to the Wildlife Division per hunting client is approximately US$7,000 while income generation per unit area from all hunting areas is approximately US$ 40 / km². The income generated by hunter/day being approximately US$520. The income increased in 2006 up to US$ 30 million (Economic Survey, 2006; Lindsey *et al*., 2007 cited in TNRF, 2008), this amount account for contribution of 2% annually (NAOT, 2013). The contribution is estimated to increase up to US$ 53 million every year from 2013 to 2018 (Ihucha, 2011). These reflect contribution of 7% to 10 % to Tanzania GDP annually (Ihucha, 2011). However the study done by IUCN (2009) and Economistis at Large (2013) indicate that the industry contributes 0.11% in Tanzania GDP. The increase and decrease of revenue is affected by many factors, such as internal factors like increase in fee structure, decrease of animal population and others as well as external factor example terrorist attack and economic crises. Despite of knowing this it does not tell whether the industry is beneficial to country or otherwise hence this needs to be investigated which is the aim of this study.

2.5 Contribution of Selous Game Reserve in Hunting Tourism Revenue

Selous Game Reserve is the largest game reserve in Africa that practice hunting tourism. It has forty seven (47) hunting blocks owned by outfitters. Due to its size, the reserve has different habitat types ranging from woodland, wooded grassland, forest, grassland, swamps and rivers, which harbor variety of wildlife species (MNRT, 2005). This leads to being a good area for hunt hence a good contributor in revenues from hunting tourism than any other reserve in Tanzania. A study done by Cauldwell (2004) indicated that Selous Game Reserve (SGR) contributed US$ 3.5 million in 2003 through hunting tourism which is half of all revenue collection from the business. Also a study done by Baldus and Cauldwell (2004) indicate in since 1988 to 2001 there are an increase of hunting clients nearly 400% in SGR, however revenue generated decreased by 250% . Despite of that there are no clear data that indicated how much goes to local community within that period for community development projects.

2.6 The Relationship between Hunting Tourism and Economic Growth

The relationship or link of hunting tourism as part of economic growth is driven back to the relationship of tourism and economic growth. Tourism like any other international business has its impact on economic growth, and the studies done revealed that tourism growth and economic growth are presented to be positively related. Tourism-led growth hypothesis suggest that tourism growth endorses long run economic growth. According to McKinnon (1964) tourism is non-trade commodity which brings in foreign currency used to import capital goods used to produce goods and service leading in turn to economic growth. Due to that non tourist countries will benefit from that as a result of the distribution of a country's wealth. Apart from that international tourist contribute to an income increase in two additional ways as the export-led growth hypothesis postulates due to enhancement of efficiency through competition between local firms and the ones

corresponding to destination to other international tourist destination (Krueger, 1980) and secondly facilitating the exploitation of economic of scale in local firms (Helpman and Krugman, 1985). Taban and Aktan (2005) state that production for exports oriented increases efficiency in the uses of resources and increases labor productivity, hence raises country proceeds and economic growth. In regard to that tourism provide foreign currencies to import capital goods or basic inputs for producing goods in any areas of the economy hence earning from tourism are playing fundamental roles in economic development.

2.7 Contribution of Hunting Tourism to Community Development

In Tanzania the strategies to ensure effective management of natural resources from local to national levels is through benefit sharing scheme. The policy recognizes the contribution of communities in conservation around hunting areas hence 25% of revenue collected from hunts is returned back to support community development project. This amount channeled to District council whereby 60% have to be given villages to support community development projects around hunting blocks and 40% remain to the District Natural Resources Department to finance conservation activities. The revenue collected from Game Controlled Areas, Open Area and future WMAs 75% have to be taken to local community for management and community development, while 15% goes to District Council for supporting local government wildlife staff and 10% to Tanzania Wildlife Protection Fund for administration (MNRT, 2007). On the other hand, hunting companies are obliged to support community's development activities in areas where hunting is taking place by contributing U$ 5 000 per block per season also employing local people around hunting areas (MNRT, 2007).

The study done by Nelson (2004) in Simanjiro District reveal that hunting tourism contribute US$ 250 000 (TZS 300 million) of the district income which is equivalent to

U$ 20 per km^2 (Kibebe, 2005; Sachedina, 2006). Some of this amount used to build class room, dispensary, and teacher's house. In addition NAOT (2013) reveal that from 2009 to 2011 the Ministry spent TZS 3.8 billion in average of forty (40) Local government Authorities with hunting blocks. Apart from that the study done by Economic at large (2013) indicates that hunting companies contribute 3% of their revenues to communities where hunting takes place.

2.8 Contribution of Hunting Tourism to Household Income

Also hunting tourism provides employment opportunity to local communities. The study done by IUCN (2009) and IAFWA (2002) shows that hunting tourism employs around 3 400 guides and 15 000 local staff in African countries while in United State created 1.709 million jobs to local people.

2.9 Multiple Regression Tests of Hunting Tourism Revenue to Household Income

Multiple regression is an extension of simple linear regression and it is used to predict the value of a variable based on the value of two or more other variables. The variable predicted is called the dependent variable (or sometimes, the outcome, target or criterion variable) and the variables used to predict the value of the dependent variable are called the independent variables (or sometimes, the predictor, explanatory or regressor variables). Also multiple regression is used to determine the overall fit of the model and the relative contribution of each of the predictors to the total variance explained.

2.10 Assumption Guiding Multiple Regressions

Assumption one, dependent variable should be measured on a continuous scale (i.e., it is either an interval or ratio variable. Assumption two, there must be two or more

independent variables, which can be either continuous (i.e., an interval or ratio variable) or categorical (i.e., an ordinal or nominal variable).

Assumption three, presence of independence of observations (i.e., independence of residuals), which you can easily check using the Durbin-Watson statistic. Assumption four, there must be a linear relationship between (a) the dependent variable and each of your independent variables, and (b) the dependent variable and the independent variables collectively. The linear relationships are checked using scatterplots and partial regression plots.

Assumption five, data needs to show homoscedasticity, which is where the variances along the line of best fit remain similar as you move along the line. Also plotting the studentized residuals against the unstandardized predicted values need to done. Assumption six is that data must not show multicollinearity, which occurs when you have two or more independent variables that are highly correlated with each other. This leads to problems with understanding which independent variable contributes to the variance explained in the dependent variable, as well as technical issues in calculating a multiple regression model. Therefore, to detect for multicollinearity is done through an inspection of correlation coefficients and Tolerance/VIF values. Assumption seven is that there should be no significant outliers, high leverage points or highly influential points. Outliers, leverage and influential points can have a very negative effect on the regression equation that is used to predict the value of the dependent variable based on the independent variables. This can detected using "casewise diagnostics" and "standardized deleted residuals", while for influential points using Cook's Distance. Assumption eight, finally, the residuals (errors) are approximately normally distributed (we explain these terms in our enhanced multiple regression guide). Two common methods to check this assumption include using: (a) a histogram (with a superimposed normal curve) and a Normal P-P Plot; or (b) a Normal Q-Q Plot of the standardized residuals.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Area

The study to assess contribution of hunting tourism to economy was done in Tanzania and it was attained by dividing the contribution at two levels (macro and micro level). At macro level the contribution was assessed using total collection from hunting tourism on GDP while at micro level villages around SGR were used to assess the contribution of hunting tourism to community development and household income.

3.1.1 Description of Tanzania

Tanzania is the a country located in the eastern part of Africa between longitude 29° and 41° East and latitude 1° and 12° South (NBS, 2013). The country is bordered by Kenya and Uganda to the north; by Burundi, Rwanda and the Democratic Republic of Congo to the west; by the Indian Ocean to the east; and by Zambia, Malawi and Mozambique to the south. The Tanzanian mainland is divided into several clearly defined regions: the coastal plains, which vary in width from 16 to 64km (10 to 39 miles) and have lush, tropical vegetation; the Masai Steppe in the north. The country is dominated by Savannah and bush vegetation type which cover over half the country, and semi-desert accounts for the remaining land area, with the exception of the coastal plains (Kauzeni *et al.,* 1993).

Tanzania's climate is tropical and coastal areas are hot and humid, while the northwestern highlands are cool and temperate. There are two rainy seasons: the short rains are generally from October to December, while the long rains last from March to June. The central plateau tends to be dry and arid throughout the year. The country can be visited year-round, although the best time for travelling is outside the rainy season between June

and October, when temperatures stay well below their summer peaks, and this is the time when hunting season take place (Kauzeni *et al.,* 1993).

Figure 1: The map of Tanzania showing hunting blocks

Source: TAWIRI (2012)

3.1.2 Description of Selous Game Reserve

Selous Game Reserve is situated in South-East Tanzania between 7^0 20'S and 10^0 30'S. It covers an area of about 50 000 km^2; almost 6 percent of Tanzania's land surface (TWD, 2003). The SGR is located in four different regions named Morogoro, Pwani, Lindi and Ruvuma within nine (9) districts. SGR is the second largest game reserve in the world. The reserve is characterized by having high population of hunting games in terms of variety and abundances, and has long history of hunting tourism since its establishment. Basing on its size the reserve has forty seven (47) hunting blocks, which make it the first contributor in terms of tourist hunting revenues compared to other reserves. The available statistics shows that SGR contributed U$ 3.5 million in 2003 which is nearly half of all HT revenue collection in the country (MNRT, 2012). Due to that, the SGR was selected purposively to study the contribution of hunting tourism to community development and household income.

3.2 Measuring Contribution of Hunting Tourism to Economic Growth (Macro Level)

3.2.1 Research design

The case study analysis design was used to analysis the contribution of hunting tourism to economic growth. This design allows the uses of secondary data to draw the conclusion on study matter.

3.2.2 Data collection

Secondary time series data of hunting tourism revenue were obtained from various documents such as reports, books, journal, magazine electronic sources and proceeding papers related to the topic. The information was collected from wildlife division head office and any other.

3.2.3 Data analysis

3.2.3.1 Model specification and time series analysis

Basing on growth theory models which test hunting tourism- let growth hypothesis was done which was the focus of this part aimed at testing the contribution of hunting tourism to economic growth of Tanzania. The hypothesis tested was that, hunting tourism has long run relationship with economic growth. The selected variables were hunting tourism revenue and GDP, based on the assumption that hunting tourism in Tanzania is one of the important factor of economic growth as it is a sources of income, create employment and is the source of good relationship between trading partners. Due to that to investigate its potential in the economic growth of Tanzania simple granger causality model was used to determine the direction of the relationship among two variables.

