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DOES GENDER MAKES ANY DIFFERENCE IN LIVELIHOODS DIVERSIFICATION? EVIDENCE FROM NORTHERN GHANA

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ABSTRACT: *The fact that rural livelihood portfolios is expanding and diversifying beyond agriculture is not contested. However, very little is known on gender dimension of rural livelihoods diversification and whether gender makes any difference in rural dwellers construction of livelihood portfolios. This paper therefore presents findings of analysis of data obtained from USAID sponsored Feed The Future population baseline survey conducted in 2012 in their Northern Ghana Zone of Influence, with the view of examining gender dimension of livelihoods diversification among the 13,580 respondents who were 15 years or older. Results of the analysis revealed* significant *gender differentiation in number of livelihood activities engaged in by men and women. The results established that livelihoods diversification is common across gender in Northern Ghana, but men are more likely to engage in more livelihood activities than women. Significantly more men than women were found to have been engaged in paid wage labour within the last 12 months, with women dominating the non-farm self-employed livelihood enterprises. This paper therefore recommends that, measures aim at women economic empowerment, should target providing training and financial support to enable women improve their non-farm livelihood enterprises.*

KEYWORDS: Livelihoods, Diversification, On-farm, Non-farm, Gender

INTRODUCTION

The 6th Round of Ghana Living Standard Survey results established variations within the various age groups for males and females participation in the labour market(GSS, 2013). The report further found that, the current labour force participation rates by sex are slightly higher for males (60.6%) than females (59.3%). According to Food and Agricultural Organization (FAO), 'efforts to promote gender equity in labour markets and income generating activities, as well as to support decent employment initiatives in rural areas, are hampered by the lack of comprehensive information on the multiple dimensions of social and gender inequalities, particularly in rural areas (FAO, 2012; P6). Very little gender disaggregated data exist regarding men and women engagement in various livelihood portfolios and gender specific challenges in livelihood diversification within and outside agriculture in predominant farming areas.

Available evidence portrayed rural livelihoods diversification as a continuously occurring phenomenon of adding onto on-farm livelihood portfolios, new forms of non-farm livelihood activities including wage labour, thereby expanding available livelihood options for both men and women (see Davis, 2006; Services, 2011; FAO, 2012 & Elborgh-woytek *et al*, 2013). The fact that women and men particularly in Africa have significantly different roles in the making

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of livelihoods decisions, calls for the need to further understand how gender influence individual livelihood portfolios and livelihoods diversification among men and women (Simtowe, 2010). According to report of FAO's country profile on Ghana, majority of rural Ghanaians are self-employed in both agricultural and non-agricultural activities, and that 56 percent has a second job or more, indicating livelihood diversification and pursue of various livelihood portfolios for their living. Also the report observed that overall, very few Ghanaians engage in paid labour and when opportunities exist, women are at a disadvantage. In rural areas, men participate five times more in wage-employment than women (FAO, 2012). Rural women are more likely to be engaged in unpaid family work and in non-agricultural self-employment activities than rural men.

Also results of Ghana Living Standard Survey (GLS) round six (6), shows that more than half (51.8%) of currently employed persons aged 15 years and older are engaged as skilled agricultural, forestry and fishery workers. The survey further found that agricultural, forestry and fishing are the dominant occupation for both men and women, however, it accounts for a higher proportion of employed males (56.4%) than females (47.5%).The distribution by locality shows that the highest proportion of the employed urban population are engaged as sales and service workers (37.0%), while in the rural areas the dominant occupation is agricultural, forestry and fishery workers (71.0%) (GSS, 2013).

Even though agriculture or on-farm livelihood activities, particularly food and cash crops production, livestock rearing and fishery, income from non-farm sources is increasingly becoming important source of income in Ghana. However, while non-farm self-employed income reduced income inequality, non-farm wage income increased income inequality (GSS, 2013 & Senadza, 2011). Senadza, (2011) further explained that the tendency for non-farm income to increase income inequality is usually caused by certain entry barriers which limits poorer households from participating actively in the non-farm sector. However, very few evidence by way of empirical studies actually examined gender differential participation in various livelihood portfolios available in Northern Ghana by way of combination of on-farm and non-farm livelihood options in an attempt to diversify livelihood strategies and income. This current paper presents findings of analysis of a population baseline survey conducted in the Northern Ghana Zone of Influence of the Feed the Future (FTF) programme initiated by the United State Agency for International Development (USAID).

MATERIALS AND METHODS

This paper sourced data from a population baseline survey conducted by Monitory and Evaluation Technical Support Services (METSS), together with Ghana Statistical Services (GSS) and Institute of Statistics, Social and Economic Research (ISSER) of the University of Ghana, for USAID Future The Future Programme in their Northern Ghana Zone of Influence (ZOI), to examine gender dimension of livelihoods diversification. The survey was to generate data for FTF impact and outcome indicators, in their Zone of Influence (ZOI) within northern Ghana (Maberry et.al, 2014). The survey covered 4,410 households with nearly 25,000 individuals in 45 districts across the four regions (Brong/Ahafo, Region, Upper West and Upper East Regions) of northern Ghana (Zereyesus *et a*l, 2014). The full survey results which provided data for this paper may be viewed here: http://www.metss-ghana.ksu.edu/population.html

