

# Analysis of the Economic Benefits of Tourism in Contra-Distinction to Agriculture in Rural Boteti, Botswana

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Received: February 22, 2016 Accepted: June 7, 2016 Online Published: July 30, 2016

doi:10.5539/jsd.v9n4p80

URL: <http://dx.doi.org/10.5539/jsd.v9n4p80>

## Abstract

Despite numerous efforts to improve agricultural production as an alternative source of employment, the high poverty headcount is still a source for concern in rural Boteti. On average, agriculture contributes to less than 20% to household economies in rural Boteti. To date, no research has been done to assess and determine the factors that affect livelihood diversification among households in Boteti. This study, among other methods, adopts the Household Economy Analysis, Household Income Estimation and the Tobit regression model in order to determine how the economic benefits of tourism industry compare with those of the agricultural sector in Khumaga and Moreomaoto in Boteti sub-district, Botswana. This study argues that notwithstanding the livelihood diversification efforts displayed in the study area, agriculture continues to be a significant contributor of total household income. The improved performance of agriculture is crucial in the attainment of food security. This paper is aimed at making an assessment of the contribution of tourism in the selected areas Boteti sub-district in comparison to agriculture. There is a strategic need to educate the local communities in the study area on the importance of tourism and how they could use it effectively as a livelihood activity.

**Keywords:** agriculture, tourism, livelihood, household economy, Boteti

## 1. Introduction

Botswana is internationally known for the diversity of its wildlife, natural resources and natural wonders such as the Okavango Delta and Chobe River Plains. In year 2002, the tourism sector contributed to an estimated share of 5% of Gross Domestic Product (GDP) which is approximately 8% of non-mining sectors contribution to the GDP (Leechor, 2005). When Botswana attained independence, tourism was almost non-existent. However, tourism has over the years increased manifold to become second after diamond production in terms of contribution to the GDP (Makochekanwa, 2013). Tourism is often perceived as an easy way to generate income. The sector employs a number of Batswana especially around the areas where operators are concentrated. However, the benefits vary from one community to the other, and thus the contribution of tourism to household economy varies from one household to another. In its effort to diversify the economy from being mineral based, the Government of Botswana has identified tourism as an alternative source of growth and diversification.

Another critical source of livelihood to most Batswana is agriculture. In 2003/04, the contribution of agriculture to the GDP stood at 2.3%, 70 to 80 % being made up of cattle farming (BEDIA, 2010). For this reason, the country is committed to develop the agricultural sector to stimulate growth in farm incomes.

The overall incidence of poverty in Botswana fell from 60% in 1985/86 to 30% in 2002/03 (CSO, 2004). Rural poverty declined from 55% in 1985/86 to 40% in 1992/93. It has been noted that between 2003 and 2010, there has been an overall reduction of extreme poverty in rural Botswana by 17.2% (World Bank, 2015). It is worthwhile to note that, however, the incidence of rural poverty in Boteti remains one of the highest in Botswana at a rate of 33% against the national rate (Statistics Botswana, 2013).

Theoretically, Botswana appears as a dual economy when in practice, it is not. One of the reasons for high poverty levels in rural areas is lack of employment opportunities in rural areas. The annual poverty monitoring report of 2006/7 reflects that unemployment rates are markedly high in some Central sub-districts, with Central Boteti contributing about 13% to the pool of Botswana's unemployment (Statistics Botswana, 2013). Furthermore, according to the Statistics Botswana report of 2013 on poverty headcount in Botswana, rural Boteti

has a high poverty headcount of 16,461 people out of 32,857 classified as poor, making it one the poorest sub-districts in Botswana.

Despite numerous efforts to improve the commercial use of agricultural production as an alternative major source of employment in rural areas, the high poverty headcount is a source for concern in rural Boteti. According to the study on factors affecting contribution of tourism to household economy by Raboloko et al., (2010), agriculture is practiced by majority of the people (average of 70%) although it contributes, on average, less than 20% to household economies in rural Boteti.

