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Determinants of Employment Participation in Rural Nonfarm Activities

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Abstract
The economy of rural areas in developing nations is predominantly based on agriculture and other activities related to agricultural sector. Non-farm activities across the developing world provide about half of total household income and employment source. Thus, employment participation in non-farm sector gains prominence due to increasing inability of the farm sector to support rural livelihoods. This paper establishes a baseline picture of non-farm activities and vindicates the determinants of participation in to and within non-farm sector. Empirical data was taken from a cross-sectional survey of 173households. The study revealed that non-farm sector provides 70% part-time and 9% full-time employment source with an average of 46% of the total household income. Besides, employment in non-farm sector was widely distributed across sex and various types of occupations. Variables like dependency ratio, years of education, access to credit, crop income, unearned income, access to social capital, prestige in farming, traditional caste systems and various shocks turn to significantly determine peasants decision. The result from decomposition analysis of participation within non-farm activities showed that educational and socio-economic status of the household, access to credit and sufficient man power are among the key determinant for participation in more remunerative non-farm activities. The implication of the results suggest that with increasing demographic pressure and shrinking land resources, the future of rural employment looks bright in non-agricultural sector. Therefore, employment in non-farm sector should be given its due share not only in financial sphere but also in development debates.
Keywords: Non-farm, Rural, Determinant, Employment, Participation, Return

1. INTRODUCTION

1.1 Background of the Study

The economy of rural areas in developing nations is predominantly based on agriculture and other activities related to agricultural sector. Hence an overwhelming majority of rural population is mainly depending on agriculture sector both for its employment and livelihood. However, various non-farm activities are also playing an important role in providing the opportunities of employment and incomes for the rural peasants belonging to both farming and non-farming.

The rural non-farm economic sector comprises activities which are directly or indirectly associated to and supporting to various agricultural and non agricultural related economic activities, excluding the primary agricultural production, performed in rural areas. It consists of wide ranging from various traditional potteries to a modern manufacturing and rendering community and personal services. Farm households across the developing world earn about 30-50 percent share of their income from non-farm sources (Reardon 2005). Primary employment data, which offer the most widely available indicator of the scale of rural non-farm activities, suggest that the sector accounts for about 50 percent of full-time rural employment in developing countries (Reardon 2005). In Ethiopia the sector contributes about 42% of the participant household income and 25% of the rural employment(Loening and M. Imru 2009). However, very little attention was devoted in realizing the contribution of the sector in providing employment and incomes to rural households in the overall development perspective of rural areas in developing countries till the late1970s (Mehta 2002).

Households in developing country like Ethiopia can engage either in farm, non-farm or a mix, however, the extent and the nature of participation varies with the heterogeneous characteristics of non-farm activities. As a result different literature categorize non-farm activities in different ways each based on their objectives, as this paper broadly categorizes in to low and high return activities revealing their productivity face ranging from roadside hawking to agro-processing. The difference in households diversification motives followed by difference in asset, incentives and resistance to shocks makes distinction between participation undertaken for accumulation objectives, driven mainly by “pull factors”; and participation undertaken to survive, hence driven by “push factors.” While participation driven by pull factors is usually associated with an upward spiral of incomes and assets where as the distress push participation sometimes extracts a households from poverty, but can be merely a holding pattern (Start 2001).

The existences of positive relationship between employment in non-farm activities and total income, wealth and even agricultural productivity in the literature have fostered the hope that nonfarm employment may serve as a way out of poverty. However, studies of determinants of participation indicate that typically the rich have superior access to remunerative nonfarm activities. Hence for the dwellers to achieve their desirable livelihood outcomes, the challenge is not quite uniform spatially across activities from last-resort to high

remunerative based on their level of return. This might leads to argue an implicit generalization of non-farm employment as a way out of poverty without considering heterogeneous characteristics of nonfarm activities. This study's plan of decomposition analysis is thus, to resolve this paradox coming from implicit studies. Besides, the study explored solid and up-to-date information about the determinants of employment participation in specific areas of the country particularly, the extent to which participation in non-farm employment is determined by traditional institutions.

1.2 Objectives of the Study

The main objective of this research is to establish a baseline picture of non-farm activities; asses the motivational and the potential factors that leads to the difference in strategies of participation among rural peasants when making a rational decision. More precisely the study is based on the following specific objectives:

- ✓ To assess the intensity of non-farm activities in the study area.
- ✓ To identify the determinants of participation in non-farm activities.
- ✓ To identify determinants of participation choice between high & low return non-farm activities.

2. Conceptual Framework of Participation in Non-farm Activities

Identification of factors determining household's participation in non-farm activities is a big complex issue resulting from the existing diverse rural livelihood strategies within non-farm sector. Participation in to the non-farm sector is a dynamic process associated with the incentives & opportunities, capacities and instabilities of incentives. For conceptual understanding of non-farm participation the frame work developed by Mollers were adapted (Buchenrieder and Möllers 2006).