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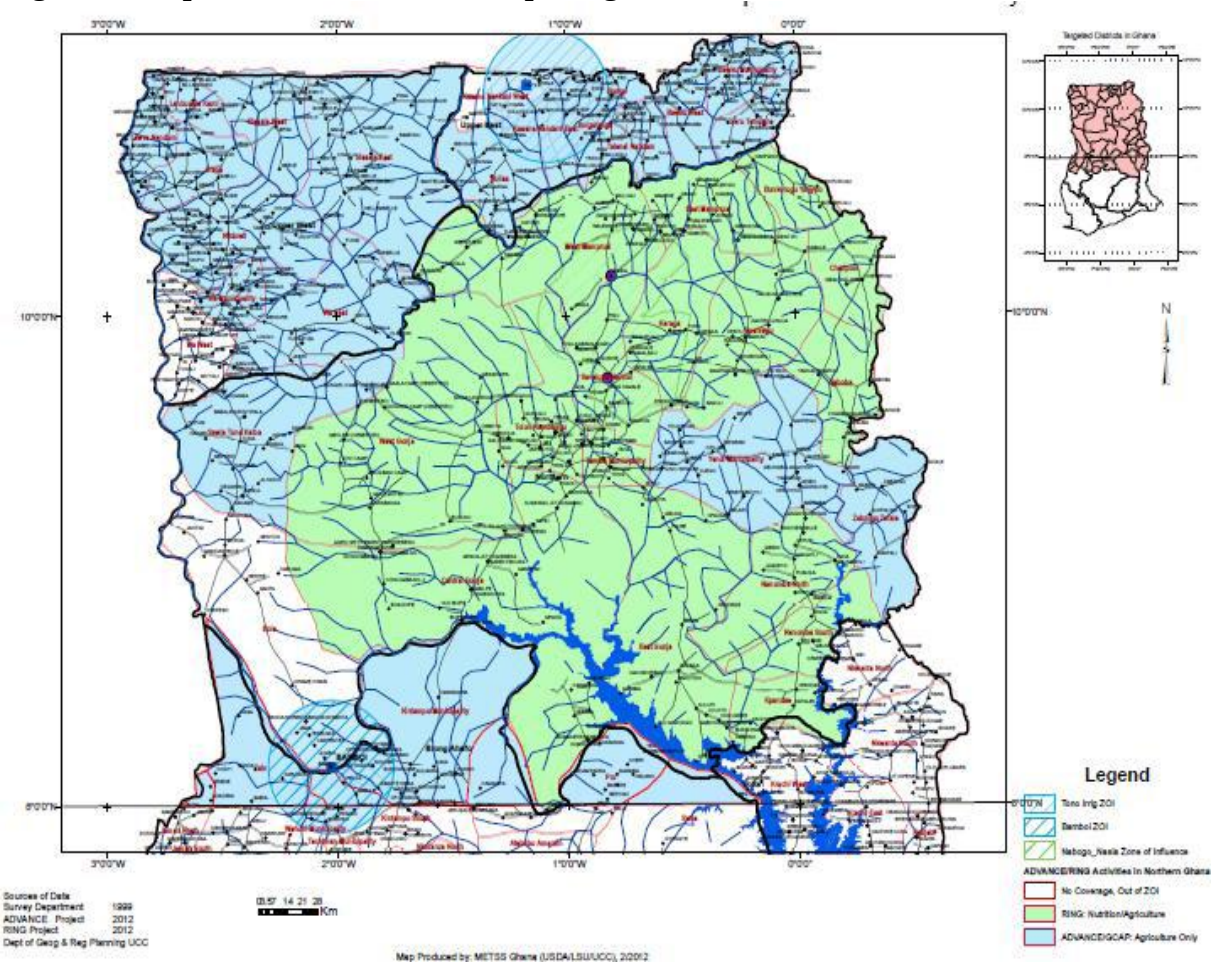
Out of the 25, 000 individuals from the 4,410 households covered in the 45 districts across the four regions, 13, 580 of the them were 15 years or older, the official working age of the country (see NYC, 2012; Jane and Baah, 2006 & Labour Act (Act 651; 2003)) and as such constitute the sample for this paper. The Northern Ghana Zone of Influence (ZOI) of FTF programme fall within the Savannah Accelerated Development Authority (SADA) Area. The Northern Ghana Zone of Influence which encompasses the area above Ghana's 8th parallel consist of the whole of Northern, Upper West, and Upper East Regions, and Northern parts of Brong/Ahafo Regions (Zereyesus et al, 2014). Map of the areas covered by the USAID/FTF population baseline survey is presented in Figure 1.

Figure 1: Map of Northern Ghana, Depicting the Zone of Influence of FTF Intervention



Source: METSS-GHANA, (2012)

Methods of Data Analysis

Chi-square analysis was used in analyzing gender disparities in various livelihood enterprises such as on-farm, non-farm self-employed enterprises and wage labour. It was also used to examine whether there exist significant difference in livelihoods diversification between men and women. As such the null hypotheses stated below was tested:

Ho_1: there is no significant difference in the engagement of livelihoods diversification activities between men and women in northern Ghana.

Print ISSN: ISSN 2058-9093 Online ISSN: ISSN 2058-9107

The Chi-square formula below was applied. Stata version 11 statistical software package was used to aid data entering and analysis.

$$\chi^2 = \frac{\sum(O-E)^2}{E}$$

Where O = Observed frequency and E = Expected frequency

Similar analytical techniques was used by Ushie, Agba, Ogabohagba & Best (2010) in analysing supplementary livelihood strategies among workers in Nigeria. Also Nasa, Atala, Akpoko & Kudi, (2010) used Chi-square analysis to analyze factors influencing rural farmer's engagement in livelihood diversification activities in Giwa Local Government Area of Kaduna state.