Agri-tourism is one form that farmers can use to improve their incomes. This is a form of farm diversification whereby agriculture is combined with tourism. The stability of rural areas may be enhanced by agri-tourism to supplement farm income (Lack, 1997). Another way to improve household incomes is the transition from agricultural production, since it is failing to contribute to household incomes, to venturing into tourism related businesses (Lack, 1997). To this date, no research has been done to assess and determine the factors that affect livelihood diversification among households in Boteti. In this study, a household is defined as “a social unit whose labour organisation and distribution of resources and roles are shared by members for their perpetuation and survival” (Omari, 1989).

## **2. Rural Households Livelihood Diversification**

The conceptual issues of sustainability of rural livelihoods and the diversification of income are quite common in the field of rural development, poverty reduction and environmental management (Mbaiwa, 2004). Rural livelihood diversification is “the process by which rural households construct an increasingly diverse portfolio of activities and assets in order to survive and to improve their standard of living” (Ellis, 2000). People diversify by adopting a range of livelihood activities. Thus, income sources may include ‘farm income’, ‘non-farm income’ and ‘off-farm income’ (Carswell, 2002).

In recent years, rural household dependency on agriculture has declined in terms of providing employment and thereby earning livelihood primarily due to decreasing absorption capacity in agriculture sector. Consequently, there has been a considerable increase in the share of income from the non-farm to households and hence to the general economy has been growing over the years (Singh, 2013). Rural livelihood diversification is characterised by spatial spread by household members to different geographical areas to take advantage of different livelihood opportunities (Nyamisi et al., 2007).

Sub-Saharan Africa is becoming less rural in character, a process which is referred to deagrarianisation. This process is identified through a declining reliance by many rural households on income from farming, and a rising reliance on non-farm income sources (Bryceson, 1996). Very few people earn all their incomes from one source or hold all their wealth in the form of any single asset, or use their assets in just one activity (Barrett and Reardon, 2000; Faburoso et al., 2010).

## **3. Importance of Livelihood Diversification**

Farming on its own is unable to provide a sufficient means of survival for many poor rural families (Nyamisi et al., 2007). According to Singh (2010), “land is fundamental livelihood asset and dependency of rural poor is more on agriculture, but, due to decreasing productivity it is not as profitable as it involves various risks and limitations. Thus, there is a need to diversify the income of households.” The contribution made by livelihood diversification to rural livelihoods is a significant one which has often been ignored by policy makers who have chosen to focus their activities on agriculture (Ellis, 1998; Carswell, 2002). Research undertaken throughout sub-Saharan Africa has highlighted the importance of earnings from non-farm activities (Reardon et al., 1997; Turner et al., 1993; Carswell, 2002). Income source diversification highly influences the well-being of households in rural areas, this assists in an attempt to generate an adequate and sustainable livelihood that is resilient to shock (D’Haese and Kirsten, 2003). To increase food, generate income, and safeguard against risks and shocks, families in rural Africa should engage in multiple livelihood strategies (Nyamisi et al., 2007). Moreover, diversification of livelihoods has the gender benefit of improving the “income- generating capabilities of women” and hence generally improving the care and nutritional status of members as women tend to spend cash income on family welfare (Ellis, 1999).

However, despite these benefits, livelihood diversification has its fair share of disadvantages. For example, diversification process in Kanyibana village, Kenya, has been viewed to have encouraged the emergence of new risks and vulnerabilities such as rape, domestic violence, unplanned pregnancy, and exposure to HIV/AIDS and death at early age, especially to those who have moved to urban areas to seek alternative sources of income (Nyamisi et al., 2007). Nonetheless, the positive effects of diversification appear to outweigh its disadvantages.

