

**LIVELIHOOD DIVERSIFICATION AND LABOUR INCOMES OF COMMERCIAL
SMALL-SCALE FARMERS IN THE CENTRAL REGION OF KENYA**

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ABSTRACT

Livelihood diversification is a strategy that entrepreneurial small-scale farmers adopt to deal with environmental hardships. This paper, attempted to estimate the influence of livelihood diversification on labor incomes of commercial small scale farmers in central region of Kenya where livelihood diversification was classified as on-farm and off-farm. A survey was carried out on small-scale farmers and the respondents were identified by transect sampling method. Data was collected by self administered questionnaire. Correlation and regression analyses were used to estimate the results. The study revealed that owning a car and education level are highly associated with labour incomes of small-scale farmers. Results of regression analysis show that higher labour incomes were realized by livelihood diversification of commercial small-scale farmers. Further analysis shows that livelihood diversification accompanied with government regulations, education level, access to loan and desire for independence play a significant role in the increase of the labour incomes of small farmers. The study recommends that government should establish financial institutions to offer credit facilities to small-scale farmers. Small-scale farmers should be encouraged to diversify their livelihoods to increase labour incomes. The government should facilitated the increase of education level by building and equipping more schools in order to increase labour incomes small-scale farmers.

Keyword: Livelihood Diversification, On-farm, Off-farm, Labour Incomes, Small-scale Farmers

INTRODUCTION

Small-scale farmers are defined as individuals who are involved in the growing of crops and keeping of livestock on small-pieces of land with limited use of modern technologies. This type of farming is usually characterized by intensive labour force and limited use of agrochemicals. In most cases these farmers sell their primary agricultural produces locally (Butler & Mazur, 2007). Small-scale farming account for approximately half of the less developed countries' undernourished. The small scale farming has a potential to empower the small farmers and reduce poverty. However, this does not seem to be the case for many small farmers, that is why entrepreneurial farmers are forced to diversify their livelihoods (AliOlubandwa, et. al., 2011).

The livelihood diversification can be described as a variety of income sources for a farmer which can be further be classified into two strategies namely on-farm and off-farm diversification (McNamara & Weiss, 2005). Livelihood diversification is one of the risk management strategies in agriculture. These strategies are used by farmers to deal with uncertainties that are occasioned

by fluctuations of price of farm produce together with that of farm inputs and outputs. The concept of livelihood diversification is to mitigate the possible losses from purely agricultural enterprise to be supplemented by profits from non agricultural enterprises (Masinde, 2014). This study investigated both on-farm diversification and off-farm diversification

Smale, Olwande and De Groote (2012) observed that many small scale farmers remain trapped in a poverty cycle from one season to another, which inhibits wealth accumulation, investment and transition to commercial farming. According to Jaleta, Gebremedhin and Hoekstra (2009), heterogeneity in farm management knowledge and practices among the small scale farmers in eastern Africa is not well known. Small-scale farmers struggle to access to advanced agricultural inputs. However, large-scale farmers with better access to land and assets are generally better positioned to sell their produce to organized markets (Pender & Gebremedhin, 2007). In addition, neither commercialization nor profitability is an automatic consequence of increased labour force and productivity (World Bank, 2014).

With respect to land, there is likelihood of decrease in farm size due to major cultural practices and lack of clear policy on land partitioning. This situation has led to significantly decrease in food security in eastern Africa (Ellis and Freeman, 2004). However, to reverse the situation it will require a greater focus on primary agricultural producers in human capital and decision-making together with a proper design and implementation of associated policy (Kirimu, *et. al.*, 2011).

Despite the importance of small scale agriculture in East Africa, the strategic choice and empirical analysis in the context of poverty among the small-scale farmers needs to be addressed by policymakers and development practitioners to reactivate agriculture as a source of income (Ellis and Freeman, 2004; Mathenge & Tschirley, 2009). It has been observed that many studies tend to examine specific constraints to small scale farmers' activities (Liverpool and Winter-Nelson, 2010; Reardon *et al.*, 2009; Markelova *et al.*, 2009; Obare *et al.*, 2003 and others), but do not take a proactive role to look at the alternative source of income in the sector. In contrast, this paper investigates the relationship between determinants of livelihood diversification and labour incomes.