In comparing the number of livelihood activities engaged in by men and women within the last 12 months, one way Analysis of Variance (ANOVA) was employed to test whether there exist significant difference in the mean number of livelihood activities engaged in by women as compare with that of men. F-distribution or test was used to test the hypothesis that:

Ho_2: There is no significant difference in the mean number of livelihood activities engaged in by men and women in Northern Ghana

In assessing livelihood diversification in rural coastal communities, Jayaweera, (2008) used similar Analysis of Variance to test significance difference in income among the various livelihood strategies engaged in. Also Oyesola & Ademola, (2012) used similar analysis of variance with F-test in their study on Gender Analysis of Livelihood Status among Dwellers of Ileogbo Community in Aiyedire Local Government Area of Osun State, Nigeria.

RESULTS AND DISCUSSION

Results of analysis of socioeconomic characteristics of the 13,580 working-age respondents covered in the survey by gender is shown in the Table 1. As shown in the Table, household size, marital status, location, access to credit and working hours per day were found to differ significant between men and women respondents. Household size was found to differ at 10% level of significant between men and women with $\chi 2$ (1) = 3.0186 (P = 0.082). Demonstrated that men were more likely to come from large households with membership being more than four (4) persons than women respondents. From the results of 2010 Ghana Population and Housing Census (PHC), average household size was found to be four persons per household and that informed the categorization of households in this paper (see GSS, 2012). About 73% and 74% of women and men respondents came from households of more than four persons, indicating that most households in Northern Ghana are quit large as compare with the national average.

Also women and men differ significantly at 5% level ($\chi 2$ (1) =4.3232; P = 0.038) in terms of marital status, men were found more likely to be single than women. As shown in the Table 1, close to two-third (65%) of the 6,332 women of working-age captured in the survey were single compare with 67% of the 7,348 men who were also single. Thus women who were married were 2% points more than married men. But in all only 34% of the respondents were married. This compare fairly well with results of the 2010 Population and Housing Census which

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revealed that in 2010, about 42 percent had never been married, 43 percent had been married, and five percent were widowed (GSS, 2012).The study also found significant difference in the location of respondents, as either urban or rural, between women and men at 1% level of significant ($\chi 2$ (1) = 13.1103; P = 0.000). As shown in the Table, 21% and 23% of women and men respectively indicated that they were from urban areas, while 79% and 77% women and men respectively were from rural areas. Thus overwhelming majority (78%) of respondents covered in the survey were from rural communities, reflecting the population dynamics of the three northern regions as observed in the 2010 Ghana Population and Housing Census. The population results reveals that about 69.7%, 79% and 83.7% of the population of Northern region, Upper East and Upper west regions respectively, are from rural areas (GSS, 2012).

According to Ghana Labour Act 651 (2003), official working hours per day in the country is eight (8) hours as provided for in Sections 33 to 39 of the Labour Act 651. As such, this study classified working hours of respondents as 'eight (8) hours or less' or 'more than eight (8) hours'. With regard to working hours per day, findings of the analysis established significant difference in the number of working hours per day between women and men at 1% level of significant. As shown in the Table 1, women were found more likely to work more than eight (8) hours per day than men. This was both paid work and unpaid work such as domestic activities such as child caring, cooking, and cleaning of home among others. From the table, about 60% of women work usually more than eight hours as compare with 40% of men who also work more than eight hours. Also, more women than men have borrowed within the last 12 months compare with men, although respondents' general access to formal credit is very poor with only 12% of them reported to have borrowed within the last 12 months. About 16% of women and 8% of men respectively borrowed within the last 12 months to the time of the interview. This is understandable because the advent of microcredit institutions in Ghana have improved women access to credit more compare with men. As observed by Lott, (2009: pp220) 'microcredit is firmly associated with poor women who are the principal borrowers and, therefore, the principal beneficiaries of the programs'.

However, age, literacy, household status and household structure were found not to differ significantly between men and women. Majority (69%) of the respondents were within their youthful age of 35 years or younger, with only 31% of them being able to read and/or write. Overwhelming majority (80%) of the 13,580 respondents surveyed were from male headed households whiles the remaining 20% were from female headed households, indicating that households in Northern Ghana are predominantly male headed households. Also, most (83%) of the households were mixed adult (male and female adults) households with only 17% of respondents said they are from households of either adult male only or adult female only. Indicating that households in the northern Ghana are mixed adult gender structured households.

Table 1: Crosstabulation of Socioeconomic Characteristics by Gender

Variable	***Gender***		***Total***
Age	**Women**	**Men**	
35 years or younger	4,340(69%)	4,991(69%)	9,331(69%)
More than 35 years	1,992(31%	2,257(31%)	4,249(31%)
Total	**6,332(100%)**	**7,248**	**13,580(100%)**
			$\chi 2$ (1) = 0.1606;P = 0.689
Household Size			
Four (4) persons or less	1,710(27%)	1,862(26%)	3,572(26%)
More than four (4) persons	4,622(73%)	5,386(74%)	10,008(74%)
Total	**6,332(100%)**	**7,248 (100%)**	**13,580(100%)**
			$\chi 2$ (1) = 3.0186;P = 0.082*

