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Rural-Urban Linkage And Rural Livelihood Diversification In Developing Countries

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Abstract

The study aimed to assess the role of rural-urban linkage on rural livelihood diversification in developing countries. A Systematic Random Sampling Technique was employed to select Households' Heads. Data were collected using structured questionnaires from three surrounding rural kebele sampled households through face to face interview. The study found out that production linkage in the form of backward is satisfactory but, forward linkage does not exist. Linkage in the form of infrastructure, market, and financial linkage are good but not enough. Market linkage is relatively good in sale of product such as crop production, livestock product, and vegetable to the Town. Concerning factors influencing livelihood diversification activities, among 16 explanatory variables included in the model, eight of them determine the choice of livelihood strategies at less than 1%, 5% and 10% level of significance respectively. As a result, age, sex, level of education, family size, size of farmland, distance from market, and saving influenced negatively whereas access to electricity and transportation were influenced positively. To this end, by having strong rural-urban linkage rural livelihood strategies would diversify.

Keywords: Rural-Urban Linkage, Livelihood Diversification, Developing countries, Rural Employment etc.

1. Introduction

1.1. Background of the Study

Rural-urban linkage is defined as a mechanism through which urban and rural areas interact in complimenting one another in economic development to reduce poverty by enabling households and individuals to expand their options for income-generating activities. It broadly refers to the growing flow of public and private capital, people, goods, money, and information between urban and rural areas (Tacoli,2002). Furthermore, these interactions could be divided into two categories. The

first category is spatial interaction, which is the flow of people, goods, money, and information. The second is sectoral interaction which includes occupations, activities, and characteristics of one locality but found in both places. This interaction is evidence of rural non-farm employment and urban agriculture. Generally, a positive impact of rural-urban linkages on rural livelihoods can be greatest where rural and urban development is mutually dependent and integrated (Adebayo, 2005). Therefore, in order to improve the interaction between rural and urban area and livelihood diversification strengthen rural-urban linkage especially interaction between large cities, small, and medium town with the rural area is very important.

1.2. Statement of the Problem

The Rural-urban Linkage has played a role in balance economic development, eradicate poverty, improve the life of households and diversify livelihood strategies for both poor urban and rural households. The result of the linkage is to equitable distribution of wealth and balance economic growth including the satisfactory provision of infrastructure, financial facilities, and basic services (education, health, water, and sanitation) and help as revenue support to the local economy. In fact, rural-urban linkages would improve the livelihood strategies of both the rural and urban communities through supporting urban-based non-farm activities and informal activities, improving labor absorptive of business sectors in town, supporting agricultural input, strengthing infrastructure, improve financial sectors and supporting the development of agro-processing industries. The contribution of a non-farm and off-farm sector has a vital role, in the most developing country. However, the share of this sectors was very weak in developing countries.

1.3. Objective of the Study

The General Objective of this study was to assess the role of rural-urban linkage on livelihood diversification of rural household.

Specific Objectives

- To assess the status of rural-urban linkage in surrounding Bishoftu Town Rural Kebele
- To identify and examine the determinant factors of rural household livelihood diversification strategies which may limit or strengthen their effectiveness of rural-urban linkage.

1.4. Significance of the Study

This study woul

d provide insight for strengthening helpful a basis for regionally differentiated linkage policies. Furthermore, the study will contribute as input for rural-urban linkage and give

the way for further studies in the areas of rural-urban linkage and livelihood diversification. Finally, this study was a great significance for the researcher himself. Lastly, it contributes to the existing stock of knowledge for future practices or research by serving as a literature document.

1.5. The Scope of the Study

The aim of this study was to conduct the role of rural-urban linkage on rural livelihood diversification. Rural-urban linkage is the mutual benefit of both urban and rural areas. However, in developing countries due to weak linkage between the two areas, rural household cannot benefit from the nearby town. Only urban centers developed separately without consideration of surrounding rural development. Therefore, due to the above reason and time constraint the study focused on the role of rural-urban linkage to diversify rural household livelihood strategies. In this case the role of linkage is considered as the role of Bishoftu Town for surrounding rural household to diversify their livelihood strategies.