#### 4. Determinants of Livelihood Diversification among Households

Some of the determinants that may be linked to the likelihood of a household to diversify its livelihoods are:

**Gender:** The gender of the household head plays an integral aspect of livelihoods in rural areas. Land ownership by women is very rare in rural areas and hence generally, an option for diversifying is available to rural men than it is for women (Ellis, 1999). It is worth noting that some cultures allow for a certain degree of autonomy for women in livelihoods diversification through undertaking on their own small-scale enterprises or migrating to urban areas or abroad (Warren, 2002).

**Age:** Younger people, leaving other factors constant, could be motivated to engage more in non-farm activities. This is mainly due to the shortage of and/or lack of access to agricultural land compared to the older members of the economy (Eneyew and Bekele, 2008).

**Education:** People who have formal education background are engaged in better and well-paid salaried jobs as compared to those with little or no formal education. This contributes to the lower likelihood of combining two or more jobs or livelihood diversification. Education enhances the potential of individuals and increases the scope of opportunities available for them (Oluwatayo, 2009). Furthermore, education increases skills level which are required for some rural non-farm activities. Education also contributes to increased productivity, on the other hand it may be an employment-rationing tool (Fabusoro et al., 2010).

**Household size:** Availability of a surplus of household labour leads to high chances of livelihood diversification (Warren, 2002). In the study on household income and poverty in rural Nigeria, Oluwatayo (2009) discovered that small-sized households have lower likelihood of diversifying their livelihood sources because they are less prone to poverty than large households. Arguably, larger households are likely to have more diversified income sources (Reardon, 1997; Fabusoro et al., 2010)

**Income of respondents:** It is argued that economically stable or wealthier families generally have the ability to diversify their livelihood activities than poorer ones in most rural areas (Ellis, 1999).

**Farming and non-farming activities:** Farmers with higher livestock holding are generally not be obliged to diversify livelihoods into off- and non-farm activities to be able to meet needs of their household (Eneyew and Bekele, 2008).

#### 5. Factors Affecting Livelihood Diversification Choices

Exogenous trends (and shocks) play an important role in pushing residents of rural areas towards a diversified livelihood strategy (Ellis, 2000). Diversification of rural livelihoods are dependent on several factors, some of which are:

**Availability of Opportunities:** The removal of constraints to credit (and other needed services) and the expansion of opportunities are desirable policy objective for livelihood diversification as they give people in rural areas more capabilities to improve their livelihood security (Sudan, 2007). Availability of location-specific opportunities such as contingencies in the local market, developmental projects, developed infrastructure, personal contacts have the advantage of playing an important role in rural livelihood diversification.

**Availability of Key Assets:** These include savings, land, labour, education, access to common pool property such as natural resources and other public goods. The availability of these assets is important in increasing the ability of making rural households to diversify sources of their livelihood (Warren, 2002).

**Household's Future Perception:** The way the household perceives the future affects its livelihood diversification choice. For instance, for rural households, new on-farm activities are preferable to migratory wage labour as livelihood diversification strategies as they are perceived to be consistent with maintaining a rural or traditional way of life (Warren, 2002).

#### 6. Study Area

The study was carried out in in Moreomaoto and Khumaga, in Boteti sub-district in the Central district of Botswana. It is worthwhile to note that other literature and official documents, Khumaga is written as "Kumaga". Boteti River stretches for about 300km begins from the Thamalakane River in the southern-most fringe of the Okavango Delta thus creating a sub-basin within the larger Okavango River Basin, covering an area of more than 29, 000km<sup>2</sup> (Motsholapheko et al, 2008).

The Boteti sub-District of the Central District has a population of about 48, 057 people. Total population in the study area (Khumaga and Moreomaoto villages) is estimated at 1, 276 (CSO, 2011).