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Marital Status			
Single	4,106(65%)	4,823(67%)	8,929(66%)
Married	2,226(35%)	2,425(33%)	4,651(34%)
Total	**6,332 (100%)**	**7,248 (100%)**	**13,580(100%)**
			$\chi 2$ (1) =4.3232;P = 0.038**
Literacy			
Cannot read and/or write	5,024(79%)	5,785(79%)	10,809(79%)
Can read and/or write	1,308(31%)	1,463(31%)	2,771(31%)
Total	**6,332 (100%)**	**7,248 (100%)**	**13,580(100%)**
			$\chi 2$ (1) = 0.4638;P = 0.496
Location			
Urban	1,296(21%)	1,670(23%)	2,966(22%)
Rural	5,036(79%)	5,578(77%)	10,614(78%)
Total	**6,332 (100%)**	**7,248 (100%)**	**13,580(100%)**
			$\chi 2$ (1) = 13.1103;P = 0.000* **
Household Status			
Female Headed	1,173 (18%)	1,275(18%)	2,448(18%)
Male headed	5,159(82%)	5,973(82%)	11,132(80%)
Total	**6,332 (100%)**	**7,248 (100%)**	**13,580(100%)**
			$\chi 2$ (1) = 1.9947;P = 0.158
Household Structure			
Mixed Adults (by sex)	5,238(83%)	6,070(84%)	11,308(83%)
Males only or females only	1,094(17%)	1,178(16%)	2,272(17%)
Total	**6,332 (100%)**	**7,248 (100%)**	**13,580(100%)**
			$\chi 2$ (1) = 2.5465;P = 0.111
Working Hour per day			
Eight (8) hours or less	2,522 (40%)	4,324(60%)	6846(50%)
More than eight (8) hours	3,810 (60%)	2,924(40%)	6734(50%)
Total	6,332 (100%)	7,248 (100%)	13,580(100%)
			$\chi 2$ (1) = 530.73;P = 0.000* **
Access to credit			
Borrowed within the last 12 months	1, 013(16%)	585(8%)	1598(12%)
Could not borrowed within the last 12 months	5,319(84%)	6,663(92%)	11982(88%)
Total	**6,332(100%)**	**7,248 (100%)**	**13,580(100%)**
			$\chi 2$ (1) = 203.77;P = 0.000** **

Note: (***) indicate variable is significant at 1%; (**) indicate variable is significant at 5% and (*) indicate variable is significant at only 10%

Source: Analysis of data from Feed the Future Population Baseline Survey, 2012

Gendered Disparities in Engagement in Livelihood Activities

As part of obtaining information on people engagement in various livelihood activities, participants in the survey were asked whether they have participated in various livelihood activities within the last 12 months. As captured in the Ghana Living Standard Survey Round six, which gathered information on labour force and economic activities in the country, the livelihood activities in Northern Ghana is predominantly agricultural based, such as food crop production, cash crop production, livestock rearing and fishery. Non-farm livelihood activities were wage labour and Non-farm self-employed livelihood enterprises such as trading, agro-processing, food vendoring, and artisanship among others (GSS, 2013).

As observed by Senadza, (2011), inspite of the fact that income from on-farm livelihood activities continue to constitutes the backbone of the rural economy in most developing

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countries, incomes from wage labour and other non-farm income generating activities have increasingly become significant. Similar findings were made by FAO, (2012) and IFAD, (2010). As such, this paper examined gender perspectives of labour participation in both on-farm and non-farm livelihood activities undertaken by the 13,580 respondents surveyed in the USAID/FTF population baseline survey conducted in 2012 in Northern Ghana to secure food and income security

To examine whether there exist any gender disparities in engagement on various livelihood activities, a Chi-square test was conducted in a crosstabulation of the various livelihood enterprise by gender and presented in the Table 2. Results of the Chi-square analysis revealed significant gender differentiated labour participation in food and cash crops production, livestock rearing, non-farm self-employed enterprise and paid wage labour at 1% level of significant. This confirmed the findings of Round Six of the Ghana Living Standard Survey which portrayed significant variation in women and men engagement in agricultural non-agricultural livelihoods (GSS, 2013)

The results as shown in the Table 2, demonstrate men dominants in cash crop production as against women, with men respondents being more likely have been engaged in cash crop production compare with women within the last 12 months to the time of the survey. The Chi-square values of $\chi 2$ (1) = 262.72; P = 0.00 demonstrated strong relationship between gender and engagement in cash crop production. Whilst only close to one-third (32%) of the 6,332 women respondents saying they have been engaged in cash crop production within the last 12 months, overwhelming majority (93%) of the 7,248 men respondents have been engaged in the production of one cash crop or the other within the last 12 months. The reverse scenario was observed with regard engagement in non-farm self-employed enterprises with more women respondents being more likely to have been engaged in non-farm self-employed enterprises within the last 12 months than men. As shown in the Table 2, with a chi-square value of $\chi 2$ (1) = 3578.16; P = 0.000 demonstrating significant gender disparities in engagement in non-farm self-employed livelihood enterprises. About two-third (68%) of the female surveyed reported to have been engaged in non-farm self-employed enterprises as against only 17% of the male respondents. It can therefore be argued, that there is high female participation in non-farm self-employed livelihood enterprises. The non-farm self-employed enterprises mostly engaged in by respondents were petty trading, agro-processing and artisanship. Similar findings with women engaging more in non-farm self-employed enterprises such as buying and selling, agro-processing among others were observed in GSS, (2013), Senadza, (2011) and FAO, (2012).