The granger causality model is as follows;

$$\Delta Yt = \alpha + \sum_{i=0}^{p} bi\Delta Yt - 1 + \sum_{i=1}^{p} ni\Delta Xt - 1 + \mu t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

Whereby

Yt = GDP at a given time t,

α = Alpha

$Yt - 1$ = Lagged value of GDP at a given time t

Xt = Hunting revenue at a given time t

μt = Error term at given time t

However, spurious regression problem can arise in equation 1 as described by Granger and Newbold, (1974) as a result of nonstationary trends in the time series data. Because mean, variance and autocorrelation of the series are nonconstant through time, while coefficient of determination (R^2) may simply capture the correlated trends and low Durbin- Watson (DW) statistics may reflect nonstationary residuals. Due to that Phillips (1986) said, OLS

do not converge to constant and the standard t and F statistics do not have limiting distributions. For betterment of that, the investigation of whether time series data is stationary at levels 1(0) or stationary at difference 1(1), 1(2) …….1(n) is very important, in order to apply collect methodology, and avoiding any spurious correlation. Before determining long run relationship it is very important to carry out a univariate analysis for testing stationary in the time series data for better implementation of proper methodology. After that cointegration and granger causality test can be tested.

3.2.3.2 Stationary testing using unit root test for hunting tourism revenue and GDP

The stationary of the time series was investigated by using a unit root test developed by Dickey and Fuller (1979). The unit root test was done in order to check time series data behavior to see whether does not change overtime as well as checking the statistically significance of the parameters. This is because unit root tests are sensitive to the presence of deterministic regressors, and three models were estimated. Using Augmented Dickey Fuller (ADF) test for testing stationary general model with drift and time trends was estimated firstly and secondly restrictive model with drift and without both drift and trend respectively were estimated thereafter. The STATA software was used and test hypothesis were as follows;

H_o = Variable has unit root (not stationary)

H_I = Variable has no unit root (Stationary)

3.2.3.3 Cointegration test between hunting tourism and GDP

The Johansen test for co-integration is appropriate methodology for testing relationship between variable. The concept of co-integration helps to determine whether variables linked by some theoretical relationship will be the same in one another in the long run. Hence co-integration test was conducted to see whether there is long run relationship

among the variables (hunting tourism and GDP) using STATA software. The test hypothesis was;

H_o = No co-integration between hunting tourism and GDP growth

H_I = There is co-integration between hunting tourism and GDP growth

2.2.3.4 The assumption in Johansen Test for Cointegration

The assumption behind Johansen Test for Cointegration is that variables are non-stationary at level and when converted into first difference they became stationary.

3.2.3.5 Granger causality test between hunting tourism revenue and GDP

Nevertheless, Granger causality Wald test was done for variable hunting tourism and GDP. This is due to hunting tourism be taken as one of the important factor for economic growth as it is a sources of income, create employment opportunity and sources of good relationship among trading partners. Therefore in order to determine its potential over economic growth of Tanzania Granger Causality Model (Variable Auto regression model - VAR Model) was done. Using selected variables (Hunting Tourism and GDP of Tanzania), the Granger Causality Test used. Firstly GDP was tested as an influence in hunting revenue growth, so HT revenue was regressed as a function of GDP and in order to test for HT revenue influence in GDP, GDP was regressed as a function of HT revenue. Based on that description, the study used the following model to make a critical regression analysis of the contribution of HT to economic growth of Tanzania. The STATA software was used and the VAR model was as follows;

$$HT_t = C1*GDP_{t-1} + C2*HT_{t-j} + u1_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

$$GDP_t = C3*HT_{t-1} + C4*GDP_{t-j} + u2_t \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \ (3)$$

Whereby

HT_t = Hunting tourism revenue at a given time t, GDP = Gross Domestic Product (GDP) at given time t, C1- C4 = coefficiences of variables, ut = error terms

From Granger Causality Test in the two equations above the following cases can be distinguished;

    (a) A variable can be unidirectional causality means one variable causing the other e.g GDP causing hunting tourism revenue increases and vice versa. This appears when estimated coefficient (C1) in equation 1 is not statistically different from zero and estimated coefficient (C3) on GDP in equation 2 is statistically different from zero and vise versa.

    (b) Bilateral (two way) causality, when both variable causing each other or independent (either causes one another) causality or

    (c) Independence i.e neither causes one another.

3.2.3.6 The assumption in Granger Causality Test

In Granger Causality Test model assumption was that variables are stationary and error terms are uncorrelated.

3.3 Measuring the Contribution of Hunting Tourism to Community Development and Household Income (Micro Level)

3.3.1 Sampling techniques

Purposive sampling technique was used to select SGR for micro level. Simple random sampling technique was used to select Kilombero, Kilwa and Rufiji districts which have

villages adjacent SGR. One ward from each district, one village from each ward and thirty households were selected from each village where data was collected. According to Kothari (2007); Ghuta (2004); Churchill and Brown (2007) this technique provides equal chance for each district, ward, village and household to be selected for study hence reduce biasness. Also it is because hunting tourism is practiced nearly all sectors of SGR and well known to the local communities around SGR.

3.3.2 Sampling procedure

Ninety respondents were sampled for interview from three study villages within three sectors of SGR. According to Bailey (1994) thirty respondents in social studies are enough to provide useful information. All wards with villages adjacent to SGR, near the Sectors where only HT is taking place were listed in piece of paper separately, folded mixed and thrown on the table and then three wards was picked for study. The same procedure was applied to get one village in each ward as well as thirty household, whereby number of households were obtained from village office.

3.3.3 Data collection

3.3.3.1 Primary data

The qualitative and quantitative data were collected using a questionnaire where semi-structured interviews and focus group discussion techniques were employed. This information was collected from adult villagers, village leader, district authority and conservationist. Focus group discussion was conducted to a group of at least ten (10) respondents and not more than seventeen (17) people in each village. The main purpose was to obtain in-depth information on concepts, perceptions and ideas of the group related to the study.

3.3.3.2 Secondary data

Secondary data were obtained from various documents such as reports, books, journal, magazine electronic sources and proceeding papers related to the topic. The information was collected from village/ward, district office, and wildlife division head office.

3.3.4 Data analysis

3.3.4.1 Analyse of contribution of hunting tourism to community development

Semi structured interview and focus group discussion were used to collect data from village leaders, district authority and Wildlife Division. Descriptive statistics and content analysis was used to analyse results using Excel software. Data was presented in table form.

3.3.4.2 Analyse of contribution of hunting tourism to household income

Model specification and data analysis

The study used quantitative approach to assess the contribution of hunting tourism to household income. The multiple regression model was used as it takes consideration of linear relation among the variables under study. Therefore the study used multiple regression model to study the impacts of hunting tourism to household income. All procedures of testing were taken into consideration such as testing model fit, multicollinearity, and normality. Variables such as person income, hunting tourism income, salary pay job, petty business and crop cultivation income were used. Total income of a person was regressed against other sources of income at 5% level significance. The regression model was as follows:

$$Y_t = \alpha + BX_1 + BX_2 + BX_3 + BX_4 + \mathcal{E}_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(4)$$

Whereby

Y_t = Income of respondent, α = Y intercept, β = regression coefficient, X_1= crop cultivation income X_2 = hunting tourism income, X_3 = paid salary, $X4$ = petty business, εt = error term

CHAPTER FOUR

4.0 RESEARCH RESULTS AND DISCUSSION

4.1 Contribution of Hunting Tourism to Tanzania Economic Growth

4.1.1 Trends of hunting tourism in Tanzania

The trend of hunting tourism has an implication on the existence of the hunting industry in Tanzania. It tells whether the business is static, decreasing or increasing, and whether it can be used to forecast future of the industry. The trends were assessed by analysing time series data of number of hunting clients visiting Tanzania annually, animal hunted and revenue collected.

4.1.1.1 Number of tourist hunters visiting Tanzania annually

The number of hunting clients visiting Tanzania annually has an impact on the survival of hunting tourism industry. This impact may be positive or negative in projecting the way forward of the industry.

The findings indicate that, there are fluctuations of hunting clients visiting Tanzania annually. However, an average of 1 153 hunting clients visited Tanzania annually from 2000 to 2013, though more clients were recorded in 2006 and least being 2011 (Fig. 2).

From 2000 to 2003, however the number of hunting clients remained static while from 2004 to 2006 there was an increase of hunting clients recorded up to 1 582. From 2007 the number has decreased up to now. The change in the number of hunting clients is due to changes in Wildlife policy, fee structure, political instability and availability of hunting games.

As explained by Porter (1990) that government action is among of the attribute that can promote or hinder the creation of competitive advantage. The same reasons identified by Lindsey *et al.* (2007) and IUCN (2009) when studying hunting industry in Sub- Saharan Africa, as they founded that, hunting client increased in South Africa between 2000s as a result of political instability of other country surrounding it and decreased in Chad with the same reason.
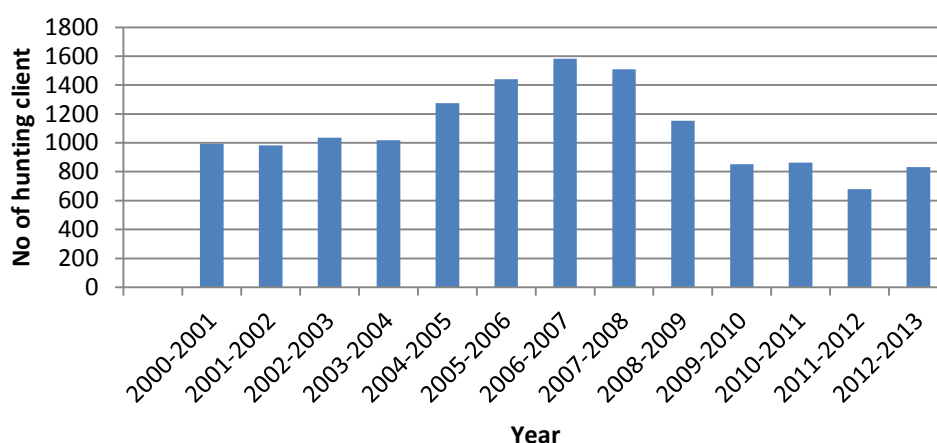
Figure 2: The number of tourist hunter visiting Tanzania annually