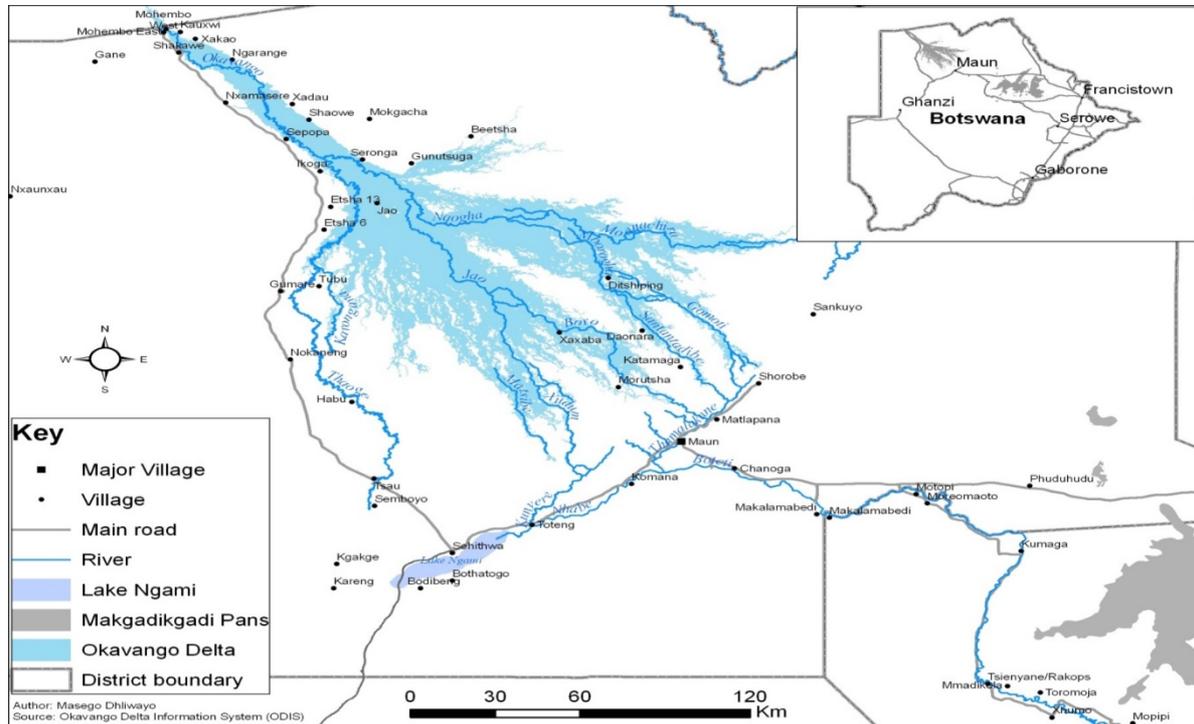


Figure 1. Map of the Okavango Delta showing study villages (Source, Dhaliwayo, 2010)

**7. Methods**

This paper relied on the data collected from two villages, Khumaga and Moreomaoto in by Raboloko et al (2010). The data covers the period of June 2009 to June 2010. This survey data is unpublished. The survey used both primary and secondary data sources. Secondary data was collected by means of review of literature on rural livelihoods and income diversification. On the other hand, primary data was collected by administering two sets of detailed questionnaires. The questionnaires had both open and closed ended questions. The household questionnaire had two main parts. The first section was on demographic characteristics of the respondents. The second section contained information about livelihood activities that the households are involved in and the benefits from those activities. The total sampling frame comprised of 371 households. A random sample was drawn for the purpose of the study, sampling 30% of the sampling frame for each village.

*7.1 Household Economy Analysis (HEA) Method*

The study uses Household Economy Analysis (HEA) in an effort to describe the way in which typical households with defined assets use these as their sources of livelihood. It focuses of the type of HEA that takes particular interest in livelihood activities households are involved in, that is ‘livelihood zooming’. This describes the sources of household income including standing stock of agricultural produce. Such were used in calculating household economies in Kumaga and Moreomaoto. Information was also collected on levels of asset holding, with a focus on productive assets such as livestock rather than luxury items such as cars, television sets and so on.