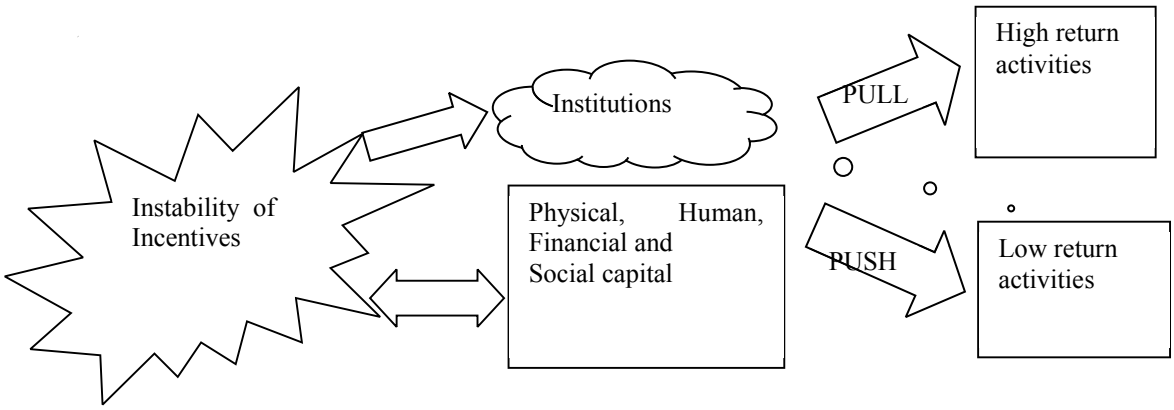

Figure 1: Conceptual Framework for Determinants of rural non-farm activities

To approach the diverse characteristics of rural non-farm activities this analytical framework, will be useful in identifying its determinants. In this framework the traditional institutions like values, attitude, prestige, castes etc are symbolized by a bubble to represents the actual decision making process. All variables related to risk & uncertainties are represented by sharpen shaped feature with its bidirectional effect with 5 types of capital which are capacity constraints. The arrows provided with internal captions as pull & push represents the households rational decision to increase household income or utility as the main driving force for participation in non-farm employment within constrained environment. The incentives are the returns in the forms of prices of inputs and outputs, wages and farm income. The vector of capacities variables make the households able to respond to the instabilities and incentives. Literature explains that incentives either pull or push households into the labor market.

3. RESEARCH METHODOLOGY

3.1 Description of Study Area

The study was conducted in Konso district located at the Southern part of Ethiopia at 596kms from the city of Addis Ababa. According to the 2010 household survey the district has a total population of 262,993 and an overall population density of 115.7 persons per hectare. The area was situated within an altitudinal range of 500 to 2,500 meters above sea level. Farming was a dominant practice despite its erratic rainfall with poor fertile hilly lands. Indeed, the people of Konso were recognized by UNESCO in 2012, for their unique terracing and use of manure to maintain soil fertility. Karat is a capital town of the district placed at the junction of three main roads passing through making it an exceedingly important strategic place for flow of trade activities and labor (both immigration & migrations). Next to the primary sector the non-farm sector is seen as an alternative form of livelihood by the majority of residents. The non-farm sector encompasses various activities like petty trade, crafting, pottery, beverage, mining, fire wood collection, etc. to list some.

3.2 Sampling Techniques

The study used data a cross-sectional survey data obtained from 12 rural communities and one rural Towns existing in the district. The communities were selected purposively from 38 Communities on the basis of their proximity to town and agricultural productivity. Next to that a sample frame of 9300 could be developed, out of which a sample size of 200 households were drawn in a random or probabilistic fashion.

3.3 Model Specification

The decision to participate in non-farm activities was defined to be a function of incentives, instability of incentives, capacity of participation and contextual variables. Accordingly, supply of labor implying participation into non-farm activities is our response variable. An observable outcome is the number of labor force distribution between the two sectors. However, it is assumed that there is an underlying unobservable latent variable that affect household decision to participate in non-farm activities. From threshold theories of decision making a reaction occurs only after the strength of the stimuli increases beyond the individual's reaction threshold. This means a particular choice is made when the combined effect of the vectors of the explanatory variables reaches the critical level. Thus, the decision to participate in non-farm activities is dichotomous between two mutually exclusive alternatives: either to participate or not to participate for the first model, and to be employed in low return or high return activities for the second model presented on Table 3.1. Therefore, the underlying functional form of participation into non-farm activities is represented as:

$$y_i = \begin{cases} 1; y > 0 \\ 0; y \le 0 \end{cases} \quad \text{and} \quad y^* = X_i\beta + \varepsilon_i \text{ -----(1)}$$