4.1.1.2 Wild animal hunted by tourist in Tanzania annually

There are instabilities of wild animals hunted in Tanzania from 2005 to 2013. However, the average annual off take is 7 588 animals. Moreover, from 2005 to 2007 there was an increase of wild animals hunted. Since 2008 the number decreased, and remained almost static up to 2013 (Fig. 3). The increase and decrease of animals hunted go perpendicular with animal quota allocated, as it was observed that from 2005 to 2007 animal quota was higher and in 2008 the quota was reduced up to 2013. However animal quota utilization during study period neither was neither exact nor over utilized. This indicates underutilization of animal quota as a result of decline of animal population, hunter, company efficiency as well as government action. Poaching and encroachment have been reported in most literature as the main causes of wildlife population decline in hunting area (IUCN, 2009). IUCN (2009) further reported that in Central Africa and Cameron

wildlife population in hunting area has declined due to poaching, encroachment and cattle feeding. Not only that Baldus (2004) reported that in Tanzania there was a decrease of viable hunting area due to encroachment and human settlement (Lindsey *et al.,* 2006), Booth (2010). Caro (1998) studying wildlife population in Tanzania reported that the animal distribution factor is correlated to the lack of human settlement. Apart from that Porter (1990), revealed that government actions are among the attributes that can promote or hinder the creation of competitive advantage. Hence the change in Wildlife policy in 2008 that lead into increase in game and block fee may be the reason for reducing number of hunting clients. The same reasons were identified by Lindsey *et al.* (2007) and IUCN (2009) on hunting industry in Sub-Saharan Africa. The study reported that hunting clients increased in South Africa between 2000s as a result of political instability of other countries surrounding it but decreased in Chad with the same reason. Apart from that Britik (2010) pointed out economic recession in western countries in the season half of the last decade being the reason for decline of animals hunted while Songorwa and du Toil (2007) mentioning the decline in trophy quality. However, the overall quota analyisis in Fig. 2 shows underutilization, which might be marketing strategies done by hunting companies to maximize profit from hunting clients while reducing income to Wildlife Division as reported by Baldus and Cauldwell (2004).
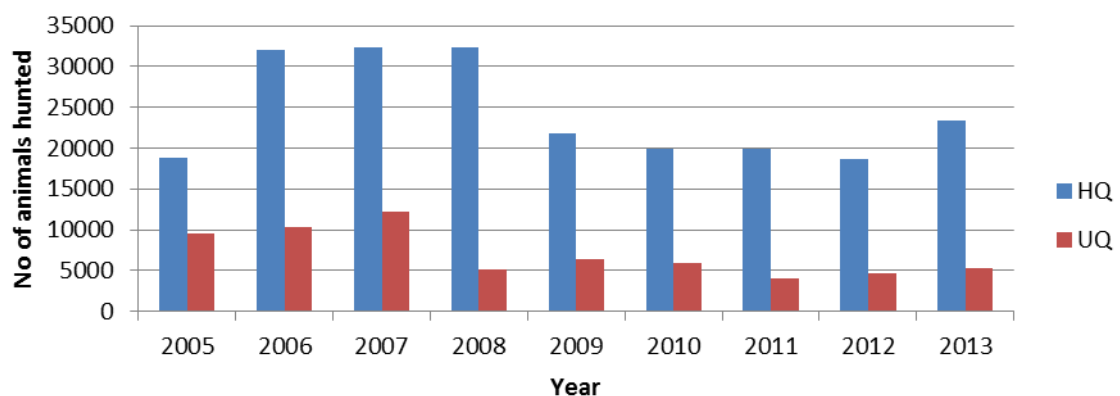
HQ = Hunting quota, UQ = utilized quota

Figure 3: The number of wild animals hunted by tourist yearly

4.1.1.3 Animals commonly hunted by hunting tourist in Tanzania

According to Lindsey *et al.* (2012) hunters who visit Africa prefer Buffalo, Leopard, Lion and Greater Kudu. These animals are found in Tanzania hence making the country competitive in the market. Despite that the analysis of commonly hunted animals in Tanzania indicates that Buffalo, Hartebeest, Impala, Warthog, Wildebeest and Zebra are commonly hunted animals in Tanzania contributing 42.1% of all animal hunted (Fig. 4). Their average annually off take is 999, 424, 509, 315, 320 and 535 per species respectively from 2005 to 2013. In making hunting tourism sustainable these species need kin monitoring to maintain their population, regardless of the conservation challenges that exist. However the study done by Malembeko (2013) pointed out that the commonly hunted animal experience sharp decline compared to others. Similar finding was observed in Buffalo in 2011 and 2012 whereby nearly 75% quota was underutilized. The same to Warthog and Wildebeest 67% of hunting quota was underutilized.
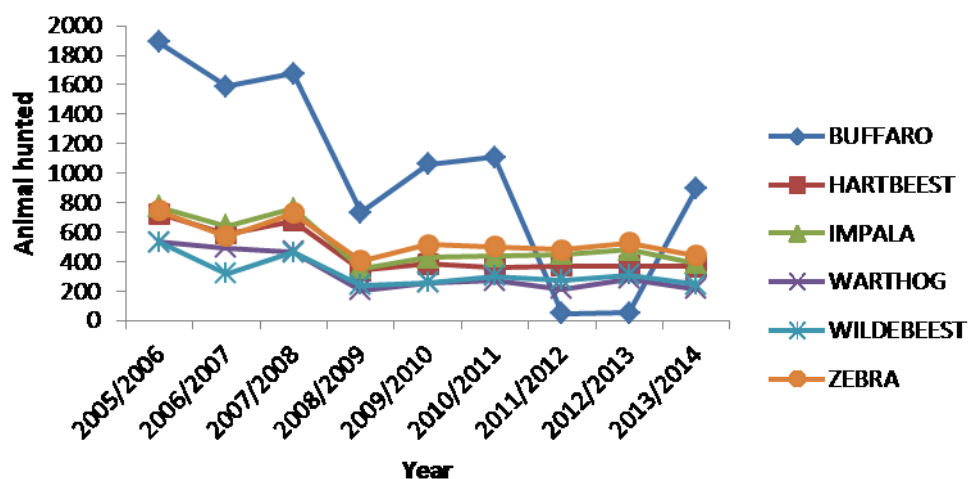
Figure 4: The Number of Commonly Hunted Wild Animals in Tanzania Annually

4.1.1.4 Revenues collected from hunting tourism in Tanzania from 1988 to 2013

In Tanzania revenue from hunting tourism are collected from game fee, conservation fee, observer fee, permit fee, professional hunter licence fee, professional hunter examination

fee, block fee, trophy handling fee and intercompany fee. There is an increase of revenue accrued from HT since 1988 to 2013 (Fig. 5) with annual average growth rate of 7.3% at a growth rate of 0.073% per annual. This contributes to an average of 0.11% of Tanzania GDP. However, more collection was recorded in 2010 as U$ 23 536 347 and least being in 1988 (U$ 1 200 000). The rapid increase observed from 1988 to 1993, thereafter revenue became static until 2004. In 2005 the increase of revenue was observed again until 2010, after changing fee structure such as game and block fees. Despite that, in 2011 abrupt decline of hunting revenue was recorded and from that the industry was progressing at decreasing rate until 2013.

The observable changes in hunting revenue is due multiple reasons such as changes in wildlife policy, poor monitoring of business, poor revenue collection system, corruption, decrease of hunting clients, as well as animal population. Other literature such as Porter (1990) and Booth (2010) pointed out that government action like policy change can affect the business either positively or negatively. For example increase of revenue from 1988 to 1993 was due to change in Wildlife Policy whereby controller of hunting industry changed from TAWICO to WD. In 2006 up to 2010 there were changes in game and block fees that lead o increase of hunting revenue. This change affects hunting collection positively as compared to 2011 where revenue dropped abruptly in Tanzania. Baldus (2004) revealed decline of viable hunting areas in Tanzania due to encroachment and poaching reduced number of hunted animals. Also IUCN (2009) reported poor monitoring system and social politics being among the things affecting wildlife population in Tamou Reserve (Niger) and Chad. Malembeko (2013) and NAOT (2013) reported poor monitoring system of hunting tourism in Tanzania being the reason for revenue loss.
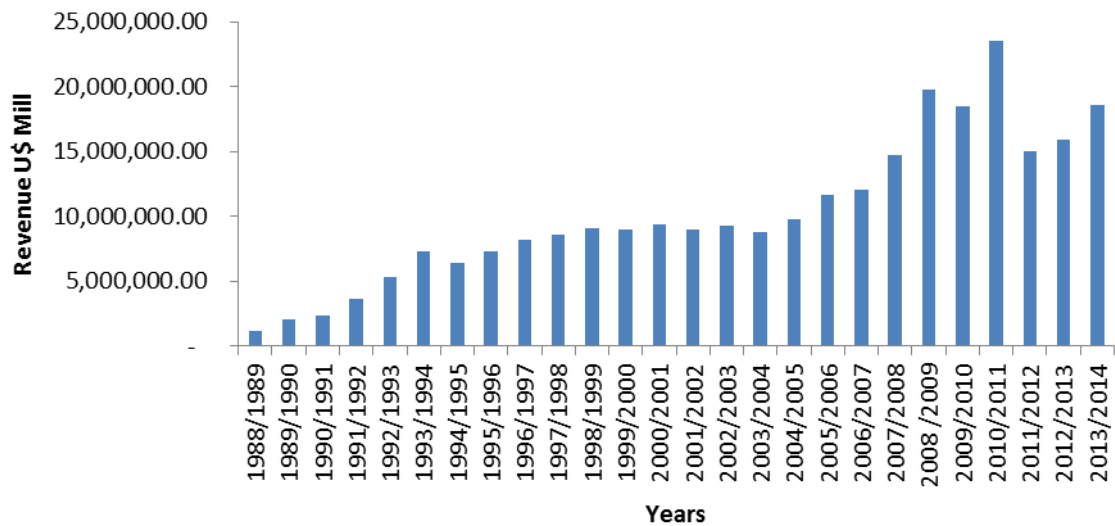
Figure 5: Revenue collected from hunting tourism in Tanzania from 1988 to 2013

4.1.1.5 Contribution of collection from animals hunted by hunting tourist

Animals hunted bring positive impact to revenue collected in a country practising hunting tourism. In Tanzania the average of 7 588 hunted animals contribute approximately U$ 7 931 669 annually from 2005 to 2013. This was attributed by animals such as Zebra, Elephant, Buffalo, Lion, Leopard and Sable who contributed 59% overall revenue collected from hunted games (Fig. 6). According to Baldus and Cauldwell (2004) revenue collected from hunting tourism 54% came from game fee. This indicates that maximization of revenue in Tanzania from hunting tourism is through increasing animal quota. However this approach is not recommended due to existing conservation challenge that lead into decrease of wildlife population. Baldus and Cauldwell (2004) continue by saying for better income generation emphase should be given on the lease of concession and daily fee while Palazy *et al.* (2012) reported that hunting should be given priority based on economic point of view as well as its negative impacts that it can cause in hunted population. Despite that the contribution from hunted animals is decreasing yearly indicating an inverse propositional from overall revenue (Fig. 6 and 7). The main causes being decline of highly contributing animals in revenue as a result of population decrease, habitat loss as well as low number of hunting clients, and Regional policy on conservation.