Livelihood diversification

Livelihood diversification is an attempt by small-scale farmers to find new ways to raise incomes and reduce poverty. This is dependent on the decision of the farmer either to diversify or not (Hussein & Nelson, 1998). Livelihood diversification includes both on- and off-farm activities which are undertaken to generate income additional to that from the main agricultural activities, through value addition on agricultural produce and production of non-agricultural goods and services, the sale of waged labour (Carter, 1997; Stark & Levhari, 1982). Livelihood diversification has generally occurred as a result of an increased importance of both on-farm and off-farm economic activities (Ntale, 2013).

Off-Farm Diversification

According to development economics there are two main factors that drive diversification into off-farm activities among small-scale farmers in less developed countries. They are classified as “pull factors” and “push factors” (Pascotto, 2006). The reasons as to why small-scale farmers can be attracted into the off-farm diversification include higher returns to labour and/or capital and the less risky nature of investment (Kilic, et. al., 2009). The push factors which may force a farmer into off-farm income diversification include: the need to increase family income when farm income alone cannot suffice; the desire to mitigate agricultural production and market risks that are prevalence in the absence of insurance policies pertaining to agriculture; the need to earn income in order to finance farm investment because of the limited credit facilities for the farmers (Barrett et al., 2001; Kilic et al., 2009; Minot, et. al., 2006; Oseni and Winter, 2009; Reardon, 2009; Ruben and van den Berg, 2001).

The agricultural investment effect of off-farm income diversification is particularly important for small-scale farmers in the rural areas. This is due to limited liquidity and access to credit as the pressing setback for agricultural productivity among small scale farmers in least developed countries (Deininger et al., 2007; Haggblade et al., 2007). There is evidence that income realized from off-farm activities is constant and used as collateral for agricultural loans (Hert, 2009; Collier & Lal, 1986; Hoffman and Heidhues, 1993). In this sense the off-farm diversification could lead to reduction of the exposure to several sources of uncertainty that affect farm activities like climatic factors, pests and diseases, price and policies related to agricultural production, marketing and trade uncertainties. Then off-farm diversification could come in as a response to avoid these uncertainties related to on-farm diversification (Pham, Bui & Dao, 2010).

On-Farm Diversification

On-farm diversification is described as the allocation of land and labor in generating more than one agricultural product which raises the question of the reason for the diversification (Dorjee, et. al., 2003). On-farm diversification promotes the full employment of resources, and bridges the market efficiency gap. On-farm diversification has been considered as a main strategy to address various challenges facing small-scale farmers and as a response to opportunities (Nguyen, Nguyen & Ho, 2013). It improves farmers’ nutrition, and more dynamic farmers can diversify agricultural products to meet changing consumption patterns as consumers become rich and lead to rapid growth of urbanization. This kind of diversification can as well allow small farmers to increase their revenue through supply of agricultural products to potential market abroad (Binswanger-Mkhize, 2013).

Mundlak (2001) gave possible reasons for on-farm diversification as: (a) interdependence in agricultural production, (b) Better utilization of some fixed inputs, (c) savings due to vertical integration, and (d) risk management. The two major on-farm diversification strategies for farmers are: crop rotation and intercropping. Chavas, (2001 and Lin, et. al., (1974) stated that there was evidence that risk reduction was the most important reason for on-farm diversification.

Therefore, with on-farm diversification, farmers are able to spread the risk of loss over several agricultural produce and reduce the probability of getting a loss from farming activities. According to Anderson, et. al., (2002), lower return in agriculture could be compensated by risk adverse farmers.

Agricultural Labour Incomes

Small-scale farmers in the rural areas earn their incomes from various sources including cultivation, livestock, agricultural wage labour and other non-farm occupations. Kapur, *et. al.* (2010) and Himanshu, *et. al.*, (2013) stated that apart from crop production which is considered the mainstay of small-scale in rural areas, livestock and agricultural labour income supplement the incomes of farmers who solely depend on farm based activities (Kutus, Evans & Ngau 1991). As economies grow and diversify into various non-farm activities, small-scale farmers in the rural setting tend to earn more incomes from non-farm activities (Braganza, 2014). Scholars list a number of factors such as education, skills, caste, religion, asset ownership, household size, and credit availability which influence the decision of farmers participating in off-farm diversification for improved labour income (Srivastav & Dubey, 2002; Chadha and Sahu, 2002; Reardon et al., 2009; Jatav, 2010; Jatav and Sen, 2013).