Where y* is a latent variable representing unobserved level of participation in non-farm activities and Xiβ is the vector of exogenous explanatory variables. Thus, a decision to participate in non-farm activities will occur only when the combined effect of the explanatory variables (Xi'β) reaches a certain unobserved critical value Yi*. So that

$$y_i = 1 \text{ if } X_i\beta > y^* \text{ or } y_i = 0 \text{ if } X_i\beta < y^* \text{ ----(2)}$$

Applying probability theory, the probability that a given household participates in non-farm activities is given by

$$P = \Pr(y_i = 1) = f(x_i\beta) \text{ -----(3)}$$

And the probability that a given individual household does not participate in non-farm activities is given by

$$1 - P = \Pr(y_i = 0) = 1 - f(x_i\beta) \text{ -----(4)}$$

The average marginal effect after probit that is the effect of a unit change of each variable on the probability P(Y = 1|X = x), ceteris-paribus, is stated as:

$$\frac{\partial P(y = 1 / x_i)}{\partial x_i} = \frac{\partial E(y_i / x_i)}{\partial x_i} = \Phi(x_i'\beta) \text{ -----(5)}$$

Thus two types of binary were developed based on the research questions. The first model used for analysis in identifying factors determining choice between farm and non-farm activities. Similarly, the second model is developed to handle the 3rd question.

Table 3.1 Description of Dependent Variables for Rural Employment Participation

Model	Variable name	Value	Description
1	*Participation in NFAs*	1=Yes	If the household participated in any type of NFAs either part time or full time
		0=No	If the household is pure farmer
2	Participation in high return *NFAs*	1=high return	If the household earns a non-farm income above average farm income of the sample
		0=low return	If the household earns a non-farm income below average farm income of the sample

4. RESULTS AND DISCUSSION

4.2 Description of Survey Data

4.2.1 Demographic Characteristics and Non-farm Employment Participation

Table 4.2 shows that households not participating in non-farm employment have the lowest educational qualification. The significant mean difference between the groups indicates that participation in to non-farm requires higher educational qualifications, particularly for those households participating in high return non-farm

activities. The between group statistics for household size shows that households with large members are less participant in non-farm but if participated they can more participate in higher return non-farm activities that may be attribute of high dependency ratio of nonparticipant.

Table 4. 1 Demographic Characteristics and Non-farm Employment Participation

Variables	Total	Participant	Non participant	High return	Low return
Number of HHHs	173	137	36	51	86
% of male HHHs	*75*	73	81	78	70
Mean age HHHs	35.08	34.94	35.58	36.15	32.90
Mean education HHHs	3.71	4.31	1.39	2.67	2.33
Mean Household size	6.8	6.53	7.83	7.27	6.09
Mean Dependency ratio	0.45	0.43	0.53	0.44	0.42

Source: survey Result

4.2.2 Incentives and Disincentives of Non-farm Employment Participation

Table 4.3 depicts that for the study area non-farm sector provides highest income share next to value of income from livestock. The average land holding for sample households in the study area is about 1 hectare per household. However, an average income from cropping is surprisingly very small. It is about [1]0.22 PPP per person per day which is about 1 unit below absolute poverty line of 1.25 US$. However, the mean crop income for nonparticipant households is significantly greater than crop income for those working part time in non-farm sector. This shows households earning high income from cropping are less sensitive to non-farm employment. This implies that crop income acts as incentive to stay on farm and disincentive to diversify out of agriculture. Employment in non-farm activities provides 33% and 67% of total household income for those employed in low and high return activities respectively. This implies that in both types of employment either participation due to push factors in low return earnings or pull factors in high return are the way out of poverty rather than taken as a part of immiserisation. The sample survey result also shows a fourfold improvement of credit accessibility when compared to the 10% level in 2007 as indicated in rural investment climate survey by loaning (2009). On the other hand, among households having an access to credit only 1% was nonparticipant in non-farm sector. This indirectly indicates that improvement in rural credit schemes are among the most important incentive for rural households to participate in non-farm activities.

Table 4.2 Incentives & Disincentives and Employment Participation in NFAs

Variables	Total	Participant	Non participant	High return	Low return
Mean crop income	2872	2345	4876	3238	1816
Mean NF income	1039	1312	0	2762	453
Mean total income	2257	2378	1797	4082	1367
Access to credit (%)	42	99	1	42	58

Source: Survey Result

4.2.3 Traditional Institutions and Non-farm Employment Participation

Traditional attitudes, ties, values that develop social prestige towards agriculture critically lower the rate of participation. 94% of nonparticipant households are reported as prestigious towards farming. Only 6% of the households with lower caste were not participant in non-farm activities but less capability of entering in to remunerative non-farm activities. This mainly because the lower castes were composed of households whose ancestors were originally not native or came late than the upper class. As a result they were among the poorly resourced and less esteemed or reputed classes of the society.