*7.2 Household Income Estimation*

Capturing only monetary sales and salaries is not sufficient to estimate the income earning capacity of households. In this study, income from the value of identified livelihood activities, including sales as well as value of consumed and bartered goods is captured. However, emphasis is on tourism and agriculture to suit the objectives of this study.

$$\text{Total household income} = X_1 + X_2 + X_3 + X_3 + X_4 + X_5 + X_6 + X_7 + X_8 + X_9 + X_{10} + X_{11} + X_{12} + X_{13}$$

$$= \sum X_i \quad , \text{where } i = 1, 2, \dots, 13 \quad \text{and } X_i = \text{livelihood activity}$$

**Percentage contribution of a livelihood to household income** =  $X_i / \sum X_i * 100\%$

Where;

$X_1$  = Total contribution of agriculture to household income

$X_2$  = Total contribution of tourism to household income

$X_3$  = Total contribution of veld products to household income

$X_4$  = Total annual income from formal employment

$X_5$  = Total annual income from informal employment

$X_6$  = Total annual income from Ipelegeng

$X_7$  = Total annual income from remittances

$X_8$  = Total annual income from government assistance

$X_9$  = Total annual income from old age pension

$X_{10}$  = Total annual income earned from beer brewing

$X_{11}$  = Total annual income earned from basket weaving

$X_{12}$  = Total annual income earned from fishing

$X_{13}$  = Total annual income earned from other livelihood activities

### 7.3 Tobit Regression Model

Tobit model, adopted from Oluwatayo (2009) was used to ascertain the determinants of livelihood diversification among households in the area under study. The Tobit model used was in the form;

$$Y^* = X_i b_i + e_i$$

Where:

$e_i$  = error term

$Y^*$  = the livelihood diversification index obtained by dividing the number of livelihood sources employed by all the livelihood sources available in the study area. Thus, the value of the livelihood diversification index ranges between zero and one.

$X_i$  = explanatory variables which include:

$X_1$  = Age of the household head (in years)

$X_2$  = Gender (Female = 1, Male = 0)

$X_3$  = Household size

$X_4$  = Years of formal education

$X_5$  = Income of respondents (Pula)

$X_6$  = Primary occupation (Farming = 1, Non-farming = 0)

$b_i$  = Regression parameters or coefficient

## 8. Results and Discussion

### 8.1 Households Involved in Tourism Related Activities and Farming

Of the 112 households sampled, 67% of the households said they were involved in livestock farming, 73% participated in arable farming while only 11.6% of the households are involved in tourism related activities. This is rather a small number considering the fact that the area is a tourism harbour. However, the findings are not surprising in that these villages have a rural set-up, where people staunchly practice agriculture. These findings are similar to those of Motsholapheko (2009) who identified livestock farming and dryland arable farming as the main economic activities in Boteti River sub-region.

It should be noted that the low participation in tourism relative to other livelihoods is due to the fact that there are those respondents involved in tourism related activities who did not know that they could actually derive income from those activities. For instance, there were those respondents involved in basket weaving and wood carving but they did not know that they could sell their products to tourists. This implies that the people are not well sensitised about how they can derive income from tourism as a livelihood activity.

### 8.2 Financial Contribution of Tourism and Agriculture to Household Income

For determining different classes of household livelihood strategies, variables indicating percentage contribution of each livelihood activity to the total income were used as described by Freeman and Ellis (2005). Capturing

only monetary sales and salaries is not sufficient to estimate the income earning capacity of households, and hence for this reason, income from the value of identified livelihood activities, including sales as well as value of consumed and bartered goods were captured for the purposes of this study.