1.6. Limitations of the Study

The study cannot include under Bishoftu City Administration Kebele, due to having a large area and high population with different livelihood activities and time constraint. Therefore, the study cannot examine the role of rural-urban linkage on urban household. Moreover, there are different forms of rural-urban linkage. However, the study were focused on physical, production, market, and financial linkage with urban area.

1.7. Description of the Study Area

This study was conducted in surrounding rural kebeles link with Bishoftu Town which is located in Ada'a district is one of the East Shoa administrative zone, in Oromia Regional State. It is located at a distance of 47km South-East of Addis Ababa and 52 km from Adama to the North. The altitudes in this district range from 1500 to 2000 meters above sea level. The average rainfall ranges from 918 to 1450 mm and its agro-ecology is represented by Highland (29%), Midland (37%), and Lowland (34%).Ada'a district has 42 rural kebeles with 26,525 members and 26 Farmers Service Cooperatives. From the total of district kebeles five kebeles were bounded by Bishoftu Town. Therefore, the study concentrated only on the five rural kebeles in the hinterland of Bishoftu Town. Thus, five surrounding rural kebele interact with Bishoftu Town are namely Gerbicha, Dibayou, Gorba, Kaliti, and Dembi.

1.8. Organization of the Paper

This paper is organized into five parts. The first one deals with background of the study, statement of the problem, objectives and research question, and significance of the study, scope, limitation, and description of the study. The second part attempts to reviews

related literature. Part three describes research methods which include research design, sample, and sampling design, data collection instruments and procedure, and methods of data analysis. Part four is concerned with analysis of data and interpretation of the results of the analysis. Finally, part five describes conclusion, and recommendation is presented.

2. Literature Review

The issue of rural-urban linkage is a broad and complex system with multidisciplinary nature. In Ethiopia, integrated development approach is recent phenomena and linkage between rural and urban area have a little attention from development plan/policy. However, after Plan for Accelerated and Sustained Development to End Poverty the integration between rural and urban center incorporated in strategic plan as one pillar of strategic development to transfer agriculture to industrialization. Very few studies have been carried out empirically in different countries on area of rural-urban linkage to diversify livelihood strategies.

Taleshia and Azizeh (2012) studied the role of town in instability of rural development in North Iran. The outcome of a study indicated that during the 1996-2006 decade, towns have not been successful in the development of rural settlements. Achieving rural development through town's pattern is tried that the socio-economic functions of these cities to be considered more than ever. Because these small towns by creating new businesses in the agricultural sector through the development of complementary agricultural units on the one hand and the strengthening of urban infrastructure services on the other hand, try to meet the needs of rural communities. The author also argues that, to satisfy the demand of rural communities' urban center are functioning as a core of activities by producing or new jobs in both farming sectors and strengthen of rural-urban infrastructure services. Even though the authors study the role of small town for rural development under the broad concept of rural-urban linkage, there is no clear methodology and how data was collected to analysis the role of town for development of rural areas.

A study in Nigeria with the objective to access the effect of rural-urban interaction on socio-economic status of rural dwellers, by applied Multistage sampling technique to select 180 respondent with descriptive statistics to analyzed data. The result revealed that spatial interaction of the respondents include flow of cash (60%), commodity flow (54.4%), flow of people (51.7%) and flow of information (58.3%), while sectoral interaction of respondents include Okada riding, motor mechanic, hair barbing and dressing and petty trading among many others. Major livelihood activities of the respondents are crop farming 73.3% and livestock rearing 57.2% (Harcourt, 2015). The author concluded even though rural-urban interactions have an effect on the socio-

economic status of rural dwellers, the level of effect on livelihood strategy is not similar in the study area.

According to Evans (1992) cited by Egizahher (2001), the study conducted on how rural-urban relations drive rural development in Kutus Town Kenya. The analysis demonstrates that the use of non-farm income enables rural households to raise agricultural output, productivity, and farm income. The study also reveals that rural household economic behavior is highly oriented towards spending and re-investing in the local area spurring the growth of non-farm activities and lower market centers. The study emphasizes establishment of rural development policies that encompass both agriculture and non-farm activities, rural as well as urban areas, and the need to re-orient institutional infrastructure for rural development to make it more responsive to smallholder production. Therefore, strong rural-urban relation can enhance agricultural and non- agricultural development. His finding closely approximates similar with the theoretical urban-hinterland relations outlined above.