According to Konso culture there are three traditional statuses or ranks for households based on number of old ancestors starting from the lowest “intaraita”, the middle “tolla” to the highest ranked and resourceful “poqola” meaning clan leader. The data presented in Table 4.4 confirms that the rate of participation in to non-farm sector decreases across the status but the capability of entrance in to high return increases with the household rank. Thus, the result suggests that the increase in degree of households respect for backward traditions and culture that are against some important skills like artisans, potteries, crafting etc hinder from participation in non-activities.

[1] 0.22PPP = 2872birr/12months/30 days/6.8 average household size/5.4 conversion factor

Table 4. 3 Traditional Institutions and Non-farm Employment Participation

Variable (%)	Total	participant	Non participant	High return	Low return
Prestigious	62	54	94	41	61
Lower caste	40	49	6	41	54
INTARAITA	37	40	20	37	43
TOLLA	54	53	61	49	55
POQOLA	9	7	19	14	2

Source: Survey Result

4.2.4 Infrastructure Development and Non-farm Employment Participation

The data related to distance from Towns where there were an access to important infrastructure facilities shows that the rate participation in to non-farm sector decreases with distance. However, the data doesn't confirm the notion that households near towns could participate more in remunerative jobs. This doesn't suggest that jobs shouldn't be made available within a reasonable distance from settlement or Towns. Besides, the insignificant characteristic of distance may be attributable to poor infrastructure coverage for the whole study area. As shown in Table 4.5 many of the households do not have access to road electricity, telephone, mobile phone and tap water irrespective of distance from Town or market centers.

Table 4. 4 Infrastructure Facilities and Non-farm Employment participation

Characteristics (%)	Total	participant	Non participant	High return	Low return
HHs within <10kms	31	38	11	37	36
HHs within 10 to 20kms	34	32	36	37	30
HHs within >20kms	35	30	53	26	34
HHs accessible to infra	20	21	18	41	10

Source: Field Survey Result

4.2.5 Experience of Shock and Non-farm Employment Participation

As it was recognized by social scientists it is difficult to understand the production decision of peasants in developing countries due to several natural, market, and social uncertainties influencing their behavior. Therefore seeking to describe the behavioral characteristics of households to risk in managing their livelihood has prima importance for the next discussion. To control for the risk behavior of the respondents the questionnaire was well prepared to include both preferences and the availability of institutions that are expected to facilitate risk bearing. Based on this, the collected data shows that about 54 % of the total sample households had faced with different types of shocks. Shortage of rainfall, war, disease (cattle & human) and lose of important household member were among the commonly reported types of risk faced by rural peasants in the study area. Climatic (covariate shock) followed by death and illness of household members (idiosyncratic shock) were among the most common problems reported by respondents.

Table 4. 5 Experience of Shock and Non-farm Employment Participation

	Employment participation in non-farm activities				
	Nonparticipant	Participant	Total	Low return	High return
Shock (%)	11.83	88.17	54	89	11

Source: Survey Result

The large percentages for low return participation in Table 4.6 imply unavailability of important institutions that reduce risk aversion of the respondents in the study area. This is because there were no social networks that provide available information and the financial markets like banks, micro-finances, credit associations were not accessible to all equally as there were no preferential treatment for poor peasants. For instance, the institution of local microfinance on loan provision to rural households was restricted to only one project (fattening). Moreover, the high loan interest set for compensation of high transaction cost put households far away from getting local credit services.

Traditionally Konso people had a lot of experience in ex-post and ex-ante risk management strategies. Among the ex-post strategies growing of drought resistant root crops, participating in fattening process, migration to gold mines, casual labor service delivery, collecting firewood and the like during the periods of crop lose. On the other hand the crop produces at the times of bumper harvest would be saved for long periods as ex-ante risk management strategy. Moreover the extra crop produce and livestock were not expected to be sold to invest unless the next season predicted to be better off. However, this culture of taking safety as a paramount often raises conflict between risk and productive choices that may result in efficiency losses when safety is paramount. This is mainly because under uninsured environments peasants select portfolios of assets that are less risky but less profitable as Table 4.6 confirms this fact. As shown among the households who faced risk 88% were participant in non-farm activities while only11% out of them participated in to high return activities.

In other speaking the above survey result indicate that farm households close to subsistence (i.e., those

whose consumption is more vulnerable to income shocks) are less likely to participate in risky high-return activities. These results consistently suggest that vulnerable peasants (and especially the well-off ones who have more to lose) will tend to prefer a safe or conservative strategy with a low return, over a risky strategy with potential higher returns. In the case of participation in luxuries investments, for example, given the costs involved in information, it can be wisest for households with large stocks to postpone their investments until they know more about the expected risky conditions. This might explain the low participation rate of wealthy households in productive projects.