When members of rural households migrate to other urban areas for employment and the internal remittances also become an important source of income for the small-scale farmers who remain at home. This rural urban migration could be driven by the good opportunities provided in the urban areas. The monopoly of agriculture-based activities in total income has decreased in terms of employment and share of income. Participation of rural households in off-farm diversification has expanded greatly (Binswanger-Mkhize, 2013, Bhalla, 2002; Bhaumik, 2002; Chadha, 2002; Coppard, 2001; Srivastav and Dubey, 2002; Sahu, 2003).

Small-Scale Farming in Kenya

Small-scale farming is a common farming practice in Kenyan rural areas where majority of the small-scale farmers are subsistence producers of staple foods with an occasional surplus for sale (Dose, 2007). Unfortunately, there has been decreasing productivity in this type of farming system. This is due to a number of factors such as low use of purchased input technologies, dependence on rain-fed production, and soil degradation as a result of long term practices of subsistence agriculture associated with use of maize mono-cropping and use of chemical fertilizers which leads to loss of soil organic matter, fertility and structure (Mwale, et. al, 2007). Despite the government of Kenya spending money to improve livelihoods of small scale farmers through a number of programs put in place such as the Farmer Input Support Program (FISP), there are high levels of poverty and food insecurity among rural households. Food insecurity is widespread in both rural and urban areas (FAO, 2012; Olwande, Smale, Mathenge, Place & Mithöfer, 2015).

Small-scale farmers often face challenges in production and marketing of their produce as they

usually sell their produce directly to the middlemen or to the local markets at low prices Jatav (2010). This disadvantages farmers to price takers irrespective of the costs they incur in the production and marketing process. In addition, they bear the risk of not being able to market the entire amount of their agricultural produce (Collier & Lal, 1986; Kundu, et. al., 2003). With most of Kenya's land mass being arid or semi-arid, only about 20 per cent is suitable for farming. About 80 per cent of Kenya's work force engages in farming or food processing. Farming is typically carried out by small-scale farmers who usually cultivate on less than five acres of land based on limited technology. Small-scale farms account for 75 per cent of total agricultural production in Kenya (Mathenge & Tschirley, 2009).

METHODOLOGY

A cross-sectional survey was carried out on small farmers in Murang'a and Kiambu counties of Kenya. A multistage sampling technique was used to identify the sub-counties for the 1st stage, divisions for the 2nd stage, locations for the 3rd stage, and sub-locations for the 4th stage. Line transect sampling technique was used to identify the household farms. The sample size was calculated using the following formula of Webster (1995) given below.

$$n = \frac{z^2 \pi(1 - \pi)}{(\text{error})^2}$$

Where π is taken to be 50% proportion of small-scale scale farmers diversifying their livelihoods. At the 95% desired level of confidence and margin error of 5% the sample size (n) was calculated as follows:

$$n = \frac{(1.96)^2 (0.5)^2}{(0.05)^2} = 384$$

≈ 388 small-scale farmers

Descriptive statistics was used to estimate the proportions of livelihood diversification among small farmers while correlation analysis was used to estimate the association of the livelihood diversification and labour income. The correlation coefficients were estimated using the following formula:

$$r = \frac{n \sum xy - \sum x \sum y}{\sqrt{[n(\sum x^2) - (\sum x)^2][n(\sum y^2) - (\sum y)^2]}}$$

Where: r is sample correlation coefficient, n represents sample size, x are livelihood diversification and y is labour incomes.

The effect of livelihood diversification on log of labour income was estimated by OLS and 2SLS methods. The estimating equation was as stated below:

$$\text{Log_income} = \gamma_0 + \gamma_1 \text{OND} + \gamma_2 \text{OFFD}_i + \gamma_3 \text{PS}_i + \gamma_4 \text{M}_i + \varepsilon_i$$

Where Log_income is the logarithm of the amount of money earned by a farmer per month, OND is on-farm diversification where a farmer i adds value to agricultural produce and $OFFD$ is off-farm diversification where a farmer i is engaged in non-agricultural business, PS_i is a set of personal and social characteristics and M_i is a set of motivating factors, while ϵ is the error term

RESULTS

Descriptive Statistics

The results show that 29% of the respondents above the average age of 49 years were found to be in non-agricultural businesses, 6% are adding value while 88% are practicing mixed farming. A 10% of those in this category had post secondary education while there were no respondents below the age of 25 years who had post secondary education. This could mean that young people who had attained post secondary education were employed elsewhere. A 92% of the respondents were married, 44% of those interviewed had other professions and 79% of those with other professions had post secondary education level, 72% were in service industry which included teachers, nurses, salonists and clinical officers, 4% were technicians such as carpenters and Jua kali artisans. 51% of the respondents were women out whom 9% had post secondary education while 15% of the male respondents had attained post secondary education. Among those with no education at all 67% were women while 33% were male. However, it should be noted that only 6% of the respondents had no education.