Baldus (2004) and Booth (2010) also identified that problem of population decline, regional policy such as CITES regulation affect the off take in highly contributing animal in revenue. According to Baldus and Cauldwell (2004) CITES restricted annual exportation of Elephent, Lion, Leopard and Crocodile. For example 50 elephants were allowed per annum from 2001 to 2002, 2003 to 2006 was 100 elephants while 200 elephants allocated for 2008 to 2010. Malembeka (2013) reported decrease in Leopard and Lion off take in SGR, which is among of the stronghold of cat family population in Tanzania.
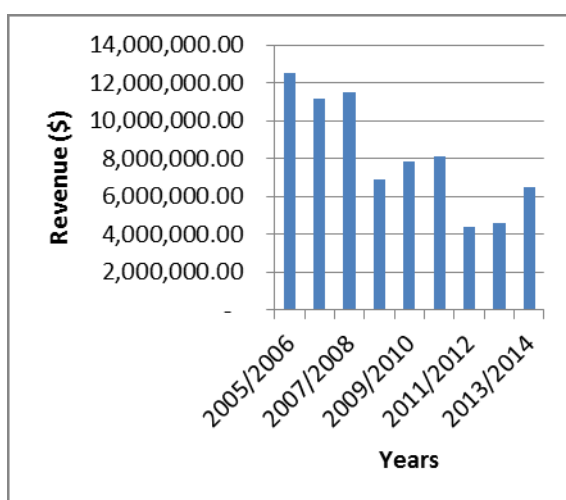
Figure 6: Revenue collected from wild animal hunted per year in Tanzania
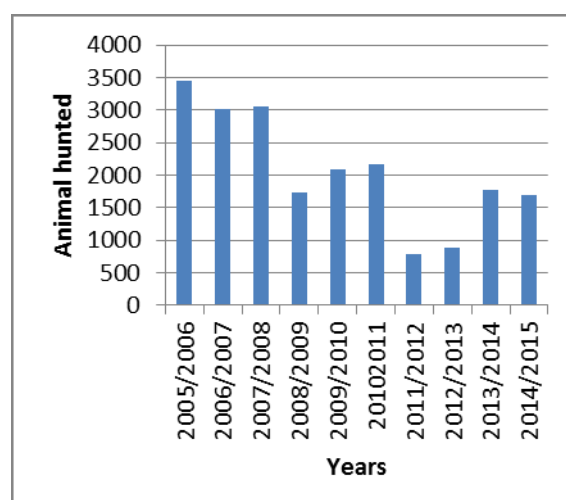
Figure 7: Revenue from highly contributing animal hunted in Tanzania

4.1.1.6 Contribution of hunting tourism to economic growth of Tanzania

From 1988 to 2013 hunting tourism in Tanzania contributed an average of 0.11% on GDP. That indicates poor performance since its implementation in 1890s. Its percentage contribution value was very high from 1991 to 1993 and in 1994 the value of percentage contribution on GDP decreased to present (Fig. 8), inspite of the increase in revenue.

The decreasing value of hunting tourism contribution in GDP might be due to an increase contribution of resource based sector such as metal and other extractive industry as well as manufactured value added products (URT, 2012).
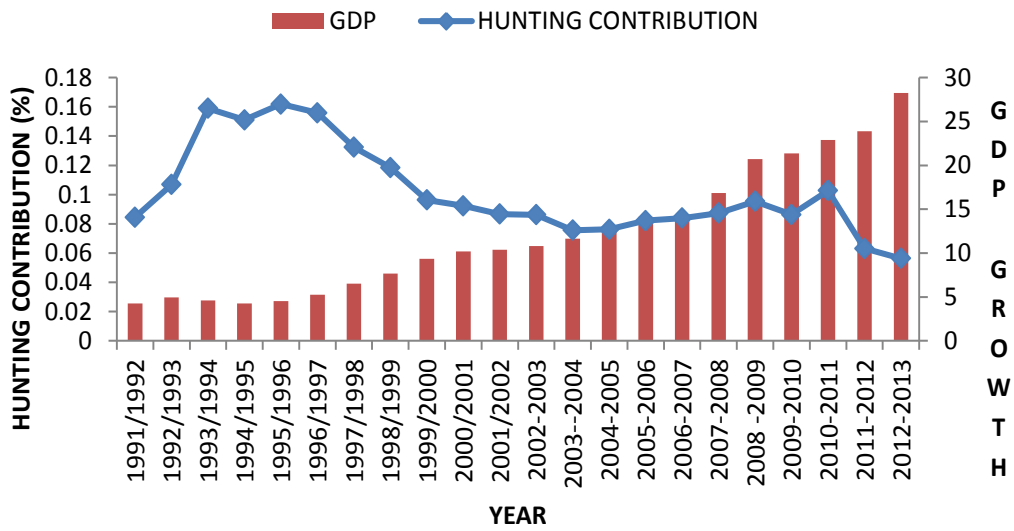
Figure 8: Percentage contribution of hunting tourism on Tanzania GDP

4.1.1.7 Relationship between HT Revenue Growth and GDP Growth in Tanzania

Graphical expression in Fig. 9 below indicates that HT revenue increases perpendicular with an increase of GDP. This portrays an indication of presence of relation among the variable HT revenue growth and GDP growth. However more analysis was done using Johansen test for co-integration for approval.
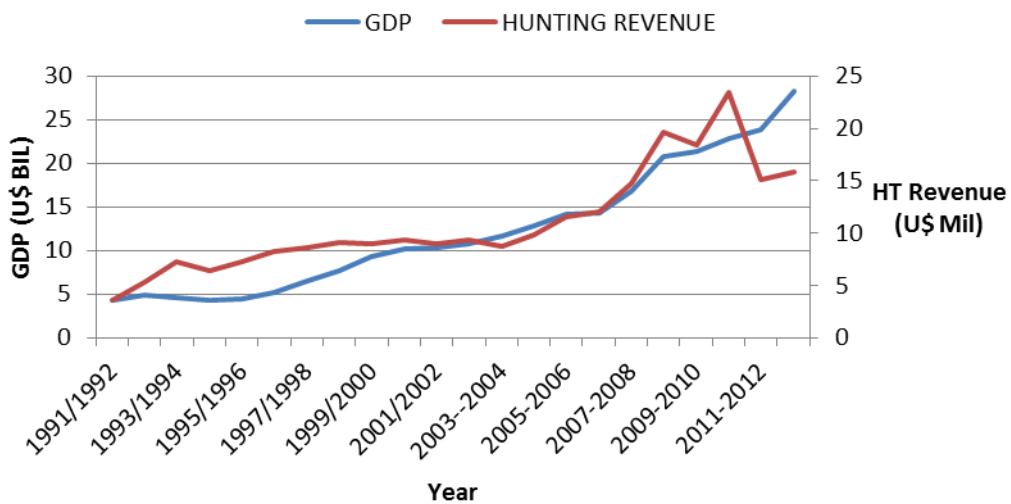
Figure 9: Trend of Hunting Tourism Revenue and GDP Growth

4.1.1.7.1 Unit root test (Pre testing the unit root) of HT revenue and GDP of

Tanzania

Time series data when having unit root means that they have more than one trend. Graphical observation in Fig. 8 indicates that neither hunting tourism revenue nor GDP of Tanzania is stationary at level. The trend line of each of these series shows that there is slope and their general trends looks upward. However, plots for the second difference of these variable (hunting tourism and GDP) are stationary. These indicate that variables are likely to be integrated.

Hence, the graphs are good indicators in providing first impression about the properties of the time series data however it is important to apply scientific method or formal test for unit root.

(i). Graphical analysis for unit root test of hunting tourism revenue and Tanzania GDP
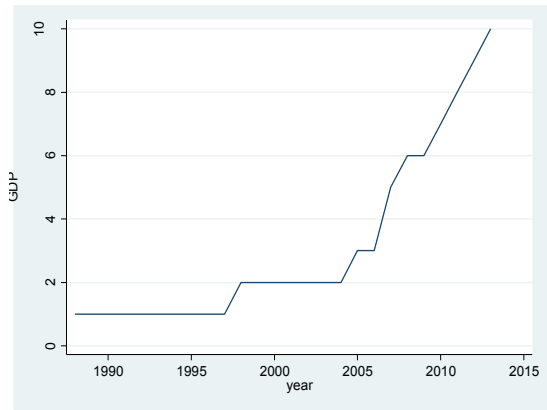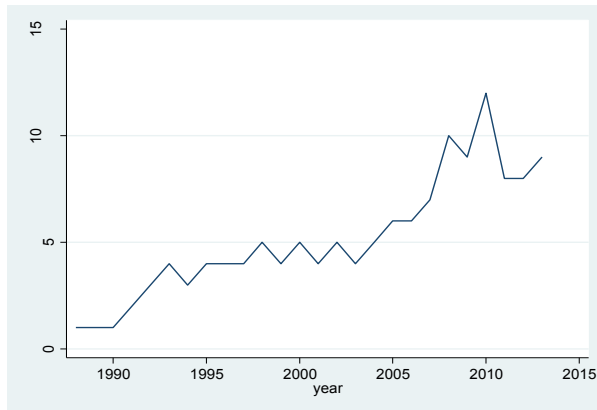
Unit root test of HT revenue at level　　　　　**Unit root test of GDP at level**
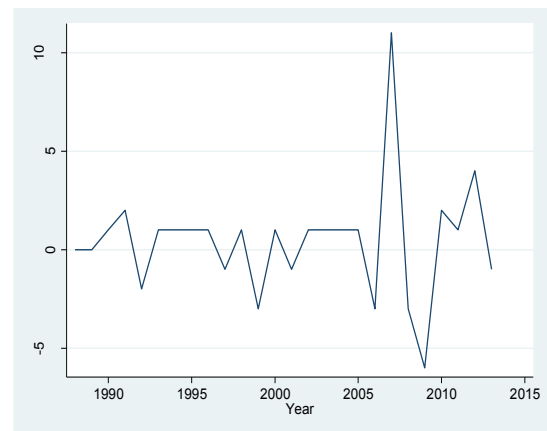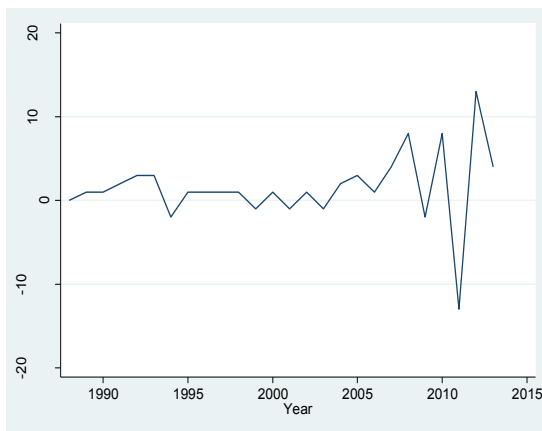
Unit root test of HT at 1ˢᵗ difference　　　　**Unit root test of GDP at 1ˢᵗ difference**

Figure 10: Graphs for unit root tests of HT revenue and GDP of Tanzania

(ii). Formal Test (Scientific Test) of Unit Root using Augmented Dickey Fuller Test.