A study by Berhane (2016) in Adawa Town and its surrounding rural areas with objective assess the nature of RULs and its effects on rural livelihood diversification. The findings of the study show that the production linkages were very weak except for the backward production linkage which was reflected mainly in the use of inputs. However, a strong consumption linkage was observed as farmers tend to purchase goods and services from the town. The author also found that more than 40% of households obtain their income from non-farm sources. From this result, diversification is a necessity than a choice because the share of non-farm or off-farm activities is almost more than farm activities for the household who have short farmland or landlessness. Therefore, the rural-urban linkage plays a crucial role in the livelihoods of the household.

Tilahun (2014) conducted a research on the sustainable livelihood of a rural household through a rural-urban linkage in Guba Lafito Wereda using binary logit model. The finding shows that the rural household engaged in farm activities account 58.9% which is largest as compared to households engaged in non-farm activities. In this regard, Non-farm activities have an important role in a household economy. More importantly, nonfarm activities offer cyclical and seasonal employment to supplement major farm income in money drought-prone areas of Africa. Households that are engaged in non-farm activities gain income from various sources such as, petty trade, daily laborer, handcrafting and making local drink and food.

Tadesse (2012) study on the contribution of town functions to the rural development empirical analyses for Ethiopia. Results show that some of the major town functions are instrumental in boosting income from productive activities. Some of the functions towns contribute for the development of rural area are roads, transport services, and telephone enable commuting to towns where non-farm jobs are often concentrated. Addition to that

town contributes to the sustained operations of productive activities, which increase the probability of employment and income from non-farm productive activities. This implies that the role of town is not only for the agricultural product but, also help to diversify rural livelihood strategies.

Beyene (2008) studied determinant of off-farm participation decision of farm households in Ethiopia, using bivariate probit model. The result shows that education has no effect on the decision of male-headed farm households to participate in off-farm activities. This result implies that the natures of off-farm activities that are undertaken in Ethiopia do not need education since the activities are primarily traditional and no connection with modern or traditional education. In addition to the above, the result shows that male-headed households have more likelihood to participate in off-farm employment than female-headed household, and financial position of male household member has a positive effect on off-farm participation decision.

According to Seraje (2007), study in Wolenkomi Town and the surrounding Rural Kebeles Oromia Region with the objective of livelihood strategies and their implications on rural-urban linkages. The findings indicate that through rural and urban households derive a larger proportion of their income from farming, and trade and service provision, respectively, they combine their livelihoods from different sources. The author also found that small farm size and unequal distribution of land in the villages along with the decline in production confine the flows of agricultural produce to towns. The author recommended rural-urban linkages would be enhanced by improvements in the livelihood strategies of the people through supporting urban-based non-farm activities and informal activities in small towns, improving the labor absorptive capacity of business sectors in town, discouraging public monopolies in input marketing and distribution, supporting agricultural intensification, strengthening physical and market infrastructure, improving the financial sector, and supporting the development of agro-processing industries.

Bezabih (2007) studied the implication of rural-urban linkages for livelihood diversification in Bonga Town and its rural hinterlands. The finding of this study shows that there are poor and weak linkages between Bonga Town and its rural hinterlands resulting in limited livelihood diversification. The result suggests that potential growth linkages of cross-sectors towards poverty reduction and structural transformation required a balanced growth strategy of agriculture and non-agricultural sectors.

3. Research Methodology

3.1. Research Design

Based on the purpose of the study, research design for this study was both descriptive and explanatory in order to analyze the survey data collected from sample households

through questionnaire, FGD, and key informants interview. Finally, the collected data was analyzed using descriptive statistics and multinomial logistic regression model to answer the objective of a research question.