Correlation Analysis

Correlation of On-farm Diversification with Selected Variables

Table 1 shows the correlation coefficients (r) of on-farm diversification with selected farm attributes, personal & social characteristics, motivation and environmental factors.

Table 1 Correlations of On-farm Diversification with Selected Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1. On-farm diversification	1.0000													
2. Farm size (in acres)	-0.0087	1.0000												
3. Running water	0.0672	-0.0110	1.0000											
4. Electricity	0.1632	-0.00	0.2597	1.0000										

		79												
5. Education level (in yrs)	0.0880	-0.1508	0.1587	0.2563	1.0000									
6. Gender (1 = male)	0.0454	0.1194	0.1145	0.1085	0.1644	1.0000								
7. Marital status (1=married)	-0.0033	0.0453	0.0309	0.0023	0.0615	0.1205	1.0000							
8. Age (in yrs)	-0.0499	0.2422	0.0901	-0.0017	-0.3346	0.2176	-0.0460	1.0000						
9. Land	0.2247	0.0101	0.2460	0.3382	0.1890	0.0895	0.0148	0.0232	1.0000					
10. Permanent house	0.0921	0.0511	0.1322	0.2109	0.1321	0.0773	-0.0310	0.0733	0.3915	1.0000				
11. Livestock	0.1323	0.0183	0.1081	0.1000	0.0967	-0.0353	0.0559	0.0421	0.2552	0.2850	1.0000			
12. Television set	0.0804	0.1265	-0.0207	0.2732	0.1314	-0.0681	-0.0027	-0.0929	0.1922	0.1778	0.3502	1.0000		
13. Motor vehicle	0.1554	-0.0912	0.2357	0.2752	0.2548	0.0119	0.0085	-0.0758	0.3663	0.2588	0.1339	0.0989	1.0000	
14. Labour income (in Kes)	0.1320	-0.0917	0.2175	0.3066	0.4780	0.0941	0.0074	-0.1280	0.4160	0.2478	0.2063	0.1409	0.5928	1.0000

The results show that a 10% increase in the proportion of farmers having electricity in their farms is associated with 16.35% increase in the probability of on-farm diversification among framers. Similarly, a 10% increase in on-farm diversification is associated with 16.35% increase in the probability of farmers having electricity. A 2.3% increase in on-farm diversification is associated with 1% increase in the probability of a farmer buying an extra acre of land. In other words, 1% increase in probability of a farmer purchasing an extra acre of land is associated with a 2.3% increase in the probability of on-farm diversification. About 13.2% increase in the farmers income is associated with a 10% increase in the probability of farmers diversifying. On the other hand, a 13.2% increase in on-farm diversification is associated with the probability of income rising by 10%. While a 10% increase in the proportion of men is associated with 4.54% increase in the probability of a farmer adding value to their primary agricultural products.

Table 2 shows the correlation coefficients of off-farm diversification with selected farm attributes, personal & social characteristics, motivating and environmental factors. The results show that a 10% increase in off-farm diversification is associated with 2.5% increase in the

probability of farmers purchasing one more acre of land. Similarly, 10% increase in the proportion of farmers building permanent houses is associated with 1.675% increase in the probability of off-farm diversification. On other hand, 10% increase in the proportion of farmers buying motor vehicles is associated with 2.868% increase in the probability of off-farm diversification. 10% increase in the incomes of farmers is associated with 3.646% increase in the probability of off-farm diversification.