4.2.6 Capital Endowments and Non-farm Employment Participation

On Table 4.7 the mean of education and productive labor (human capital indicator) and the mean of livestock and land (physical capital) by non-farm employment status were reported. High return participants have higher educational qualification and physical capital holding (land, livestock and assets) than low return participants and they have higher mean labor, mean education and asset endowments than pure agriculturalists. Low return participants have lower mean labor and physical capital endowment than pure agriculturalists with significant difference. The result goes with theoretical concept that implies land, livestock and skilled labor improves the capacity to participate in high return non-farm activities. Out of sampled households 52% of the respondents had an opportunity to share important information from participating with various social networks or groups, associations, experts, entrepreneurs etc. in the form of social capital. Among those reported as having an access to social capital (S_K) only 2% were not participant in non-farm activities.

Table 4. 6 Capital Endowment and Non-farm Employment Participation

Variables (mean values)	Total	participant	Nonparticipant	High return	Low return
Livestock (birr)	10424	9167	15210	11688	7672
Land size (ha)	1.02	0.84	1.85	1.26	0.59
% of HHs access to S_K	52	98	2	49	51
Years of Education	3.71	4.31	1.39	2.67	2.33
Productive labor	3.74	3.72	3.68	4.22	3.53

Source: Field Survey

4.3 Intensity of Participation in Non-farm Economic Activities

Though, agriculture is expected to be a prominent source of income, the sample survey result shows that non-farm sector provides a substantial employment for rural households. The sector serves as a partial (mixed) employment source for 121 out of the 173 households from the survey, representing 70% of the total employment. Moreover, the non-farm sector serves as the only source of income for 16 households representing 9% of the total employment. On the other hand, only 36 households constituting 21% were engaged as pure farm employees. This result describes that participation in non-farm activities is intensive in its diversification and comparably common for both sex. Especially, women are far less engaged in farm activities in the study area compared to men individuals. The study found that out of an average household size of 7 members, 2 members on average are engaged in non-farm activities. On the composition of the rural household income, the share of the non-farm sector in the study area is 46% while the rest would be 40 % from livestock, 10% from crop production and 4% is from unearned income indicating that by far, the sector provides the bulk of rural livelihood income.

Table 4. 7 Composition of Household Income and employment by Sector

Sector composition	Out of total income (%)	Employment (%)
Farm & Non-farm	-	70
Farm income	50	21
Non-farm income	46	9
Unearned Income	4	-
Total	100	100

Source: Survey Result

4.5 Determinants of Participation in Rural Non-farm Economic Activities

In Table 4.13 the probit estimation result for important determinants of participation in non-farm activities were presented after conducting proper estimation diagnostics. As in most applications of binary response models, the primary goal is to explain the effects of the explanatory variables on the response probability P (Y= 1/ X). The formulation of latent variable (decision to participate in non-farm activities) gives an impression that we are primarily interested in the effects of each covariate (x_j) on y^*. Since, the basic probit commands report coefficient estimates and the underlying standard errors of the latent variable. But here the latent variable y^* has no well-defined unit of measurement and moreover the coefficients are index. Therefore, explaining the magnitude of coefficients (β_j) has no meaning from theoretical concepts forwarded in previous sections. Thus our concern of

presenting the next probit result is on interpretation of direction and marginal effects of regressors on the response probability**.** Thus, the computed marginal effect after probit gives the derivative of the probability that the dependent variable equals one with respect to a particular conditioning variable (Greene 2003).

As the phrase conditioning variable above indicates these marginal effects can be computed conditionally using Average Marginal Effects (AMEs) method than computing at sample means. The AMEs are preferred as it is computed for each case, and the effects are then averaged providing a better representation of how changes in X_j affect P(Y = 1). Moreover, some adjusted predictions were also made to see how the marginal effect of one predictor differs depending on specific value of other variable ceteris-paribus. Since the effect of a change in X_j on P(Y=1) depends on the values of all of the X variables. In over all, marginal effects provide an informative and intuitive interpretation for how change in a response is related to change in a covariate in both continuous and categorical variables. For categorical variables, the effects of discrete changes are computed, i.e., the marginal effects for categorical variables show how P(Y = 1) is predicted to change as X changes from 0 to 1 holding all other Xs equal. Based on the above all information Table 4.13 presents the marginal effects of each covariate for two categories of participation non-farm to the reference category of pure agricultural activities.