The Augment Dickey Fuller (ADF) test is the test for unit root within the variables. In case of this study ADF was used for double checking unit root (Stationary) within variable hunting revenue as well as GDP of Tanzania. The test result was as follows:

4.1.1.7.2 Augmented dickey fuller test for hunting tourism

From the Table 1 below of ADF for hunting tourism indicates that absolute test statistics value of (-1.324) is less than absolute critical value at 5% (-3.000) significant level. In the other words, is that absolute test statistics of -1.324 is less than critical value of -3.000 at

5% critical significance value. Also the p-value (Z(t) = 0.6181) is not statistically significant than p-value of 0.05. Due to that the ADF test for hunting tourism series shows that HT has a unit root which can lead to spurious correlation (meaningless correlation) if the analysis will be done without turning them into stationary. Due to that data was turned into stationary state in order to remove trends before further analysis. This was done by re-doing unit root test at first difference of variable, from that hunting tourism revenue became stationary and null hypothesis rejected, hence, assuming that data are stationary at first difference.

Table 1: Augmented dickey fuller test results for hunting tourism

Hunting tourism revenue, regress lags(0)

Dickey-Fuller test for unit root		Number of observation =	25
Interpolated Dickey-Fuller			
Test statistic	1% Critical	5% Critical	10% Critical
Z(t) -1.324	-3.750	-3.000	-2.630
MacKinnon approximate p-value for Z(t) = 0.6181			

4.1.1.7.2 Augmented dickey fuller test for GDP

Similar process was applied on testing unit root for Tanzania GDP. Table 2 below indicates that Tanzania GDP has a unit root. This is because test statistic of (0.431) is less than absolute critical value at -3.600 at 5% significant level. Also the p - value of (Z_t = .9967) is not statistically significant as it is greater than 0.05. Therefore there is no enough evidence to reject null hypothesis which state that Tanzania GDP has a unit root. From that redoing ADF test was done to remove stationary, and after first and second difference it became stationary. Hence null hypothesis rejected at second difference.

Table 2: Augmented dickey fuller test result for Tanzania GDP

GDP, regress lags(0)

Dickey-Fuller test for unit root		Number of observation =	25
Interpolated Dickey-Fuller			
Test statistic	**1% Critical**	**5% Critical**	**10% Critical**
Z(t)　　　0.431	-4.380	-3.600	-3.240
MacKinnon approximate p-value for Z(t) = .9967			

4.1.1.7.3 Co-integration test between hunting tourism and GDP of Tanzania

The long run relationship (association) among the variables tells whether one variable can be used to predict the other. The study revealed that hunting tourism and GDP in Tanzania has an association (long run relationship). Because from Table 3 below, trace statistic of 37.7935 and max statistic of 26.7009 are higher than 15.41 and 14.07 at 5% critical value. Therefore, null hypothesis which says no co-integration among variable hunting tourism and GDP was rejected as test result portrays an indication of co-integration among variables. This means that, HT and GDP are moving together in the long run or has relationship, and if variables are associated, can be used as an indicator to predict/ forecast in each other.

Despite that Tanzania experiences economic growth (GDP) and hunting tourism growth, the contribution of hunting tourism in the GDP is low. According to Baldus and Cauldwell (2004) dependence of game fee as a major contributor to hunting revenue lead to WD losing revenues because hunting companies will reduce off take while maximizing their profit from hunting clients. Furthermore pricing system used by Tanzania government work under fervor of hunting companies and many hunting companies are subleasing their hunting to third party which causes a loss in the actual taxable income. While NAOT, (2013) mentioned poor monitoring system that make WD leaving a lot of money

uncollected. Likewise corruption was revealed to affect all levels in the industry from government scouts to overlook shooting and politicians paid to fervor certain operators when granting concession (Lewis and Jackson, 2005). Also lack of inclusion of aircraft landing fee and certificate of ownership could be a reason as well.

Table 3: Johansen Test for co-integration for HT revenue and GDP of Tanzania

Trend: Constant				Number of obs = 24	
Sample: 1990 - 2013				lags = 2	
Maximum rank	**Parms**	**LL**	**eigenvalue**	**Trace statistic**	**5% Critical value**
0	6	-137.731	-	37.7935	15.41
1	9	-124.38	0.67128	11.0927	3.76
2	10	-118.834	0.3701		
Maximum rank	**Parms**	**LL**	**eigenvalue**	**Max statistic**	**5% Critical value**
0	6	-137.731	-	26.7009	14.07
1	9	-124.38	0.67128	11.0927	3.76
2	10	-118.834	0.3701		

4.1.1.7.4 Granger causality test of hunting tourism to GDP of Tanzania

Granger Causality Test in Table 4 below indicates that there is unidirectional Granger causality relationship running from hunting tourism to GDP of Tanzania. This means that the variable hunting tourism granger causes GDP since its p-value (0.0113) is less than p-value (0.05). In addition GDP does not granger cause hunting tourism because its p-value (0.3062) is higher than p-value of 0.05. Due to that, there is enough evidence to reject the claim which says that hunting tourism does not granger causes GDP rather accept the alternative. One way causality tells that hunting tourism has good information that can be used to predict/forecast economic growth (GDP) in Tanzania. Therefore, the findings

provide empirical support that hunting tourism in Tanzania contributes to economic growth in the country.

Even though hunting tourism contribute very low in economic growth of Tanzania its impact is significance as it influence growth. Contradicting information of potentiality of hunting tourism revealed by Ndoinyo (2002); Economist at Large (2013); Booth (2010) and IUCN (2009) does not hold in Tanzania, may be into another countries of Africa.

Table 4: Granger causality wald tests results (tested with 1 lag) of HT to GDP and GDP to HT

Equation	Excluded	F	df	df_r	Prob>F
Hunting tourism	GDP	1.0975	1	22	0.3062
Hunting tourism	ALL	1.0975	1	22	0.3062
GDP	Hunting tourism	7.6409	1	22	0.0113
GDP	ALL	7.6409	1	22	0.0113

4.2 Contribution of Hunting Tourism to Community Development and Household Income

4.2.1 Respondent characteristics

Characteristics of the respondents have an implication in any social studies as it influences decision making in doing any activities (Muchunguzi, 2010). During the study period, ninety (90) respondents were used to describe demographic characteristic from the studied villages basing on sex, age, marital status and education level.

4.2.1.1 Sex of respondents

Seventy nine 79 (88%) of the interviewed respondents were males and twelve 12 (12%) were females (Table 5). The observed unequal proportional is due to Tanzania's culture as male being the family leader and main speaker (Kilave, 2010).

4.2.1.2 Age

The findings show that respondents aged from 26 – 35 had higher percentage, 38% of all and least being > 60 representing 7% of all the respondents (Table 5). The reason behind for age group between 26-35 being more than others is that, they are the group of energetic people who can provide assistance easily compared to others (URT, 2005).

4.2.1.3 Marital status

Table 5 shows that 79% are married, 18% single, 2% widow and 1% divorced. Higher percentage of married respondents implies that most of the respondents are permanent resident and have households' responsibilities which reflect a stable society (Kilave, 2010). Apart from that married households are advantageous in sharing managerial skills and key components in development responsibility (URT, 2005).

4.2.1.4 Education level

Table 5 shows that 80% of the respondents in the study area attained primary education while 13% secondary education while 7% have never been to formal school). This indicates that these communities are knowledgeable on matters surrounding their compounds, as was explained by Muchunguzi (2010) and can take measure in solving their problems.

Table 5: Respondent characteristics

Respondent Characteristics		Msolwa Station (n=30) %	Miguruwe (n=30) %	Ngarambe (n=30) %	Overall (N=90) %
Sex	Male	87	83	93	88
	Female	13	17	7	12
	Total	100	100	100	100
Age	18 - 25	3	27	40	23
	26 - 35	40	37	37	38
	36 - 45	30	27	23	27
	46 - 60	13	3	0	6
	> 60	13	7	0	7
	Total	100	100	100	100
Marital status	Single	3	17	33	18
	Married	93	80	63	79
	Widowed	3	0	3	2
	Divorced	0	3	0	1
	Total	100	100	100	100
Education	Primary	93	70	77	80
	Secondary	7	13	20	13
	none	0	17	3	7
Total	**Total**	**100**	**100**	**100**	**100**

4.2.2 Economic activities

Economic activities of a person determine the income of person even though people engorge in various activities to increase earning. The study findings shows that 59% of the respondents depend on farming as major economic activity, followed by petty business 30%, hunting tourism activity 10% and lastly employment 2% (Table 6). Farming shows high frequency because it is the activity done by most people in the villages.

Table 6: Economic activities performed by respondents

S/no	Type of activity	Frequency	Percentage
1	Farming	89	58
2	Petty business	45	30
3	Hunting tourism	15	10
4	Employment	3	2
Total		**152**	**100**

4.2.3 Contribution of hunting tourism to household income

Hunting tourism has an economic impact to household through employment opportunities, purchases of goods and services, indirect and induced effect. This impact was evaluated by looking at the number of respondents ever participated in hunting tourism activities from the study village, presence of family members working in hunting companies, amount paid as well as testing its significance in person income.