It was further established that a 10% increase in the proportion of farmers having water on the farm is associated with 2.64% increase in the probability of off-farm diversification. While a 10% increase in off-farm diversification is associated with 2.64% increase in the probability of farmers having running water on their farms. A 10% increase in the proportion of farmers having electricity on their farms is associated with 2.35% increase in the probability of farmers doing non-agricultural businesses or 2.35% increase in the proportion of farmers having electricity on the farms is associated with 10% increase in the probability of off-farm diversification

Table 2 Correlations of Off-farm Diversification with Selected Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1. Off-farm diversification	1.0000													
2. Farm size (in acres)	-0.2151	1.0000												
3. Running water	0.2638	-0.0110	1.0000											
4. Electricity	0.2348	-0.0079	0.2597	1.0000										
5. Education level (in yrs)	0.3769	-0.1508	0.1587	0.2563	1.0000									
6. Gender (1 = male)	0.1570	0.1194	0.1145	0.1085	0.1644	1.0000								
7. Marital status(1=married)	-0.0066	0.0453	0.0309	0.0023	0.0615	0.1205	1.0000							
8. Age (in yrs)	-0.1597	0.2422	0.0901	-0.0017	-0.3346	0.2176	-0.0460	1.0000						
9. Land	0.2451	0.0101	0.2460	0.3382	0.1890	0.0895	0.0148	0.0232	1.0000					

10. Permanent house	0.1675	0.0511	0.1322	0.2109	0.1321	0.0773	-0.0310	0.0733	0.3915	1.0000				
11. Livestock	0.0420	0.0183	0.1081	0.1000	0.0967	-0.0353	0.0559	0.0421	0.2552	0.2850	1.0000			
12. Television set	0.0203	0.1265	-0.0207	0.2732	0.1314	-0.0681	-0.0027	-0.0929	0.1922	0.1778	0.3502	1.0000		
13. Motor vehicle	0.2868	-0.0912	0.2357	0.2752	0.2548	0.0119	0.0085	-0.0758	0.3663	0.2588	0.1339	0.0989	1.0000	
14. Labour income (in Kes)	0.3646	-0.0917	0.2175	0.3066	0.4780	0.0941	0.0074	-0.1280	0.4160	0.2478	0.2063	0.1409	0.5928	1.0000

10% increase in the average education level of farmers is associated with 3.77% increase in the probability of off-farm diversification. Similarly, 10% increase in off-farm diversification is associated with 3.77% increase in the probability of one year increase in the average level of education. 10% increase in the proportion of men is associated with 15.7% increase in the probability of off-farm diversification or 10% increase in the off-farm diversification is associated with 15.7% increase in the proportion of men.

Regression Analysis

The effect of livelihood diversification on labor income was estimated by the regression model. The results are summarized in the table 3. The Two Stage Least Square (2SLS) results in table 3 indicate that a 10% increase in on-farm diversification among farmers increases income by 17.16% ($t = 3.39$) while a 10% increase in off-farm diversification increases incomes of farmers by 14.18% ($t = 7.24$) as compared to structural diversification. R^2 of the model is 0.2348 meaning that 23.48% of the variations in the incomes of the farmers are explained by on-farm and off-farm diversifications. The p -value of F – statistics of log income predictor model is zero meaning that the hypothesis that the log income of farmers has no relationship with on-farm and off-farm diversifications is rejected.

After controlling for the other independent variables, the effect of off-farm diversification on log income is 8.52% ($t = 1.80$). 2SLS estimates show that a 10% increase in the number of years of schooling and access to loans among farmers increase log income by 0.63% ($t = 3.63$) and 5.19% ($t = 2.93$), respectively. R^2 of the model is 0.4191 meaning that 41.91% of the variations in the incomes of the

farmers are explained by on-farm and off-farm diversifications. The p -value of F - statistics of log income predictor model is zero meaning that the hypothesis that the log income of farmers has no relationship with on-farm and off-farm diversifications is rejected.

Table 3: Effect of Livelihood Diversification on labor income, OLS and 2SLS Estimates

(Absolute t -Statistics in parentheses)

Variables	Log income			
	OLS Estimates		2SLS Estimates	
<i>Type of diversification</i>				
On-farm diversification (x 10)	.06622 (3.06)	.01148 (0.60)	.17160 (3.39)	.06778 (0.97)
Off-farm diversification (x 10)	.07855 (7.31)	.03184 (2.99)	.14186 (7.24)	.08517 (1.80)
<i>Personal and social characteristics</i>				
Years of schooling		.00754 (5.87)		.00633 (3.63)
Gender (1 = male)		.00567 (0.62)		-.00026 (0.02)
Age		.00024 (0.63)		.00050 (1.15)
<i>Motivating factors (dummies)</i>				
Desire for financial security		.02356 (1.11)		.02789 (1.28)
Desire for food security		-.00312 (0.14)		.01854 (0.66)
Cost of farming		.01396 (1.42)		.00158 (0.11)
Unfavorable government Regulations		.03006 (2.92)		.03137 (2.93)
Access to loan		.06888 (6.55)		.05190 (2.93)
Insurance availability		-.00870 (0.80)		-.01535 (1.25)
Existence of business opportunity		.01402 (1.24)		.00517 (0.38)
Desire for independence		-.03111 (2.45)		-.03845 (2.72)
Desire for achievement		.02026 (1.33)		.03234 (1.77)
Desire for social status		-.00562 (0.49)		-.01947 (1.19)
Weather conditions (1 = weather)		.02945 (1.89)		.02375 (1.45)
Constant	8.2475 (124.66)	6.7974 (20.94)	7.9441 (98.88)	6.6320 (18.71)