With regard to gender association in paid wage labour engagement, the analysis of the survey data indicate a significant gender disparity in paid wage labour engagement. With a Chi-square value of $\chi 2$ (1) = 6894.24; P = 0.000, the study therefore demonstrate that labour participation in wage labour differ significantly at 1% level across gender. Men respondents reported to have been engaged in wage labour compare with women. As shown in the Table 2, about 71% of men respondents said they have been engaged in paid wage labour, both agriculture such as hired farm labour and non-agriculture labour such employees in private or public organizations, as compare with only 21% of their female counterparts.

However, no significant gender disparities were found in respondents' engagement in fishery. Indicating that men respondents as well as women respondents were equally likely to have been engaged in fishery. However, only 20% of both male and female respondents reported to have been in engaged in fishery within the last 12 months. Both black and white Volta River,

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the main rivers and source of fresh water in Ghana, runs through many of the Districts in the northern Ghana providing water bodies for fresh water fishery.

Table 1: Distribution of Engagement in Various Livelihood Activities by Gender

Engagement in:	***Gender***		***Total***
Food Crop Production	**Women**	**Men**	
Yes	5,028(79%)	6,115 (84%)	11,143(82%)
No	1,304 (21%)	1,133 (16%)	2,437(18%)
Total	**6,332 (100%)**	**7,248 (100%)**	13,580(100%)
			$\chi 2$ (1) =56.17;P = 0.001* **
Cash Crop Production			
Yes	2,049(32%)	6,761 (93%)	2,720(58%)
No	4,183(68%)	487(7%)	4,670(42%)
Total	**6,332(100%)**	**7,248 (100%)**	**13,580(100%)**
			$\chi 2$ (1) = 262.72;P = 0.000* **
Livestock Rearing			
Yes	5,035 (80%)	5,977 (83%)	1, 0952 (80%)
No	1,297 (20%)	1,271 (17%)	2,568(20%)
Total	6,332 (100%)	7,248 (100%)	13,580(100%)
			$\chi 2$ (1) =16.98;P = 0.001* **
Non-farm Enterprise			
Yes	4,287(68%)	1242(17%)	5,529(41%)
No	2045(32%)	6006 (83%)	8,051(59%)
Total	**6,332 (100%)**	**7,248 (100%)**	**13,580(100%)**
			$\chi 2$ (1) = 3578.16;P = 0.000* **
Paid wage labour			
Yes	1303(21%)	5,163 (71%)	6,466(48%)
No	5,029 (79%)	2,085 (29%)	7,114(52%)
Total	**6,332 (100%)**	**7,248 (100%)**	**13,580(100%)**
			$\chi 2$ (1) = 3474.62;P = 0.000* **
Fish Farming			
Yes	1,240 (20%)	1,348 (20%)	2,588(20%)
No	5,092 (80%)	5,900 (80%)	10,992(80%)
Total	6,332 (100%)	7,248 (100%)	13,580(100%)
			$\chi 2$ (1) = 2.06;P = 0.1512

**** Variable significant at 1%

Source: Analysis of data from Feed the Future Population Baseline Survey, 2012.

Gender Dimension of Number of livelihood Enterprises

The various livelihood options available in the study area was categorised into on-farm based livelihoods such as food crop production, cash crop production, livestock rearing and fishery and off-farm livelihoods such as non-farm self-employed enterprises (such as agro-processing, artisanship, petty and aggregators of agricultural commodities) and paid waged labour. As such six livelihood options (food crop production, cash crop production, livestock rearing, non-farm self-employed enterprises and paid wage labour) were considered in this current paper. As

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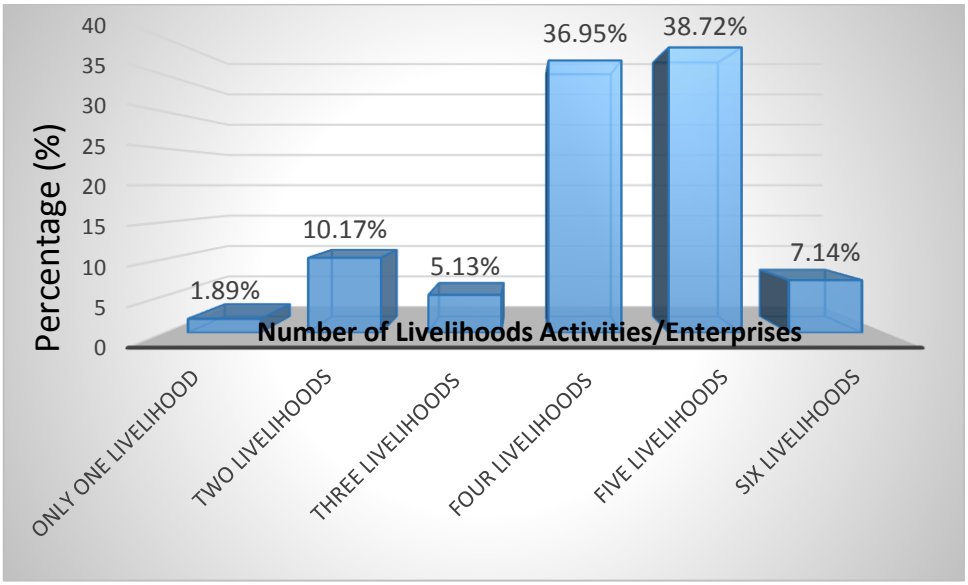
shown in the Figure 2, most of respondents have engaged in diverse livelihood activities within the last 12 months, with only 1.89% of them indicating that they have participated in only one livelihood activity, mostly food crop production. Thus almost (98%) of the respondents have second or more jobs. Confirming the findings of FAO, (2012) that in rural Ghana, 56 percent of the working population has a second job or more. Also Ghana Living Standard Survey Round Six results revealed most Ghanaians have more than one job or livelihood activities for their living (GSS, 2013). Most of the respondents engaged in four livelihood activities and five livelihood activities. As shown in the Figure, about 36.95% and 38.72% of the 13,580 people covered in the survey engaged in four and five livelihood activities respectively. These findings demonstrate some level of livelihood diversification, although it is mostly within agricultural based livelihoods. Majority of those who engaged in diverse livelihoods were into food crop production, cash crop production and livestock rearing which are all within agricultural or farm based livelihoods enterprises.