4.2.4 Participation of local people in hunting tourism activities

Findings show that 64% of all the interviewed people had never worked in hunting tourism activities and 36% have participated. Also, findings indicate that 78% of the respondents have no any family member working in the hunting tourism industry while 22% showed to have some members (Table 7). This indicates that many people had never participated in hunting related activities from study village. As was stated by IUCN, (2009) that only few people engage in hunting tourism related activities.

Table 7: Respondents participation in hunting tourism activities

Participation	Response	Number of respondent	Percent
Individual participation in hunting tourism	Yes	32	36
	No	58	64
	Total	**90**	**100**
Family member working in hunting tourism	Yes	20	22
	No	70	78
	Total	**90**	**100**

Furthermore, findings show that, little payment in hunting companies (60%) was the reason why many people are not involved in hunting tourism activities while, 26% suggest to lack chance and 14% hard work in the field (Table 8). Most employees in HT

companies are casual worker, whose daily pay is 5,000 TZS which makes up 150 000 TZS per month. This amount is not enough for workers to depend on for self-sustenance. Apart from that, those hunting companies do not provide good working environment for their employees, such as accommodation facilities, meals and safety (Nelson, 2013 personal communication). Being working in unsafe environment makes people (local people) lose interest to work in hunting companies.

Table 8: Reasons for little participation in hunting activities

Reason	No of respondent	Percentage (%)
Little payment	54	60
Lack of chance	23	26
Hard work	13	14
Total	**90**	**100**

4.2.5 Contribution of hunting tourism to household income

The results indicate that the value of R^2 is 0.866 and adjusted R^2 is 0.856. This tells on how much of the variance in the dependent variable (income of local communities) is explained by the model. Also tolerant range from 0.942 to 0.996 which is above 0.10 and VIF test indicate 1.004 to 0.062 which is less than 0.3 showing absence of multicollinearity. Apart from that farming and petty business was the highly significant to people income (p=0.000) while hunting tourism was insignificant at (p=0.327) (Table 9). The insignificance of hunting tourism to household income was due to low payment in hunting companies for both permanent and casual workers and few working days. Despite of TZS 150 000/= being monthly pay, people spend few months at works. The common activities people are employed for are open camps and open road, which does not last longer as it takes from one to three months. In some hunting companies permanent camps have been constructed hence reduced the chance for local community to be employed.

Nevertheless, IUCN (2009) pointed out that many employees in hunting tourism industry are unskilled labour and communication with their employers is hindered by language barrier. This makes employees in hunting industry being denied their rights, while working in difficult environment with low pay. The employee depends more on tips provided by hunting clients, which does not cost anything to the companies' owners.

Table 9: Multiple regression results of hunting tourism to household income

Activity	Unstandardized Coefficients		Coefficients Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-402104.6448	644717.1		-0.6237	0.536		
Crop farming	0.814480103	0.151697	0.2777	5.3691	0.000	0.962	1.039
Salary paid	-0.009286052	0.300828	-0.0016	-0.0309	0.975	0.974	1.027
Hunting activity	0.439973476	0.444536	0.0503	0.9897	0.327	0.996	1.004
Petty business	0.801580896	0.049779	0.8418	16.1028	0.000	0.942	1.062
a. Dependent Variable: income			$R^2 = 0.866$			Adjusted $R^2 = 0.856$	

4.2.6 Hunting tourism and community development

Tanzania considers HT as an activity with social economic positive impact especially to communities' adjacent hunting areas. According to MNRT (2007) and NAOT (2013) hunting regulation requires each hunting block to provide not less than U$ 5 000 per hunting season to support community development activities in adjacent villages and 25% of revenue collected from hunting games has to go to villages for the same purpose.

During study period, Wildlife Division which is the controller of hunting tourism provides an average of TZS 983 244 798.78 million annually to 46 districts as collection from hunting tourism. The District Authority distributes this amount to intend villages basing

on the ratio 60% go to villages where hunting is taking place and the remaining 40% to the district to support Wildlife conservation department (MNRT, 2008).

Table 10 below indicates that Miguruwe village located in Kilwa District was the only village to have received the share from WD though not throughout study period. Other villages never received the intended amount.

Apart from that, the study villages have been receiving shares from hunting companies, even though this contribution is not throughout the year. From all study villages, Ngarambe village shows frequently receiving share from hunting companies than any other. However most of this amount (TZS 10 million) comes from WMA block and the rest from other blocks located in SGR (Table 6). Even though higher contribution was observed in 2010 (TZS 27.5million) as another two companies contributed medicine and construction of dispensary in Ngarambe village. Other study villages (Msolwa Station and Miguruwe) have blocks located in SGR and open area which does not contribute more in community development projects. Inadequate contribution of hunting revenue is caused by none adherence to hunting regulation by hunting companies, corruption as well as poor monitoring of the business as explained by Lindsey *et al.* (2006). Corruption affects all levels of the industry from government scouts in supervising hunting in the field, village leaders and politicians during concession granting (Lewis and Jackson, 2005).

This has made inexperienced hunting companies to own hunting block while they do not have reliable hunting clients. Since 2011 up to now, the hunting block located in Ngarambe Tapika WMA had never undertake hunting activities and pay required fee to village hence loss of community development fund. Other hunting companies in their respective blocks participate in hunting tourism even though they do not provide support

to community development projects to adjacent villages. Also it has been observed that hunting companies in SGR and open area do not contribute to village development projects regularly as required by hunting regulation that is why Msolwa Station and Miguruwe received little contribution during study period.

Table 10 : Contribution of hunting companies and wildlife division to community development project (million TZS)

YEAR	MSOLWA STATION		MIGURUWE		NGARAMBE	
	WD	HC	WD	HC	WD	HC
2005	-	-	-	-	-	10
2006	-	-	0.7	-	-	10
2007	-	-	-	-	-	11
2008	-	-	-	-	-	10
2009	-	-	-	-	-	12
2010	-	-	0.8	-	-	27.5
2011	-	15.33	0.75	-	-	-
2012	-		0.8	1.3	-	-
2013	--	16.2-	-	-	-	1

4.2.7 Number of hunting blocks available in study villages

The study revealed that the number of hunting blocks available in each village differ from one another. However, Msolwa village located adjacent to the North eastern sector (Msolwa Sector) of SGR has more blocks compared to others (Table 11). The number of block indicates the amount to be provided by hunting companies to support community development projects. Hence Msolwa village with the three other villages supposed to receive U$ 35 000 per hunting season, while Miguruwe receiving U$ 30 000 and Ngarambe village receiving U$ 25 000 from blocks located in SGR. In addition to animals

hunted, if this amount could be provided for Community Development Project, local communities could have valued the presence of hunting tourism and protected areas (PAs) in their vicinity, hence being part and parcel of wildlife conservation. The relationship of what was provided and what was supposed to be given tells how much local people are losing their share. Poor supervision and monitoring system is the reason.

Wildlife Division does not make follow up of money provided to the District to determine whether each village receives it or otherwise, apart from that hunting companies do not adhere to hunting regulation that requires them to contribute yearly. This makes the industry not beneficial to the local communities as reported by Booth (2009), Economist at Large (2013) and Lindsey *et al.* (2006) that little share of hunting tourism reaches the community. IUCN (2009) reported that inspite of Tanzania being among the leading in hunting tourism in Africa but also is the first in Africa whose communities receive less from hunting tourism. Also NAOT (2013) reported that some districts receive less as they intended and sometimes there are no reports produced on the uses of this money as a result of poor monitoring system.

Table 11: The number of blocks and amounts to be provided by hunting company (ies) yearly for community development projects

Village name	Location in SGR	No of Block available	Total village around	Revenue to be collected
Msolwa	Msolwa Sector	7	4	U$ 35 000
Miguruwe	Migurewe sector	6	4	U$ 25 000
Ngarambe	Kingupira sector	5	5	U$25 000

4.2.8 Community development project supported in study area

During study period different community development were mentioned to be commonly supported, using the small amount of money provided (Table 10). In all villages under study construction of schools especially classrooms and teachers house, village offices, dispensary, rehabilitation of water system, conservation of natural resources and administration work were mention as areas the money invested. However the uses of this amount will depend much on village requirements. From the study Msolwa and Miguruwe villages uses most of money to construct schools buildings, while Ngarambe village high percentage used in conservation purposes (Table 12). This tells on how much schools infrastructure are limited in villages. This indicates the burden villagers get from lack of schools. The support of that nature was mentioned in other literatures such as Kibebe (2005) in Simanjiro District and other places (Sachedina, 2006 and Nelson, 2004). This indicates that common projects available in rural village are school construction (both primary and secondary). This is due Tanzania development program requires each village to have their own primary and secondary school, the construction of this project depends on villagers power both monetary and labours. If the contribution from hunting tourism could have been given accordingly, local people would have reduced burden to them hence their contribution used in any other family investments.

Table 12 : Uses of money contributed by hunting companies from 2005 to 2013 for community development projects

S/no	Social development activity	Msolwa	Miguruwe	Ngarambe
1	Construction of schools	31.53	2.3	3
2	Construction of village office	0	0.7	0
3	Construction of dispensary	0	0	0
4	Rehabilitation of water system	0	0	2
5	Conservation purpose	0	0	48.2
6	Administration work	0	0	28.3
Total		**31.53**	**3.05**	**81.5**

4.3 Limitation of the Study

During data collection the challenges to get data from hunting companies experienced. Hunting companies who are difficult to provide information on how much they contribute to community and in any other activities such as Antpoaching. This leads into lack of accurate amount used in construction of some buildings in village Ngarambe where in 2001 two teachers house was constructed by Luka Samarus hunting company as well as medicine contributed from 2006 to 2009. Also the cost incurred to construct Dispensary up to beam level by Tanganyika Wildlife Safaris in Ngarambe missed.

CHAPTER FIVE

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Basing on the research findings indicate that there is decline of hunting clients and animal hunted in Tanzania. However there is a rapid increase of Buffalo hunted since last year.

Despite of decrease in hunting clients and animal hunted in the country, revenue collected from hunting tourism is increasing yearly. However contribution of revenue from animal hunted is declining. Apart from that hunting tourism in Tanzania seems to be is very important in economic growth as it raise GDP as it shows a presence of long run between hunting tourism and GDP growth. Due to that it hunting tourism is more beneficial at micro level.