Table 4. 8 **dy/dx for Participation in to Non-farm vs farm using Delta-method**

Covariates	Marginal effect (standard error)	P>z
Age of the Respondent	.0021998 (.0018798)	0.242
Male Respondent	-.054825 (.0416765)	0.188
Years of Education	.0186815*** (.0033755)	0.000
Dependency Ratio	-.0891084*** (.0308341)	0.004
Household Size	-.0073125 (.0080294)	0.362
Access to Credit	.1798964*** (.0338727)	0.000
Income From Cropping	-.0000169** (8.24e-06)	0.040
Value of Livestock	1.76e-06 (1.18e-06)	0.137
Unearned Income	-.0002872*** (.0000978)	0.003
Land Holding	.0122558 (.0211793)	0.563
Prestigious in Agriculture	-.0970969** (.0470264)	0.039
Access to Social Capital	.2162798***(.0354336)	0.000
Lower caste	.152512*** (.0350001)	0.000
Experience of shock	.1473666*** (.0398549)	0.000
10-20kms from market/Town	-.0444576 (.0437169)	0.309
>20kms from market/Town	-.0711176 (.04846)	0.142
Middle Social Status	.0174882 (.061122)	0.775
Lower Social Status	.0193326 (.0675556)	0.775

* p<0.1, ** p<0.05, *** p<0.01

The result for the variable education seem to show positive impact on participation. The average educational status for household heads increase the probability of non-farm participation by at least 1%. However, by computing the marginal effects at different levels of educational status shows that the marginal effect from attending more years above primarily education increases the probability of non-farm participation at a decreasing rate. Nevertheless, an improvement in human capital has a positive impact on participation in non-farm sector. As economic theories suggest technically acquired skills and higher levels of formal education helps to afford and even create migration from wage to high skilled entrepreneurial activities by further creating employment opportunities in non-farm sector. On the other hand at low levels of human capital, improvements in schooling attainments produces a transition from self-employment toward wage employment, as explained by Jacobs (2007). Taking this theory in to our context where, self-employment is employment in farm sector suggests that the findings fit with the later fact. In another speaking years of education more increases the probability of participation through wage employment other than creating job opportunities in the form of entrepreneurship. By this the current findings doesn't agree with the previous two extreme studies the one by Woinshet from general positive side " increase in human capital increases opportunity to various livelihood strategies" and Beyene (2008) who found education variable as insignificant for participation in Ethiopia. The mean difference in descriptive statistics also indicates that there is a statistical difference between participant and non-participant on educational level. Hence, we can conclude that formal education increases probability of non-farm participation at lower level.

The other findings suggest that non-farm employment is more sensitive to negative impact of unproductive labor force relative to agriculture. The result shows households with higher dependency ratio has 9% lower probability of participation in non-farm activities. As higher youth dependency is a characteristic of developing nations most of household female labor forces were hindered from participating in non-farm activities due to giving birth and the respective caring services. This differentiates farming from non-farm employment because most of non-farm activities are undertaken in distant areas from settlements.

As expected lacking access to credit often constrains activity diversification or expansion by 18%. The result was consistent with various literature (Woinishet 2010, (Olale 2011). This positive relationship shows as that the rural peasants' demand credit availability more for investment in NFS than for purchase of agricultural inputs. Though, the government enforces to improve the use of credit for agricultural inputs providing special credit for farmers demanding agricultural inputs like fertilizer and water pumps, due to fungible behavior of money, the credit purpose stated on the credit contract is not relevant for the actual farm input use rather the users informally invest on non-farm activities particularly for transportation purpose to the mining centers.

Agricultural income from cropping acts as an incentive to specialize in crop production activities but at a lesser degree. The findings of (Gebre Egziabeher 2000, Block and Webb 2001, Lemi 2006) and indirectly Woinishet (2010) supports the result. This result may show that individuals and households from areas of high agricultural productivity are less sensitive to diversify their sources of income. The total value of livestock and the hectares of land holding per household were assumed as indicators of wealthy expecting positive impact on non-farm participation however, none of them are significant as in most of the literature. Altogether, the result demonstrates that most of the non-farm participation among poor households is due to push factors and necessarily not an indicator of transformation out of agriculture. Which allows saying that participation is practiced for necessity than for choice, merely like to cover their consumption expenditure. The unearned income obtained in the form of aid, safety nets, pensions etc shows to have a negative impact on peasants' participation.

The dummy variable having access to different social networks or a proxy of social capital plays a key role in providing access to non-farm employment. The result revealed that households having access to participate with various social networks, groups, associations, entrepreneurs etc. have 22% more probability of getting employment in non-farm sector relative to those haven't. Though, the variable is not yet included in previous literature in the context of Ethiopia, it is identified as an important determinant in various countries. (Dary and Kuunibe 2012) found that the probability of a person's belonging to a social network increases ones chances of engaging in non-farm activities. The positive impact of social capital comes from the fact that it reduces transaction costs and particularly through supply of information during job search. Gordon and Craig (2001) suggested that the supply of micro-credit schemes that are often associated with group-lending highlight the importance having access to social capital for Ghana. Zhang and Li (2003) and Khan (2005) also found social capital to be one of the most important contributing factors to non-farm employment in China and Pakistan respectively.