Figure 2: Gender and Number of Livelihood Activities/Enterprises



Source: Analysis of data from Feed the Future Population Baseline Survey, 2012;

Analysis of Variance of number of livelihood enterprises by gender

Analysis of variance were conducted to test whether gender significantly influence livelihoods diversification and results presented in the Table 3. The ANOVA test conducted yielded F-value of 1055.59 (P = 0.000) demonstrating significant difference at 1% level, between the mean number of livelihood activities engaged in by men and women. As shown in the Table 3, the mean number of livelihood activities engaged in by women was three (3) (Std Dev. = 0.88) livelihood activities compared with mean number of livelihood activities of men of about 3.5 (Std Dev. = 1.22). Thus livelihood diversification is common across gender in Northern Ghana, but men are more likely to engage in more livelihood activities than women. This result reflect the findings of Asmah, (2011) which observed a significant diversification of non-farm rural livelihood in Ghana by comparing the 1991/1992 and 2005/2006 Ghana Living Standards Survey (GLSS). Also John, Motin & Moses (2014) indicate that households in the Upper West Region diversify their livelihoods activities to agro-processing and activities not related to agro-processing.

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Table 3: NOVA Table of Number of Livelihood Activities Engage in by Gender

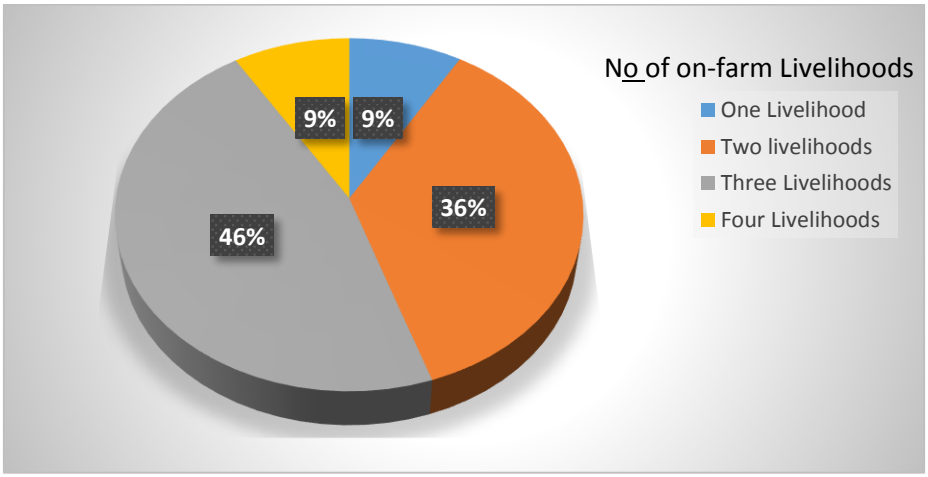
Sex	Mean	Std. Dev.	Min	Max	Freq.
Women	2.8967151	0.88176849	1	5	6332
Men	3.4994481	1.2247166	1	6	7248
Total	**3.2184094**	**1.1195627**			**13580**
ANOVA					
Source	**SS**	**df**	**MS**	**F**	**Prob > F**
Between groups	1227.74818	1	1227.74818	1055.59	0.0000
Within groups	15792.4495	13578	1.16309099		
Total	**17020.19768**	**13579**	**1228.911271**		

Source: Analysis of data from Feed the Future Population Baseline Survey, 2012

Gender Dimension of Livelihood diversification within On-farm

Women, especially rural women, participation in on-farm livelihood activities such as food crop farming, cash crop farming, livestock rearing and fishery have been the concern of many studies((see Davis, (2003); FAO, (2012) and John *et al*, (2014)). This current paper, examined gender participation in on-farm livelihood activities with the view of establishing if gender have any significant influence on people's choice of livelihood options and portfolios within agriculture, in a typical agrarian economy of Northern Ghana. Four on-farm livelihood enterprises such as food crop production, cash crop production, livestock rearing and fishery were considered as the available on-farm livelihood portfolios in northern Ghana based on available literature and records (see MOFA, (2012), FAO, (2012) & GSS, (2013)). Various combinations of on-farm livelihood portfolios in the form of livelihoods diversification within agricultural sector among the 12,585 (representing 92.7%) respondents who were engaged in agriculture out of the 13,580 respondents surveyed is illustrated in the figure 3. Only 9% of the respondents indicated that they are engaged in only one on-farm livelihood activity, mostly food crops production whereas 9% also, report to have engaged in all the four on-farm livelihood activities. Close to half (46%) of the respondents engaged in three agricultural based enterprises mostly food crops, cash crops and livestock rearing, while 36% operate two on-farm livelihood enterprises. This demonstrates a wide range of diversifications of on-farm livelihoods activities among dwellers of the four regions of Northern Ghana. Results of the Sixth Round of Ghana Living Standard Survey (GLSS) portrayed similar findings(GSS, 2013).