3.2. Research Approach

The data used in the study was mixed ways obtained from household respondents through a structural questionnaire, Focus Group Discussion (FGD), Key informants interview, and other secondary sources.

3.3. Type and Source of Data

The study used cross-sectional data type. The data required to meet the objective of the research was obtained from both primary and secondary sources.

Primary Data: primary data was collected from the sampled rural household head through data collection tools such as structure questionnaire, interview, interview with key informant person, and focus group discussion with selected sample households. In addition, direct field observation was also used to collect first-hand information. The main reason to use primary data was proposed study needs primary information from a population. To come up with a valid result, the researcher should have to collect primary data from sample household heads in the study area.

Secondary Data is the information collected from various published (Urban Development policy, Federal urban planning coordinating Bureau, Oromia Urban Planning Institute, Ethiopian cities Alliance State, etc) and unpublished documents (socio-economic profile, operation plan of 2010, monthly and quartely report, etc) from Municipality of Bishoftu Town, Rural Development Office, Plan and Finance, Health, Education, Oromia Microfinance Credit and Saving Sub-Branch Bishoftu Town, and other relevant literature in the area were used as a data source.

3.4. Research Methods and Sample Size Determination Techniques

3.4.1. Population and Sampling Frame

The study area is five surrounding rural kebeles intensively interaction with Bishoftu Town and estimated Total Populations of 27,344 (male 10,878, female 10,466). In terms of household, the five kebele target household is 3,685 (3038 Male-Headed, 647 Female-Headed). The sample frame of this study was the three kebeles households and the unit of analysis is the household head. Among accessible households, the sample were selected by applying systematic random sampling technique (Kothari, 2004) using a list of a frame obtained from Rural Kebele Agricultural Office based on agricultural extension classification and land taxpaying list.

3.4.2. Sampling and Sampling Procedure

Sample size was determined based on a list of a frame obtained from Rural Kebele Agricultural Office based on agricultural extension classification and land taxpaying list. Therefore, the list of a frame in the rural kebele was helped to select sample household. A total sample of household's head was selected using systematic random sampling technique (Kothari, 2004) by keeping a fair proportion of kebeles household heads. In this formula, 93% confidence level and 7% level of precision are used at criteria. Yamane formula which used to determine sample size is specified as:

$$n = \frac{N}{1+N(e)^2} = \frac{2155}{1+2155(0.07)^2} = 186$$

Where:

N = total households which is equal to 2155 from three kebeles

n = size of 186 of households and 5% of calculated sample size was added to the calculated sample size to minimize the sampling error. Therefore, a total sample size of 195 was selected.

e= with 7% margin of error

Therefore, the total sample size from the three surrounding rural kebele using a systamatic random sampling was 195 household heads taken proportionally from the three kebeles based on the possession of the desired characteristics necessary for the study.

Table 3.1. Sample Household Heads by Kebele

No.	Kebele Name	Total Household Head			Sample size	Type of Sampling Method
		Male	Female	Total		
1	Gorba	621	170	791	68	Systematic Random Sampling Proportionate to size of the population.
2	Dembi	645	116	761	66	
3	Dibayou	510	93	603	52	
	Total	1776	379	2155	186	

3.5. Data Analysis and Interpretation

Before analysis of the data all processes like coding, entering, editing, and data cleaning were very important. Depending on the objectives of the study and nature of data collected the analysis was made by using descriptive statistics and multinomial logistic regression model. To analyze the data software of SPSS and STATA were used.

Descriptive Statistics mean, frequency distribution, percentages, pie chart, and histogram used to describe the demographic and socio-economic status of the household and the role of rural-urban linkage, rural household livelihood diversification strategies. Moreover, to analyze factors that determine livelihood diversification econometric model was used.

3.6. Model Specification

Hence, descriptive statistics and multinomial logistic regression model were appropriate to answer the research question.