Prestige is seen as an important behavioral variable that determines the decision of households to participate in non-farm activities. The result shows that households who are prestigious towards agriculture have 10% less probability of participating in non-farm activities relative to their counter parts. The variable carries non-pecuniary values from agriculture, traditional values, attitudes etc. These attitudes, values, believe and the like altogether controlled for have a significantly negative impact on participation in non-farm economic activities. Similar findings were also obtained for India(Micevska and Rahut 2008, Himanshu et al. 2011) and Ireland (Howley et al. 2012)

Similarly existence of difference in social class or traditional caste systems significantly determines the probability of one's class participation from the other. The findings show that being from upper social class (aetanta) decreases the probability to participate in non-farm activities by 15% compared to its counter lower social class (Xhawdha). Moreover, the findings confirm with real situation of the study area where**,** the majority of occupations are linked to caste. The cultural traditions of social classification based on some traditional skills and ancestral sources, the upper castes predominate in certain activities such as priesthood and agriculture while, lower castes are engaged in allied activities such as, leather work, sweeping, butchering, crafting, pottery, smith etc. Most of them were landless but traditionally skilled ones in the rural areas. The findings are consistent with findings presented in literature. However, the effect varies according to the culture of country. For instance, in India the upper caste or social class is dominant in non-farm participation but it is the reverse case for this study (Micevska and Rahut 2008).

Shock experience is another important covariate playing a preeminent effect in pushing peasants to participate in non-farm economic activities(Reardon 1997, Barrett et al. 2001, Woinishet 2010). The result revealed that households that faced different types of risks in the past have 15% more probability of participation relative to those haven't experience to any type of shock. In general sense fluctuation in income is the cause of an acute threat to people's livelihood strategies. As this fluctuation occur mainly due to different types of shocks households decision to maintain stable income differs depending on the type of shock and the capability of household to absorb a given level and type of risk they faced.

By computing average marginal effects at different levels of livestock value indicates that the effect of shock on non-farm participation decreases with an increase in income from livestock. Households having access to credit have 12% more probability to participant in non-farm activities due to risk aversion. This shows how much credit services insure the rural poor in improving the financial capacity of poor to participation in non-farm activities. Female headed households have less probability of being pushed in to non-farm employment due to risk

than their male counter parts. They are about 1% less participant in NFS due to risk aversion in farming ceteris-paribus. The effect of risk on the probability of participation across educational ladder decreases from 15% for illiterate to 4% for degree /diploma graduates.

Table 4. 9 Marginal Effects of Shock on Participation at Different Levels

Effect of shock on nonfarm participation at different levels (using Delta-method)								
Years of education			Credit and gender			Stock value		
year	dy/dx	P>z	For	dy/dx	P>z	at	dy/dx	P>z
0	.1525545	0.000	Access	.1850379	0.000	Min	.1470495	0.000
8	.1236372	0.000	No access	.0667106	0.022	Mean	.145209	0.000
12	.0731712	0.021	Male	.1431699	0.000	Max	.1128979	0.017
15	.0385838	0.152	Female	.1355383	0.001			

Source: Own computation

4.6 Determinants of Participation in to High and Low Return Non-farm Activities

In this case the binary discrete dependent variable is participation in non-farm activities as choice for accumulation or for survival in a last resort. It takes the value of "1" as success if the household earns an income above sample [1]average farm income per household per month and "0" if the respondent earns below the sample average farm income.

Table 4. 10 Marginal Effects & Standard Errors of Participation in High Return NFAs

Covariates	Marginal effect (standard error)	P>|z|
Age of the Respondent	-.0105039*** (.0035552)	0.003
Male Respondent	-.0008825 (.0648963)	0.989
Years of Education	.0153642*** (.0049058)	0.002
Dependency Ratio	-.1862412*** (.0644866)	0.004
Household Size	.0170552** (.0086353)	0.048
Access to Credit	.1632258*** (.0499818)	0.001
Income From Cropping	.0000202 (.0000143)	0.157
Value of Livestock	1.13e-06 (1.79e-06)	0.527
Unearned Income	-.0001041 (.0001274)	0.414
Land Holding	-.0540495* (.0289614)	0.062
Access to Social Capital	.0911863** (.0459124)	0.047
Lower caste	.0223764 (.0387228)	0.563
Experience of shock	-.5155509*** (.056147)	0.000
10-20kms from market/Town	.0102937 (.0448955)	0.819
>20kms from market/Town	.0949295* (.0507211)	0.061
Middle Social Status	-.24244** (.1073371)	0.024
Lower Social Status	-.2722502** (.1120397)	0.015

* p<0.1, ** p<0.05, *** p<0.01

The results indicate that, older headed household are 1% less likely to participate in high return economic activities implying that the youths are more attracted towards remunerative jobs. It may be due to a variety of reasons; firstly, these occupations demand hard labor which reduces the chances of those who are older. Secondly, it may indicate the lack of higher educational qualification and skills as most of the old aged heads are illiterate. The result contradict the findings that shows youth headed households, were concentrated in the low return activities.