Also hunting tourism is not beneficial to household income due to low pay of industry to staffs, hard to get job in hunting companies and lack of multiply impact. Hunting companies do not purchase goods from village and if they do so it is a minor purchase done by low paid staffs. This leads to local people depends more on agriculture and petty business for their survival.

Hunting tourism did not contribute significantly to community development has little income is provided for community development. Many hunting companies do not support community development activities as required by laws. Apart from that contribution from Wildlife Division did not reach local people.

5.2 Recommendations

To ensure hunting tourism is beneficial to economic development the study recommends as follows:

i. Hunting regulations related to contributions towards community development activities have to be implemented and monitored by corresponding authority to ensure that targeted group benefit from the business. Dependence on reports from hunting companies and District authority has made the industry unbeneficial to community and household levels.

ii. There is a need to reveal the payment done by hunting companies to their staff. Wildlife Division authority has work together with the Ministry of Labor to ensure hunting staff get better salaries at the right time according to their job description.

iii. All sources of income from hunting tourism such as landing fee and certificate of ownership fee should be included in hunting tourism revenue.

iv. Forecasting of hunting tourism industry need to done in order to project sustainability of the industry in Tanzania. Hence require further studies for betterment of the industry in the country.

v. More supervision of hunting tourism and monitoring strategies have to be set and implemented to ensure there is no revenue loss to maximize income from hunting business.

REFERENCES

Adams, W. (2004). *Good Hunting*. In: Adams, W.M. (Ed.). Against Extinction. Earthscan, London. 19–23, 56pp.

Aghion, P. and Howitt, P. (2009). *The Economics of Growth*. The MIT Press, Cambridge – United State of America. 518pp.

Awokuse, T. O. (2006). Causality between Exports, Imports and Economic Growth: Evidence from Transition Economies.

Bailey, K. (1994). *Methods of Social Research*. The Press Collier. Macmillan, London. 478pp.

Balaguer, J. and Cantvella-Jorda, M. (2002). *Tourism as a Long-Run Economic Growth Factor. The Spanish Case: Applied Economic* 34(7): 877-884, DOI; 10.1080/00036840110058923.

Baldus, R. D. and Cauldwell, A. E. (2004). *Tourist Hunting and It's Role In Development of Wildlife Management Areas in Tanzania*. 6th International Game Ranching Symposium – Paris. pp32.

Barro, R. J. and Sala-i-Martin, X. (2004). *Economic Growth.* London. Cambridge. Massachusett. 129pp.

Bohne, A. (2008). *Wildlife Value, Trophy Hunting and Rural Development – with Illustrations from Tanzania*. In; Conference on International Research on Food Security, Natural Resource Management and Rural Development. University of Hohenheim German 7-9 October, 2008.

Booth, R. V. (2010). *Contribution of Hunting Tourism: How Significant is this to National Economies? In Contribution of Wildlife to National Economies*. Budapest - Hungary. 72pp.

Caro, T. M., Pelker, N., Borner, M., Severre, E. L. M., Campbell, K. L. I., Huish, S. A., Olekuwai, J., Farm, B. P. and Woodworth, B. L. (1998). The impacts of tourist hunting on large mammals in Tanzania. An initial assessment. *African Journal of Ecology* 36: 321-346.

Cauldwell, A. (2004). *Appendix 9; Analysis of Hunting Data of the Selous Game Reserve*.

Centre for Responsible Travel (CREST), (2014). Economic Impacts of Bear viewing and Bear Hunting in the Great Bear Rainforest of British Columbia. *Transforming the way the World Travel*. Washngton, DC. and Starniford University. 130pp.

Dickey, D. A. and Fuller, W. A. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root. *Journal of the American Statistical Association* 74: 427-431.

Economists at large, (2013). *The $200 Million Question: How Much Does Trophy Hunting Really Contribute to African Communities?* A report for the African lion coalition. Melbourne-Australia. 19pp.

Edwards, S. R. and Allen, C. M. (1992). *Sport Hunting as a Sustainable Uses of Wildlife*; IUCN- The World Conservation Union Switzerland. 42pp.

Fred, N. (2004). The evolution and impacts of community-based ecotourism in northern Tanzania. Issue Paper No 131.

Ghuta, N. (2004). Research methodology. New age international (T) LTD. NewdelhiIndia Growth in Africa? ”*World Development*, Volume 26, Issue 3, March 1998. pp 497-506.

Granger, C. W. and Newbold, P. (1974). Spurious Regressions in Econometric. *Journal of Econometrics* 2: 111-120.

Hatemi, J. A. (2001). *Economic Growth and Economic Growth nexus in Japan*: a boots trap approach. [http://ac.elscdn] site visited on 12/08/2015.

Helpman, E. and Krugman, P. (1985). *Market Structure and Foreign Trade*. MIT Presss Cambridge. 24pp.

IAFWA (2002). *Economic Importance of Hunting in America*. Mark Labarbera Outdoor Heritage Education Centre. Washington, DC. 12pp.

Ihucha, A. (2011). New rules to trap $30m from Tanzania's hunting industry [http://www.theeastafrican.co.ke/business/New-rules-to-trap--30m-from-Tanzanias-hunting-industry/2560-1115498-item-0-bburxj/index.html] site visited 10 July, 2015.

IUCN (2009). *Big Game Hunting in West Africa. What Is Its Contribution to Conservation Area?* The International Union for Conservation, Gland., Swizerland and Cambridge, UK. 23pp.

Jhangan, M. L. (2007). *Money, Banking, International Trade and Public Finamce*. 7th edition.Vrenda (P) Publication Ltd. Nisha Entreprises, Dheli. 34pp.

Kauzeni, A. S., Kikula, I. S., Mohamed, S. A. and Lyimo, J. G. (1993). Land use Planning and Resource Assessment in Tanzania. A case study. IIED Environmental Planning Issue No. 3. IRA Research Paper No. 35.

Khalafalla, Y. and Webb, A. J. (2005). *Export-Led Growth and Structural Change: Evidence from Malaysia*. Applied Economics. 44pp.

Kibebe J. (2005). Socio-*economic and Ecological Impacts of Safari Hunting and Commercial Farming on Key Stakeholders; Simanjiro District – Tanzania*. Published Dissertation for Award of MSc. Degree at Norwegian University of Life Sciences. Norway. 150pp.

Kilave, E. N. (2010). *Social Influence of Continuation of Adopted Agricultural Technologies: A Case of Hima Project Kilolo District*. Unpublished dissertation. Sokoine University of agriculture. pp 42-44.

Konya, L. (2006). *Exports and Growth: Granger Causality analysis on OECD Countries with a Panel data Approach*.[http://doi:10.1016/j.econmod.2006.04.008] site visited on 20th October, 2015.

Koponen, J. (1994). *Development for Exploitation: German Colonial Policies in Mainland Tanzania, 1884-1914*. Finnish Historical Society and Lit Verlag, Helsinki and Hamburg, Finland and Germany.

Kothari, C. R. (2004). *Research Methodology. Methods and Techniques. 2rd Edition*. New Age International (P) Limited Publisher. New Dheli. 418pp.

Krueger, A. (1980). Trade Policy as an Input to Development. *American Economic Review* 70: 188-292.

Lindberg, K. (1991). *Policies for Maximizing Nature Tourism's Ecological and Economic Benefits.* International Conservation Financing Project Working Paper, World Resources Institute- United States of America. 44pp.

Lindsey, P. A. (2008). *Trophy Hunting in Sub Saharan Africa. Economic Scale and Its Conservation Significance*. Best Practice in Sustainable Hunting. pp.41-47.

Lindsey, P.A., Balme, A. G., Booth, R.V. and Midlane, N. (2012). The significance of African lions for viability of trophy hunting and the maintenance of wild land. *Plos one Journey* 7:1-10.

Lindsey, P. A., Roulet, P. A. and Romañach, S. S. (2007). Economic and conservation significance of the trophy hunting industry in sub-Saharan Africa. *The Biological Conservation* 134: 455– 469.

Lindsey, P. A., Frank, L. G., Alexander, R., Mathieson, A. and Romañach, S. S. (2006). Trophy hunting and Conservation in Africa. Problems and One Potential Solution. *Conservation Biology* 1: 01-03.

Mazumder, M. N. H., Al-Mamun, A., Al-Amin, A. Q. and Mohiuddin, M. (2012). Economic Impact of Tourism – *A Review of Literatures on Methodologies and Their Uses*: 34pp.

Mazunder, M. N. H. (2009). Does Tourism Contribute Significantly to the Malaysian Economy? Multiplier Analysis Using I-O Technique. *International Journal of Business and Management* 4: 7.

McKinnon, R. (1964). Foreign Exchange Constrain in Economic Development and Efficient and Allocation. *Economic Journal* 74: 388-409.

Ministry of Natural Resources and Tourism, (2007). *The Wildlife Policy of Tanzania*. Wildlife Division, Government Printers, Dar es Salaam. Tanzania. 50pp.

Mjema, N. E. (2013). *Impact of Export Trade on Economic Growth in Tanzania During 1980-2010.* Published Dissertation for Award of MSc. Degree at University of Bradford. 71pp.

Muchunguzi, N. N. (2010). The household income status and malaria control measures and practices in Bagamoyo District. Unpublished Dissertation. Sokoine University of Agriculture. pp 51-53.

National Audit Office Tanzania 'NAOT', (2013). *A Performance Audit Report On The Management of Wildlife In Game Reserves And Game Controlled Areas*. The Ministry of Natural Resources and Tourism. 81pp.

Ndoinyo, Y. (2002). Are rejoinder to the Ministry's press release on Loliondo and OBC. [http://www.ntz.inf/gen/b00678.html#id03792] sited visited on 7th /06/2014.

Nelson, F. (2004). The evolution and impacts of community-based ecotourism in northern Tanzania. Issue paper no.131. 21pp.

Nicolas, J. D. (2014). Exploitation or Conservation? Can The Hunting tourism Industry in Africa Be Sustainable? 22pp.

Onafowora, O. A. and Owoye, O. (1998). *Can Trade Liberalization Stimulate Economic.*

Packer, C., Brink, H., Kissui, B. M., Maliti, H., Kushnir, H. and Caro, T. (2010). Effects of trophy hunting on lion and leopard populations in Tanzania. [http://baobabtravel.wordpress.com/2011/06/22/is-trophy-hunting-sustainable/] site visited on 13/08/2015.

Phillips, P. C. B. (1986). Understanding Spurious Regression in Econometrics. *Journal of the Econometrics* 33: 311-40.