Following the assumption and based on Greene (2003), for this specific study, if the first category (farm only) is the reference category and supposed to the i^{th} respondent face with j choices, the utility choice j multinomial logistic regression model can be specified as:

$$U_{ij} = Z_{ij}\beta + \varepsilon_{ij} \quad (1)$$

If the respondent makes choice j in particular, then U_{ij} is the maximum among the j choice. So the statistical model is derived by the probability that choice j is:

$$\text{Prob}(U_{ij} > U_{ik}), \text{for all } k \neq j \quad (2)$$

Where; U_{ij} is the utility to the i^{th} respondent from livelihood strategy j; and U_{ik} is the utility to the i^{th} respondent from livelihood strategy k. Thus, the i^{th} household's decision can be modeled as maximizing the expected utility by choosing the j^{th} livelihood strategy among J discrete livelihood strategies, that is:

$$MaX_j = E(U_{ij}) = f_j(X_i) + \varepsilon_{ij}, \quad j = 0, 1 \ldots J \quad (3)$$

In general, for an outcome variable with J categories, let the j^{th} livelihood strategy that the i^{th} household chooses to maximize its utility could take the value 1 if the i^{th} household chooses j^{th} livelihood strategy and 0 otherwise. The probability that a household with characteristics X_i (attached to any independent variables) chooses livelihood strategy j, $P_{ij=}$ is modeled as:

$$P_{ij=} \frac{e^{X_i'\beta j}}{\sum_{j=0}^{J} e^{X_i'\beta j}}, \quad j = 0,1,2 \quad (4)$$

With the requirement that $\sum_{j=0}^{J} Pij = 1$, for any i

Where; Pij = probability i^{th} respondent's chance of falling into category j;

X_i= Predictors (explanatory variable) of response probabilities; and β_j = Covariate effects specific to j^{th} response category with the first category as the reference. A convenient normalization that removes indeterminacy in the model is to assume that $\beta_1 = 0$ (Greene, 2003). So that $e^{Xi\beta j} = 1$, implying that the generalized Equation (4) is equivalent to:

$$P_r\,(Y_i/\,j/X_i\,) = P_{ij} = \frac{e^{Xi\beta j}}{1+\sum_{j=1}^{J} e^{X_i'\beta j}}, \text{ for } j = 0, 1.....J \text{ and}$$

$$P_r\,(Y_i/\,1/X_i\,) = P_{ij} = \frac{1}{1+\sum_{j=1}^{J} e^{X_i'\beta j}}, \qquad (5)$$

Where; Y = A polytomous outcome variable with categories coded from 0…. J.

Note that the probability of Pi1 is derived from the constraint that the J probabilities sum to 1. That is $P_{ij} = 1 - \sum Pij$. So multinomial logit models it implies that we can compute J log-odds ratios which appropriate for interpretation are specified as:

$$\ln\left[\frac{P_{ij}}{P_{iJ}}\right] = X'(\beta_j - \beta_J) = X'\beta_j, \quad \text{If, } J=0 \qquad (6)$$

4. Results and Discussion

4.6. The Role of Rural –urban Linkage on Rural Livelihood Diversification

To examine the role of rural-urban linkage on rural livelihood diversification, the contributions of Bishoftu Town to surrounding rural household take in account for development of livelihood diversification. However, urban centers are expected to play a role to diversify livelihood of a rural household by providing different services which help to increase source of income. This eventually facilitates rural-urban linkage and opens up the opportunities for rural and urban households. In another way, the economic activity of the town business is the base for both rural and urban development and help as a source of livelihood strategies (Satterthwaite & Tacoli, 2003). Therefore, Bishoftu Town has a contribution to diversify livelihood of rural households through positive rural-urban linkage. Through rural-urban linkage town has provided a lot of function for rural households such as agriculture input, employment opportunity, market for agricultural production and non-market function like providing road service; transport service, human and livestock health center, and other social services are the major function provided for rural household through the effect of rural-urban linkage. The following are major functions Bishoftu Town provides for surrounding rural household and the impact of service on livelihood strategies.