Aggregate income of the people involved in tourism related activities was estimated to be P218 003.40 as shown in the Table 1. This income is from 11.6% of the households involved in tourism related activities as the 88.4% who are not involved in it did not derive any income from it. It is higher than the aggregate income estimated from arable farming, which had 6 times the participants of those in tourism related activities. The aggregate income derived from livestock farming is greater than the aggregate income from tourism related activities. It is 14 times greater than that from tourism related activities. This implies that aggregate income of tourism related activities relative to livestock farming is very low.

The average income of the households participating in tourism related activities was estimated to be P16 769.49 whereas the average income of the total sample was estimated to be P2076.82. Estimated average income of sample from tourism related activities is almost double the average income (sample) of the other arable farming. Estimated average income (sample) of livestock farming is more than 13 times the average income of tourism. By implication tourism contributes less than livestock farming for households involved in both activities whereas it contributes higher than arable farming to total household income. These findings are in line with the study by Warren (2002) wherein it was posited that households are eager to keep livestock for the multiple benefits they provide, rather than for the social status as it has been in the past. For this reason, it is not surprising that the incomes generated from livestock farming are greater than those from arable farming as well as participating in tourism related activities because livestock farming does not only generate income from the sale of cattle but also from the sale of their products such as milk, sour milk, meat and leather products.

Iiyama (2006) notes that the varieties of livelihood or economic activities which households are involved in may have substantial impacts on income livelihood portfolios dependent on subsistent farm activities can be associated with lower income than those dependent on high-return commercial crops and exotic livestock. Equally, a livelihood diversification pattern dependent more on casual off-farm income may tend to have lower income than the one dependent more on regular off-farm income.

The implication portrayed by Table 1 is that even though only a few people (11.6%) are involved in tourism related activities relative to agricultural activities, the income it contributes to those involved in it is significantly higher than the income contributed by, more specifically, arable farming (despite the fact that it has the highest number of participants). In light of this, it can be concluded that tourism is a better option for reducing poverty in the area.

Table 1. Financial contribution of tourism and agriculture to household income

Livelihood Activity	Number of people participating	Aggregate Income of People Participating	Average Income of People Participating	Average Income of Sample (Pula)
Livestock farming	75	3 091 655.00	41 222.07	27 604.06
Arable farming	82	143 308.20	1747.66	1279.54
Tourism related activity	13	218 003.40	16 769.49	2076.82

### 8.3 Patterns of Livelihood Diversification

88.39% of the respondents indicated that they are involved in more than one livelihood activity, whereas only 11.61% were involved in only one livelihood activity. This seems to find support in the study on rural livelihoods in the Okavango Delta by Kgathi et al., (2004) wherein it is stated that the various combinations of different livelihood activities within a household indicates households' responses to minimise risk from shocks such as drought, animal and human diseases and major fluctuations in river flow.

Although livelihood diversification is significant in rural livelihood, it has often been ignored by many policy makers who have chosen to focus only on agriculture. In the late 1990s, research undertaken throughout in the sub-Saharan Africa highlighted the importance of non-farm activities, including tourism. Poorer people are particularly advised to diversify their sources of livelihood in order to be cushioned against risks and uncertainty. It is therefore argued that the findings are positive as they reflect a step in the right direction by the villagers in Boteti

sub-district in an attempt to reduce poverty levels.

According to Fabusoro et al (2010), livelihoods diversification is increasing mainly because of low income earned by small or subsistence farmers. However, there is a need to identify sustainable livelihood diversification portfolios rather than just the importance of diversification to households. That way, the households' income would be significantly increased and poverty levels would be greatly reduced.

#### 8.4 Determinants of Livelihood Diversification

In this study, the data generated were subjected to regression to ascertain the independent contribution of socioeconomic factors on the livelihood diversification index value. These factors include the personal traits of respondents (age of household head in years, years of education, and household size), income from livelihood activities (in Pula) and primary occupation the household is involved in, that is, non- farming or farming). The diversification index was obtained by dividing the number of livelihood sources the respective households were involved in by all the livelihood sources available in the study area.