Figure 3: Number of On-farm Livelihoods Activities



Source: Analysis of data from Feed the Future Population Baseline Survey, 2012;

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The paper also examined gender dimension of livelihood diversification within on-farm livelihood activities and tested the null hypothesis that 'women and men combinations of various on-farm livelihood options do not differ significantly'. A crosstabulation was constructed and a Pearson Chi-square test used to test the hypothesis. The summary of the results is presented in the Table 4. With a Pearson Chi-square value of 6097.44 (df = 3 and P = 0.000), the null hypothesis was rejected because the test demonstrated significant difference between men and women in livelihood diversifications within on-farm livelihood activities at 1% level of significant. As shown in the Table 4, only 7% of the men were engaged in only two on-farm based livelihood activities compare with overwhelming majority (73%) of women who were also engaged in only two farm based livelihood activities. On the contrarily, about two-third (67%) and 15% of the men engaged in only three and all the four on-farm based livelihood activities respectively. whereas only 30% and just 1% of the women reported to have been engaged in only three and all the four on-farm based livelihood activities respectively. Indicating that, men operate more on-farm based livelihood activities than women. This results compared fairly well with the results of GLSS and FAO country report on Ghana for 2010 in which both reports assert that men are more likely to engage in more on-farm livelihoods activities than women (see GSS, (2013) & FAO, (2013)) apparently because of gender insensitive land tenure system of Northern Ghana (see Apusigah, 2007 and Aryeetey, Ayee, Ninsin & Tsikata, 2007).

Table 4: Number of on-farm livelihood activities by gender

Number of On-farm Livelihoods	**Sex**		**Total**
	Women	Men	
Only One Livelihood	340(6%)	739(11%)	1,079(9%)
Two livelihoods	4,069(73%)	486(7%)	4,555(36%)
Three Livelihoods	1,122 (20%)	4,718(67%)	5,840(46%)
Four Livelihoods	27(1%)	1,084(15%)	1,111(9%)
Total	**5,558(100%)**	**7,027(100%)**	**12,585(100%)**
	Pearson chi2(3) = 6097.44;Pr = 0.000		

Source: Analysis of data from Feed the Future Population Baseline Survey, 2012

Analysis of Variance (ANOVA) conducted to compare average number of on-farm livelihood activities within and across gender confirmed that men were more likely to have been engaged in more farm based livelihood activities than women. As shown in the Table 5, with F-value of 3496.40 (p = 0.000), the findings demonstrated significant difference in the number of on-farm based livelihood activities between men and women at 1% level of significant. As shown in the Table 5, the average number of on-farm based livelihood activities engaged in within the last 12 months, by women was found to be two (Std. Dev. = 0.51) livelihood activities, mostly food crop production and livestock rearing as compare with a mean of about three (Std. Dev. = 0.77) number of livelihood activities of that of men.

Table 5: ANOVA Table of Number of on-farm livelihood activities by gender

sex	**Mean**	**Std. Dev.**	Min	Max	**Freq.**
Women	2.1504138	0.50980207	1	4	5558
Men	2.8747687	0.79277592			7027
Total	2.5548669	0.77140799			12585

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ANOVA					
Source	**SS**	**df**	**MS**	**F**	**Prob > F**
Between groups	1628.31385	1	1628.31385	3496.40	0.0000
Within groups	5860.05055	12583	0.465711718		
Total	**7488.3644**	**12584**	**0.59507028**		

Source: Analysis of data from Feed the Future Population Baseline Survey, 2012;

Diversification within Non-farm livelihood Enterprises

Non-farm livelihood enterprises available in the study area were grouped into non-farm self-employed livelihood enterprises such as agro-processing, petty trading, artisanship among others and paid wage labour such as employees in public and private establishment as observed in the Sixth Round of GLSS (see GSS, 2013). About 9,450 respondents, representing 69.6% of the 13,580 working age persons covered in the survey, indicated that, they have participated in non-farm livelihood enterprises (both non-farm self-employed and wage labour) within the last 12 months. Mberengwa, (2012) shows that household income derived from non-farm income source is very significant in households' income sources. By gender disaggregation, out of the 9,450 persons who were engaged in non-farm livelihood activities, 4,287 representing 45.4%, were women whiles the remaining 5,163 (representing 54.6%) were men. Significantly more men than women were found to have been engaged in paid wage labour within the last 12 months, with women dominating the non-farm self-employed livelihood enterprises such as buying and selling and agro-processing. Similar findings were unearthed by John *et al,* (2014) in their study on Farm Households' Livelihood Diversification into Agro-processing and Non-agro-processing Activities: Empirical Evidence from Ghana. With regard to gender dimension of respondents diversifying their livelihoods within non-farm livelihood activities (thus engaging in both categories) a cross tabulation as shown in the Table 6 were constructed and a Chi-square test used to examine whether gender significantly associated with respondents' participation in both categories of non-farm livelihood enterprises. With a Pearson chi^2 (1) of 4.43 (P = 0.0353), the analysis demonstrated 5% level of significant association between gender and non-farm livelihood diversification. As shown in the Table, whiles 60% of the women engaged in only one category of non-farm livelihood enterprises, mostly non-farm self-employed enterprises such as petty trading, agro-processing and agricultural commodity aggregators, only 40% of them reported to have been engaged in both paid wage labour and non-farm self-employed livelihood activities. However, about 58% and 42% of men said they have been engaged in only one non-farm livelihood enterprise and both wage labour and non-farm self-employed livelihood enterprises respectively. Indicating that, slightly more men than women engaged in both forms of non-farm livelihood enterprises.