Table 4.9. Important Service Bishoft Town Provided for Rural Household

Variable	Household livelihood strategies

	Response	Farm	Non+off-farm	Farm+non+off-farm	Total HH	Pearson Chi^2
Electricity	No	62	12	43	117	9.5***
	Yes	27	19	32	78	
Drink water	No	56	11	37	104	7.7**
	Yes	33	20	38	91	
Transportation	No	71	11	51	133	20.8***
	Yes	18	20	24	62	
Road service	No	42	7	30	79	5.7*
	Yes	47	24	45	116	
Market service	No	41	10	34	85	1.9
	Yes	48	21	41	110	
Training service	No	72	23	57	152	0.8
	Yes	17	8	18	43	
Access to credit	No	51	11	40	102	4.43
	Yes	38	20	35	93	

Source: Own Survey, 2018

*****, **, *** indicates significant at 1%, 5%, 10% probability level respectively.

4.7. Econometric Results and Discussion

4.7.1. Determinant of Participation in Livelihood Diversification strategy

To analysis determinant of livelihood diversification in the study area, a Multinomial Logistic Regression Model was used. The model was selected based on the justification illustrated earlier. Therefore, in this section, procedures followed to select independent variables and results of logistic regression analysis conducted to identify determinants of rural household livelihood diversification strategy. Therefore, Multinomial logistic regression model was fitted to estimate the effects of explanatory variables on rural household's decision on the choice of alternative livelihood diversification.

Table 4.13. Definition of Model Variables

Dependent variable Livelihood strategies	Variables definition and unit of measurement if the choices of the HH lie in
Y=1 , Farm	Farm alone (n1=85)
Y=2, Non+Off – farm	Non and off-farm combination (n2= 31)

Dependent variable Livelihood strategies	Variables definition and unit of measurement if the choices of the HH lie in
Y=3,Farm+Non+Off	Farm, Non-farm, and Off-farm combination (n3= 75)
Independent Variables	
AGE	Age of Household Head in Years
SEX	Sex of Household Head (1= Female, 0= Male)
LEDUCAT	Education Level of Household Head(1=illiterate, 2=1-8,3=9-10,4=11-12
MARST	Marital Status of Household(1=Married, 2=Widowed,3=Divorced)
FAMILYS	Family Size of the Household Members in a number
FARMLANDS	Farmland size owned by the Household in Hectares
LIVESTOK	Livestock hold by the household in tropical livestock unit (TLU)
DISTM	Distance from the main market by km
ACELECTRCITY	Access to electricity (0= No, 1= Yes)
ACDRWTR	Access to Drink water (0= No, 1= Yes)
TRPS	Access to Transport service to visit Town(0= No, 1= Yes)
TRING	Training given by Town for household (0= No, 1= Yes)
ACINDST	Industry Service use by the Household (0= No, 1= Yes)
CREDIT	Credit use by the household (0= No, 1= Yes)
SAVING	Saving by the household (0= No, 1= Yes)
ANNUALINCM	Total income from all source by the household member

4.7.2. Overall goodness of-fit Assessment and Diagonestic test of the model

Before the estimation of the model parameters, it is important to check goodness fit of the model. To test the goodness fit of the model the p-value must be less than the established cut-off usually 0.05 (Gujarati, 2003). As stated by the author the computed value of LR test which is defined as $-2[L_0-L_1]$ (where L_0 and L_1 are the maximized log-likelihood under the null and the alternative hyphotesis respectively) was used to test the null hyphothesis that the p-coefficient for the covariates in the model are not important in explaining the response variable against the alternative hypothesis that is

at least one of the covariate is important. Under the null hypothesis, the LR is distributed as $\chi 2\ p(a)$ and hence, if LR exceeds that $\chi 2\ p(a)$, we reject the null hypothessis and conclude that at least one of the p-covriate included in the model are important in explaining the variation in the outcome variable. Accordingly, the regression outcome, the test for likelihood ratio (LR) statistics shows as LR=188.05, with Prob > chi2 = 0.0000, pseudoR^2= 0.5737 which indicated that the model was statistically significant. Hence we reject the null hypothesis and conclude that at least one of the p-covariate included in the model are important in explaining the variation in the outcome variable.

Again it is important to check the existence of the multicollinearity problem among the explanatory variable. Therefore, variance inflation factor was used to test the degree of multicollinearity among the continuous variables. From the result of STATA output, the VIF for continuous variables was found to be less than 10. Hence, the VIF result shows that there is no serious problem of multicollinearity (see appendix 7).