Ranis, G., Stewart, F. and Ramirez, A. (2000). Economic Growth and Human Development. *The World Development.* Vol. 28, No. 2, pp. 197-219.

Sachedina, H. T. (2008). "Wildlife Is Our Oil: Conservation, Livelihoods and NGOs in the Tarangire Ecosystem, Tanzania." *Word Journal of the International Linguistic Association*. University of Oxford. [http://african--environments. ouce.ox.ac.uk/pdf/sachedina_dphil.pdf] site visited on 04 July, 2015.

Sachs, J. and Warner, A. M. (1995). "Economic Reforms and Process of Global Integration." Brooking papers on Economic Activity 1995.

Samuelson, P. A. and Nordhaus, W. P. (2001). *Macroeconomics*.17th Edition. New York: McCraw-Hill Compainies. pp 38-42.

Sengelela, M. (2013). *The Impact of Tourism Hunting on Local People Livelihoods: The Case of Songambele Village in Selous Game Reserve, Tanzania.* Dissertation for Award of MSc. Degree at Wageningen University. 107pp.

Songorwa, A. N. and du Toit, M. (2007). Hunting in Tanzania. Has science played its role? *Tanzania Journal of Agricultural Science* 8(1): 31 − 38.

Taban, S and Aktar, I. (2005). An empirical examination of export-led Growth Hypothesis in Turkey. *Journal of Yasar University. Turkey* 3(11): 1535 - 1551

Tanzania Natural Resources Forum, (2008). *Wildlife for all Tanzanians*. Stopping the loss, nurturing the resources and widening the benefits, an information pack and policy recommendation. *Jumuiko la Maliasili Tanzania*, Arusha. Tanzania. 58pp.

Tanzania Wildlife Research Institute, (2010). *Evaluation of Hunting Blocks in Tanzania. Version 2*. Ministry of Natural Resources and Tourism, Dar es Salaam, Tanzania. 135pp.

Taylor, J. E., Hardner, J. and Stewart, M. (2006). *Ecotourism and Economic growth in the Galapagos. An Island Economy- wide Analysis*. Working Paper No 06-001. 31pp.

Tomlinson, C. (2002). *Big Game Hunting Threatening Africa*. Available on [http://www.ntz.inf/gen/b00678.html#id03792] site visited on 7th /06/2014.

United Republic of Tanzania, (2009). T*he Wildlife Conservation Tourist Hunting Regulations*. Government Printers, Dar es Slaam, Tanzania. 35pp.

United Republic of Tanzania, (2012). *Tanzania Industrial Competitive Report 2012*. Ministry of Industry and Trade. Tanzania 14pp.

United Republic of Tanzania, (2009). *The Wildlife Conservation Acts No 5.* Government Press. 65pp.

URT (2013). *Population and Housing Census 2012*. Government Printers Tanzania. 264pp.

Valle, E. and Yobesia, M. N. (2009). Economic Contribution of Tourism in Kenya. *Tourism Analysis* 14: 401-414.

Warren (2011). *A Spending Model for Biltong Hunters*. Phd thesis- North-West University of Potchefstroom campus. 56 pp.

Willue D.S and Carpenter J.F. (1999). The potential role of Safari Hunting as a source of revenue for Protected Areas in Congo Basin; *Oryx* 33(4): 339 – 345.

World Travel and Tourism Council (WTTC), (2010). *Tourism Economic Research 2010.* World Travel and Tourism. London. 52pp.

APPENDICES

Appendix 1: Questionnaire for Household

    1.0 Personal details

2   Name of respondent ………………………………………………..

3   Village …………………

4   Sex   ……………………

5   Age   ……………………

6   Marital status ………………….

7   Occupation …………………………….

8   Education level ………………………...

9   Distance from reserve boundary to home ……………………..

    2.0 Social economic activities

10 What are your economic activities?

S/no	Activity	Investment cost	Yield bag/kg	Amount sold	Amount remain

11 Do you know hunting tourism (YES, NO)

12 Have you ever participated in any hunting tourism activities? Yes, No

      If Yes. Which activity? ....

13 How long does that activity take? ………………

14 How much money did you get from that activity? ……………….

15 Is there any family member(s) employed in hunting company? Yes, No

    If Yes. Which company?

16 Do you think hunting tourism activities has a benefit to you? (yes, No)

17 If Yes. How do you benefit from hunting tourism activity?

    …………………………………………………………………

    If No. why? ....

18 Is there any other contribution does your village get from hunting companies? Yes, No

    If Yes, what are they and when does village receive that contribution?

    ………………………………………….

19 Do you know how much does that contribution wealth? Yes. No

    If Yes, mention its wealth ……………..

20 Are you aware about contribution of Wildlife Division as a result of hunting tourism

   activities to support community development project within you village? Yes, No

    If yes, do you know how much you the village is supposed to receive? Yes, no

    If yes, how much ………………

21 Do you receive this amount every year? Yes, no

    If yes, Mention the amount received for the past three years

    2013 ………….

    2012…………..

    2011 …………..

22 How does the village government use that money?

    ………………………………..

    ………………………………

23 What are other contributions the village received from hunting companies in order to

   support community development?

    ………………………………………………………………………………

24 What are your opinion regarding hunting tourism in your area?

………………………………………………………………..

………………………………………………………………..

25 Are there any community development projects in the village? Yes. No

If yes what are they ……………………………………………….. and

mention source of fund …………………………………………..

Appendix 2: Questionnaire for District authority

1. Are you aware of the hunting activities taking place in your area? YES, NO

2. If Yes. In which categories of the protected area is taking place?

3. How is doing revenue collection from hunting tourism?

4. How do local people adjacent hunting blocks benefit from hunting tourism activities?

5. There are fund directed to support community development project in areas where hunting is taking place, how do you manage that fund?

6. How much do you receive for the past ten years?

7. What do you do with this fund?

8. What are you opinion regarding hunting tourism and benefit sharing scheme?

Appendix 3: Interview Guide for Wildlife Division authority

1. How do you monitor revenue collection from hunting tourism?

2. Do you think Tanzania is benefiting from hunting industry? Yes, No

    If yes, Why …………………………………………………………

    If no, why ………………………………………………………..

3. How does local people's adjacent hunting block benefit from hunting tourism?

4. How do you ensure contribution from WD for community development reach

    intended villages?

5. How do you ensure hunting companies contribute to community development

    projects around their hunting blocks?

6. If the company does not support communities around their hunting blocks, what

    measures do you take?

Appendix 4: Unit root Test result

```
. dfuller hrevenue, trend regress lags(0)


Dickey-Fuller test for unit root                  Number of obs   =       25

                                ─────────── Interpolated Dickey-Fuller ───────────
                 Test          1% Critical       5% Critical      10% Critical
              Statistic           Value             Value            Value
─────────────────────────────────────────────────────────────────────────────────
 Z(t)           -3.122            -4.380            -3.600           -3.240
─────────────────────────────────────────────────────────────────────────────────
MacKinnon approximate p-value for Z(t) = 0.1011
```

D.hrevenue	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
hrevenue						
L1.	-.6143234	.1967842	-3.12	0.005	-1.022429	-.2062179
_trend	.4727874	.1668913	2.83	0.010	.1266761	.8188987
_cons	.9290079	1.01099	0.92	0.368	-1.167657	3.025673

```
. dfuller DGDP, regress lags(0)


Dickey-Fuller test for unit root                  Number of obs   =       25

                                ─────────── Interpolated Dickey-Fuller ───────────
                 Test          1% Critical       5% Critical      10% Critical
              Statistic           Value             Value            Value
─────────────────────────────────────────────────────────────────────────────────
 Z(t)           -1.905            -3.750            -3.000           -2.630
─────────────────────────────────────────────────────────────────────────────────
MacKinnon approximate p-value for Z(t) = 0.3299
```

D.DGDP	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
DGDP						
L1.	-.3210997	.1685836	-1.90	0.069	-.6698414	.0276419
_cons	1.663115	1.025454	1.62	0.118	-.4581976	3.784428

```
. twoway (tsline revenue)

. tsset year, yearly
        time variable:  year, 1989 to 2013
                delta:  1 year

. dfuller dr, regress lags(1)
```

Augmented Dickey-Fuller test for unit root   Number of obs   =   23

	Test Statistic	1% Critical Value	Interpolated Dickey-Fuller 5% Critical Value	10% Critical Value
Z(t)	-3.442	-3.750	-3.000	-2.630

MacKinnon approximate p-value for Z(t) = 0.0096

D.dr	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
dr						
L1.	-1.292396	.3755207	-3.44	0.003	-2.075719	-.5090739
LD.	-.060811	.2256175	-0.27	0.790	-.5314409	.4098188
_cons	1.169945	.6747377	1.73	0.098	-.2375331	2.577423

```
. dfuller dgdp, trend regress lags(1)
```

Augmented Dickey-Fuller test for unit root   Number of obs   =   24

	Test Statistic	1% Critical Value	Interpolated Dickey-Fuller 5% Critical Value	10% Critical Value
Z(t)	-3.729	-4.380	-3.600	-3.240

MacKinnon approximate p-value for Z(t) = 0.0205

D.dgdp	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
dgdp						
L1.	-.9865448	.2645782	-3.73	0.001	-1.538445	-.4346443
LD.	.3491625	.2188875	1.60	0.126	-.1074288	.8057538
_trend	.4967439	.1619526	3.07	0.006	.1589167	.8345711
_cons	-2.626284	1.775254	-1.48	0.155	-6.329398	1.07683

```
. tsset obs, yearly
        time variable:  obs, 1988 to 2013
               delta:  1 year

. vecrank dhrevenue SDGDP, trend(constant) max

                    Johansen tests for cointegration
Trend: constant                                    Number of obs =      24
Sample:  1990 - 2013                                         Lags =       2
─────────────────────────────────────────────────────────────────────────
                                                       5%
maximum                                     trace   critical
  rank     parms        LL     eigenvalue  statistic   value
   0         6    -137.73058          .     37.7935    15.41
   1         9    -124.38015     0.67128    11.0927     3.76
   2        10    -118.83382     0.37010
─────────────────────────────────────────────────────────────────────────

                                                       5%
maximum                                      max    critical
  rank     parms        LL     eigenvalue  statistic   value
   0         6    -137.73058          .     26.7009    14.07
   1         9    -124.38015     0.67128    11.0927     3.76
   2        10    -118.83382     0.37010
─────────────────────────────────────────────────────────────────────────
```