Table 6: Crosstabulation of non-farm livelihood enterprises by gender

Number of non-farm livelihood enterprises	**Sex**		**Total**
	Women	Man	
Only Non-farm Self-employed Enterprises or Wage Labour	2572(60%)	2986(58%)	5558(59%)
Both Non-farm Self-employed Enterprises and Paid Wage Labour	1715(40%)	2177(42%)	3892(41%)
Total	4287(100%)	5,163(100%)	9450(100%)
	Pearson $chi^2(1)$ = 4.43:Pr = 0.0353**		

Source: Analysis of data from Feed the Future Population Baseline Survey, 2012

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Diversification Within and Outside On-farm

Majority (79%) of the 13,580 working age people surveyed in the METSS Feed the Future Population baseline survey secure their livelihoods by engaging in both on-farm and non-farm livelihood activities. Indicating that most respondents diversified their livelihood and earning within and outside agriculture which happened to be the main source of livelihoods for the people of Northern Ghana (see MOFA, 2012).

In examining gender dimension of respondents' diversification of their livelihood portfolios within and outside, on-farm livelihood activities, a crosstabulation were constructed and Chi-square test conducted to determine whether there exist any significant association between gender and respondents' ability to diversify their livelihoods within and outside agriculture. Summary of the results is presented in the Table 7. With a Pearson chi^2 (1) of 547.6519 (P = 0.000), results of the analysis of the survey data revealed strong significant association between diversification within and outside on-farm livelihood enterprises at 1% level of significant. Contrarily to expectation, women were found more likely to engage in both on-farm and non-farm livelihood activities compare with men. As shown in the Table 7, overwhelming majority (88%) of the 6,332 women were found to have been engaged in both on-farm and non-farm livelihood activities compared with 71% of the 7,248 men who were also found to have been engaged in both on-farm and non-farm livelihood activities. Similar observations were made by Manjur, Amare, Hailemariam, & Tekle, (2014) that, the contribution made by off-farm and non-agricultural sector to rural households is significant and that gender play significant role in livelihoods choice and portfolios. Also Madaki & Adefila, (2014) in their analysis of contributions of rural non-farm economic activities to household income in Lere Area, Kaduna State of Nigeria indicated that most households drive their income from on-farm and non-farm income sources.

Table 7: Engagement in On-farm and Non-farm Livelihoods by Gender

Do Engage in Both on-farm and non-farm Livelihoods	**Gender**		**Total**
	Women	Men	
No	782(12%)	2,086(29%)	2,868(21%)
Yes	5,550 (88%)	5,162(71%)	10,712(79%)
Total	**6,332(100%)**	**7,248(100%**	**13,580(100%)**
	Pearson $chi^2(1) = 547.6519$: Pr = 0.000		

Source: Analysis of data from Feed the Future Population Baseline Survey, 2012

CONCLUSION AND RECOMMENDATIONS

Socioeconomic characteristics of the 13,580 working-age respondents covered in the survey, such as household size, marital status, location, access to credit and working hours per day were found to differ significant between men and women. However, there weren't significant difference in the ages, literacy level, household status and household structure between men and women with most (69%) of the respondents being within their youthful age of 35 years or younger. Also results of the Chi-square analysis revealed significant gender differentiated labour participation in food and cash crops production, livestock rearing, non-farm self-employed enterprise and paid wage labour at 1% level of significant.

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Most of respondents were engaged in diverse livelihood activities with overwhelming majority (98%) of them having second or more jobs. Notwithstanding the wide spread of livelihood diversification among respondents, the analysis revealed significant gender differentiation in number of livelihood activities engaged in by men and women. Whiles the mean number of livelihood activities engaged in by women was three (3) (Std Dev. = 0.88) livelihood activities that of men was about 3.5 (Std Dev. = 1.22). Thus livelihood diversification is common across gender in Northern Ghana, but men are more likely to engage in more livelihood activities than women. Livelihoods diversification engaged in by both men and women surveyed were found within on-farm based livelihoods and non-farm based livelihoods portfolios, with about 69.6% of the 13,580 working age persons covered in the survey, indicated that, they have participated in non-farm livelihood enterprises as well. By gender disaggregation, out of the 9,450 persons who were engaged in non-farm livelihood activities, 4,287 representing 45.4%, were women whiles the remaining 5,163 (representing 54.6%) were men. Significantly more men than women were found to have been engaged in paid wage labour within the last 12 months, with women dominating the non-farm self-employed livelihood enterprises such as buying and selling and agro-processing. However, with a Pearson chi^2 (1) of 547.6519 (P = 0.000), results of the analysis of the survey data revealed strong significant association between diversification within and outside on-farm livelihood enterprises at 1% level of significant. Contrarily to expectation, women were found more likely to engage in both on-farm and non-farm livelihood activities compare with men. As established in paper, women are diversifying their livelihood portfolios away from on-farm livelihood activities to non-farm self-employed enterprises mostly, petty trading, agro-processing and marketing of agricultural commodities. Within on-farm based livelihoods, women were found to be engaged mostly in food crop production with few of them taking up cash farming. This paper therefore recommends that, measures aim at women economic empowerment, should target providing training and financial and support to enable women improved their non-farm livelihood enterprise. Also policies and programmes of Women In Agriculture (WIA), of the Ministry of Food and Agriculture, should focus on removing the bottlenecks such as the gender biased land tenure system to improve women access to land and to support and encourage them to engage in cash crop production through input supply and extension services provision.

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