In this study, the Tobit model was used to examine the determinants of livelihood diversification among households in the study area. All coefficients in Table 2 are significant at 10% level of significance. The results show that the coefficients of gender and household size are positive. This implies that female-headed and large-sized households have higher likelihood of being more diversified in their livelihood activities than male-headed and small-sized. This finding appears to be supported by Fabusoro et al (2010) wherein it is posited that family size influences the ability of a household to contribute to labour supply to the non-farm sector. Furthermore, it implies that female- headed families are more likely to be diversified when compared to male-headed families in the study area.

The coefficients of primary occupation and years of formal education are positive respectively. Households which have farming as their primary occupation are less likely to be diversified compared to those who have non-farming activities as their primary occupation. In other words, there is a direct relationship between non-farm income and diversification. This implies that the possibility of increasing diversification will be higher if higher returns are made from non-farm sources. Generally, if farmers can earn more income from agriculture, they will likely reduce participation in non-farm businesses because agricultural activities take time and a lot of effort.

Respondents with more years of formal education are engaged in better and well-paying jobs than those with no or less years formal education hence they have lower likelihood of combining two or more jobs. They are less likely to diversify their livelihood sources. This is because the more the years of formal education the better the opportunities of formal employment and hence the more the income.

The coefficient of income is negatively related to the index. This means that households that have more annual income are less likely to diversify their livelihood sources. This is probably because the more the income from a certain source, the more content and secure the individual and hence the less the need to hunt around for other livelihood sources.

Table 2. Tobit Regression result of the determinants of livelihood diversification

Variable	Coefficient	Standard Error
Gender	0.27225	0.013463
Size	0.003578	0.002181
Education	-0.03427	0.001938
Income	-1.84E-06	1.27E-06
Occupation	-0.001332	0.015353
Age	0.0561	0.000546
C	0.186321	0.040760

#### 8.5 Conclusion and Recommendations

This study analysed the financial contribution of tourism in contra-distinction to agriculture in Kumaga and Moreomaoto villages in Boteti sub- district. It was discovered that arable farming was practiced by the highest number of households but its average income contribution was far much less than that of tourism related activities. This implies that, despite having the smallest number of participants, tourism has the potential of

improving household incomes and hence it could be used as an important avenue of poverty reduction in the area. The study also analysed determinants of livelihood diversification among rural households in Boteti sub-district. It was revealed that livelihoods diversification among the households in the area is not new but rather a common practice.

The results revealed that it was quite rare to find a rural household without a non-farm income generating activity to support their income from farming. Livelihoods diversification is an important feature of rural survival and in a general sense, a way of improving income level. In this study, diversified livelihood systems are able to provide more income for the household while farming still occupies a key position as it was practiced by the majority of participants. In a nutshell, despite the diversification extent of the rural people, agriculture continues to constitute a significant share of their total income. The performance of the agricultural sector remains critical to food security of the villagers.

The results of the Tobit regression model on ascertaining the determinants of livelihood diversification showed that the coefficients of gender and household size positive. This indicates that any increase in the value of the coefficients of these variables have higher likelihood of influencing the estimated livelihood diversification index positively. Further, the coefficients of years of formal education, household income and primary were negative. Therefore, an increase in the value of any of these variables will negatively influence the estimated livelihood diversification index.

In light of the findings of this study, the following are recommended that there is a need, both in part of the government and the private sector to support agriculture and its related activities in the form of educating people in the area about agricultural practices that could best suit their climatic conditions as well as their environment in general.

Further, there is a need for the communities to be educated on the importance of tourism and how they could use it as a livelihood activity. As indicated, most of the people do not know that they could actually make a living from tourism even though they are involved in activities unique to their area such as wood carving, cultural tourism and basket weaving.

There is still room for further studies should be carried out, most preferably the clustering method as this could help, not only identify livelihood diversification determinants but also identify target groups, and hence guiding intervention at grassroots level.

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