By the same manner, contingency coefficient was computed to check for the degree of association among the discrete variables based on Pearson Chi-square. The contingency coefficient ranges between 0 and 1, with zero indicating no association between the variables and values close to 1 indicating a high degree of association (Gujarati, 2003). Accordingly, the computation results show that there was no serious problem of association among discrete explanatory variables (see appendix 6).

4.7.3. Parameter Estimation

In this section important variables which were influence rural household engagement on livelihood strategies were identified and analyzed using multinomial logistic regression model. The analysis was made by STATA software version 14. The result indicates that among 16 hypothesized explanatory variables eight variables were found to significantly influence the choice of non-farm plus off-farm and farm + non-farm/off-farm, respectively by making farm activity as a categorical reference.

The multinomial logistic regression model result indicates that age (AGE), sex (SEX), family size(FAMILYS), farmland(LAND), access to electricity(ACELECTRCITY), access to transport service (TRPS), distance from town (DIST), and saving (SAVE) were determining farmers choice of livelihood strategies. However, the marginal effect of some significant variables is not similar to the two livelihood strategies. Some may be highly significant to affect the choice of a strategy and may be insignificant for the other. Therefore, multinomial logistic regression analysis results indicate selection of each type of livelihood strategy is affected by different factors and at different levels of significance by the same factor. It has to be noted that the multinomial logistic estimates are reported for two of the three categories of livelihood strategies choice. The first alternative (i.e. selecting farming only) was used as a benchmark alternative against which the choice of the other two alternatives was seen. The plausible implication and marginal effects of the

significant explanatory variables on the choice of households' livelihood strategies are presented as follows:

Table 4.14.Multinomial Logistic Regression Result for Dependent variable

Farm	(Base outcome)				
Non+Off-farm					
	Coef.	Std. Err.	Z	P>z	Marginal Effect
Age	-2.8571	1.1829	-2.42	0.016**	-0.0072
Sex	-2.3317	1.3975	-1.67	0.095*	0.111
Level education					
Grade 1-8	-5.4457	1.7623	-3.09	0.002***	-0.0920
Grade 9-10	-5.3069	2.1198	-2.5	0.012**	-0.0928
Grade 11-12	-4.2310	2.3941	-1.77	0.077*	-0.0907
TVT /Diploma	-2.4842	3.3741	-0.00	0.999	-0.0934
Above	7.0502	9.196	0.00	0.999	0.9047
Marital status	1.5376	1.1659	1.32	0.187	0.0052
Family size	0.3597	0.5008	0.72	0.473	0.0018
Farmland Size	-7.7586	2.271	-3.42	0.001**	-0.0222
Electricity service	2.5198	1.226	2.05	0.040**	0.0065
Drinking water	-0.6914	1.131	-0.61	0.541	-0.0033
Transport service	2.9937	1.3231	2.26	0.024**	0.0093
Training service	0.9408	1.1580	0.81	0.417	0.0028
Industry service	-0.5905	0.9219	-0.64	0.522	-0.0007
Access to credit	0.4008	1.4586	0.27	0.783	0.0011
Saving	-1.3478	1.5988	-0.84	0.399	-0.0018
Distance market	-1.0384	0.4767	-2.18	0.029**	-0.0026
Total livestock	0.0152	0.1204	0.13	0.899	0.0000
Annul income	-0.8293	0.71126	-1.17	0.244	-0.0025
Const	21.4342	8.2209	2.61	0.009	