R^2	0.1466	0.4283	0.2348	0.4195
F -Statistics (p -value)	34.24 (0.0000)	19.12 (0.0000)	60.38 (0.0000)	18.48 (0.0000)
Observations	388	388	388	388

Source: compiled by Authors

The results above show that there is an association between labour incomes and livelihood diversification regardless of the form of diversification (off-farm and on-farm diversification). These results concur with that of Ellis and Freeman (2004) who compared and contrasted rural livelihoods of the African countries namely Kenya, Uganda, Malawi and Tanzania. Their results show a high correlation between labour incomes and livelihood diversification of farmers. The authors further observed that profits from off-farm activities enabled small-scale farmers to hire labour to undertake agricultural activities in good time and also helped in purchasing farm inputs. Kutus, Evans and Ngau (1991) found out that there existed a positive and significant effect of off-farm labour incomes on the expenses incurred by farmers.

The findings of the study show that desire for food security has no significant effect on the labour incomes of the farmers. This seems to contradict the study done by Collier and Lal (1986) who found that there was a significant positive relationship between non-farm income and crop output after controlling for production inputs. The authors argue that non-farm income enables farmers to make more productive use of inputs by allocating them in riskier or higher-yielding activities, which often requires cash investment. The study established that access to loan has a significant effect on the labour incomes of small-scale farmers. This is in line with that of Mathenge and Tschirley (2009) who investigated off-farm activities and farm production decisions of maize farmers and found out that off-farm labour income has a high and significant effect on fertilizer use and reduces credit obligations to specialized agriculture among small-scale farmers that are not a member of SACCOs groups. This increased livelihood diversification which could be seen as an indicator of expanding economic opportunities and thus expected to increase labour incomes. Although the Kenyan government has initiated some institutions such as women and youth development funds; she is yet to establish such initiatives specifically targeting smallholder farmers.

Off-farm diversification is largely related to unfavourable government regulations of specialized agriculture. These findings make sense because when farmers find that government regulations on agriculture are not favourable they diversify to non-agricultural activities. Jatav (2010) Kundu, et. al. (2003) and Reardon, et. al. (2009) look at this not to be always true because accessibility to non-farm opportunities are unequal among the farmers. They further argue that if profitable non-farm opportunities end up being exploited largely by well established farmers, there could be an increase off-farm diversification, but this is not always the case as some farmers concentrate on specialized farming. Given such contradictory possibilities, there might also be other factors that might explain the linkage between livelihood diversification and labour income of small-scale farmers. The current study found this to be true as it was established that years of schooling, unfavourable government regulations and desire for independence have a

significant role to play in the labour incomes of the farmers over and above the livelihood diversification. This is further supported by Kapur, *et. al.* (2010) and Himanshu, *et. al.*, (2013) who suggested that social factors have an effect on livelihood diversification.

CONCLUSION AND RECOMMENDATIONS

The study findings show that livelihood diversification has a significant effect on the labour incomes of the farmers. However, holding personal and social characteristics together with motivating factors, it was established that only off-farm diversification has a significant effect on the labour incomes of the farmers. It was further established that years of schooling, access to loan and desire for independence have a significant effect on labour incomes. Livelihood diversification therefore, can be considered to be one of the most likely strategies which can lead to promotion of labour incomes of small-scale farmers. Off-farm diversification is an adjustment of farming activities that allow a farmer to combine various or complimentary agricultural activities which can lead to higher labour returns.

The study recommends that government should establish financial institutions which can offer credit facilities or loans to farmers at reasonable rates. This will enable small-scale farmers to be more entrepreneurial to better livelihoods. Farmers should be encouraged to diversify their livelihoods as this will lead to labour incomes. The government should intensify free primary and secondary education by building and equipping more schools, since education was found to have a significant influence on labour incomes among farmers.

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