Table 4.15.Multinomial logistic regression result for farm + non-farm +off-farm

Farm	(Base outcome)				
Farm + Non+Off-farm					
	Coef.	Std. Err.	Z	P>z	Marginal Effect
Age	-0.9263	0.4198	-2.21	0.027**	-0.2211
Sex	-0.4469	0.669	-0.67	0.504	-0.1050
Level of education					
Grade 1-8	-2.0823	0.6529	-3.19	0.001**	-0.3986
Grade 9-10	-0.2176	0.7366	-0.3	0.768	0.0343
Grade 11-12	-0.8632	1.1841	-0.73	0.466	-0.1059
TVT /Diploma	14.4488	1691.773	0.01	0.993	0.2864
Above	-3.8473	13598.95	-0.00	0.99	-0.7135
Marital status	-0.2182	0.4752	-0.46	0.646	-0.0561
Family size	-0.3527	0.1958	-1.8	0.072*	-0.0868
Farmland Size	-1.0909	0.7209	-1.51	0.13	-0.2525
Electricity service	0.7427	0.4434	1.68	0.094*	0.1769
Drinking water	0.6565	0.4320	1.52	0.129	0.1616
Transport service	0.0252	0.5107	0.05	0.961	0.0008
Training service	0.0554	0.5232	0.11	0.916	0.0118
Industry service	-0.6378	0.4496	-1.42	0.156	-0.1547
Access to credit	0.0659	0.5598	0.12	0.906	0.0154
Saving	-1.3484	0.6181	-2.18	0.029**	-0.3269
Distance market	-0.3504	0.2097	-1.67	0.095*	-0.0837
Total livestock	0.0226	0.0477	0.47	0.636	0.0055
Annul income	-0.0409	0.4324	-0.09	0.925	-0.0085
Const	8.9083	5.225	1.7	0.088	

***, **, * Significant at <1%, 5% and 10% probability level respectively.
Source: Own Survey, 2018

Log likelihood = -104.456 Number of Obs = 195 LR chi2 (34) = 188.05
Prob > chi2 = 0.0000 Pseudo R^2 = 0.5737

5. Conclusion and Recommendations

5.1. Conclusions

The common source of livelihood strategies practiced in the study area are farm, non-farm plus off-farm, and mixed (farm, non-farm, and off-farm) activities. However, farm (crop production, livestock production, and vegetable and fruit production) activities were the dominant as a primary source for households. This showed only a few households participate in non-farm and off-farm activities. The more exercised non-farm and off-farm activities in the study area were daily wage labor, petty trade, and providing transport service respectively. Household who look alternative livelihood activities in addition to farm activity were due to small farmland, population pressure, and expansion of town to hinterland area. The study found that even though some of households participate in non-farm activities, their participation is varied due to several factors. The main factors affect participation of livelihood diversification is lack of experience and skill, insufficient start-up capital, and lack of infrastructure such as road access, electricity, water, and, market access.

Multinomial logistic regression model pointed out factors influence participation of livelihood strategies. The results revealed that out of 16 explanatory variables included in the model eight variables determine the choice of livelihood strategies at less than 1%, 5% and 10% level of significance respectively. These variables were age, sex, level of education, family size, size of farmland, distance from market, access to electricity, transportation access, and saving were found to have association with non-farm plus off-farm and mixed (farm, non-farm and off-farm) activities. As a result, age, sex, level of education, family size, size of farmland, distance from market, and saving influence negatively whereas access to electricity and transportation access are influence passively.

In conclusion, from the finding of a descriptive and econometric result of the research, it is clear that a positive rural-urban linkage can increase the adoption of livelihood strategies. The key conclusion was that positive rural-urban linkage helps households to diversify their livelihood strategies. As a result, Bishoftu Town supports household's livelihood activities through rural-urban linkage. Therefore, the study showed that by having strong rural-urban linkage, hinterland household should diversify their livelihood to different activities.

5.2. Recommendations

Effective and efficient rural-urban linkage is important for a precondition to enhancing and boosts agricultural production and productivity increments and increase the probability of engaging in non-farm and off-farm activities. Agricultural sector is characterized by land scarcity, increasing population, lack of adopted agricultural technology, and expansion of town to the hinterland. This implies that the non-farm and off-farm sector has to be developed to absorb more of the growing population and other problems. Thus, policy maker and government should fully give attention for non-farm and off-farm activities via development of infrastructural that support livelihood diversification strategies and rural-urban linage. Moreover, capacitate the awareness of communities by developing different mechanism should important to increase the participation of livelihood activities and improve the linkage between rural and urban areas.

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