The educational status for household heads shows about 2% more contribution to participate in high return economic activities. In most of previous studies improvement in human capital through formal education didn't show significant impacts. As a result researchers remained in consistency with idea that economic activities of less developed countries didn't call for higher educational qualifications. However, this condition may not long last as country undergoes continuous motion to develop and educational enrollment is one of the main indicators of nation's development. Thus, as the real world is not stationary state, our literature should move up by one step to the case where illiterates and the less qualified individuals have less chance for remunerative job employment. The reverse is illiterates and less qualified individuals are concentrated in low return activities for survival as it is their last resort. Importantly, the result shows that there is no gender bias between female and male headed

[1] *The threshold used at average farm income computed from sample households is approximately comparable to the Ethiopian absolute poverty threshold of 5.4 ppp* 30days* 6.8 average household size of the sample=1101.6==1108.*

households.

Demographic characteristics such as number of household members and the ratio of unproductive labor force for a given household shows a significant effect on the probability of participation in high return activities. As expected the result shows that households with high dependency ratio have 19% more probability to involve in low paying jobs for means of survival. By, computing the marginal effects for dependency ratio at different levels of household size shows that the negative effect of the variable on the probability of participation increases with increase in size of the household cetera-paribus. On the other hand, employment in high return activities require large number of labor force as the result predicts that an increase in household size increases the probability of participation in high return activities by about 2%. Again the increase in negative impact of the variable with increase in levels of household income bans us from concluding that households with more eating mouths have more probability to be pushed in to low return activities for the fulfillment of basic needs.

Employment in high return activities require physical capital plus both quality and quantity of human capital. However, peasants were in trade-off between accumulating physical capital from livestock and/or crop income and improving or using the important human capital. That means rearing large stocks took large share of labor force and by the same token makes illiterate. This takes as to the reason why the variable value of livestock has positive sign but insignificant contribution for households to engage in high return activities. This implies that the negative impact of large livestock holding on human capital outweighs its positive contribution of serving as capacity in physical terms. Thus, it is advisable for peasants to liquidate and/or reduce the return from such types of primary agriculture to invest more in human capital.

To be participant in high return non-farm activities supply of large labor force in primary agriculture to acquire capacity is necessarily important, however, it decreases the quality and quantity of human capital which is sufficient for participation in high return economic activities. Within this condition of trade-off in labor demand a very small dependency ratio can have possibility to impose greater negative impacts. That is most probably the case for an increase in the impact unproductive labor force with an increase in agricultural income status of households as presented in Table 4.17. This may matches with Atamanov and Berg (2011) reflection of having more dependents constrains participation in the RNFE due to the trade-off in allocation of labor between farm and non-farm activities.

Table 4. 11 Marginal Effects of Dependency Ratio at Different Levels

Marginal Effects at	Effect of shock on non-farm participation at different levels					
	Household size		Value of stock		Crop income	
	dy/dx	P>z	dy/dx	P>z	dy/dx	P>z
Min	-.1712318	0.008	-.1845591	0.004	-.1726866	0.006
Mean	-.1939907	0.003	-.1864773	0.004	-.1861753	0.003
Max	-.2120923	0.002	-.1989252	0.006	-.2193789	0.001

Accessibility to different financial sources like micro-finance institutions and RUSACCO's shows a positive and significant effect in smoothing the entry in to high return non-farm employment participation. According, to safety-first model of rural peasant livelihood strategies rural households give-up opportunities of investment in high return activities rather than liquefying their stocks due to high risk aversion behavior. On the other hand the existing higher stock values in the form of livestock, crop produce and fixed assets serves as greater assurance to have access to credit in the form of collateral requirements. This shows that if they are to participate they have 16 % more probability of investing in high return activities. Besides, it is obvious reason that, employments in most of the low return economic activities do not require initial working capital that is why they are referred as easy entry activities.

Unexpectedly the hectares of land holding have negative sign indicating households related with large hectares of farm land have about 5% more probability of participating in low return activities. As stated in the literature the amount of hectares of land holding is expected as an indicator of wealth since, in most of the case it approaches to private property that have freedom to exchange as it has traditional supporting backgrounds in the society. It is from this fact that if peasants have such a pricey stock at hand they are more at a glance to invest in more remunerative jobs. However, the result is in contrary to our positive expectation suggesting us that relatively large landholders work shorter spells even though their landholdings do provide them access to the higher wage occupations. Which allows saying that participation is practiced merely to cover their consumption expenditure and not an investment for accumulation. The result matches with findings of (Micevska and Rahut 2008).

Having an access to various social networks still provides its important contribution in search for high return activities. The positive and significant impact of this social capital may have important implications for the operation of labor markets and barriers to enter the RNFE. For example, certain employment opportunities may not require a great deal of capital, experience or skill, but a friendship or kinship relationship might be an important determinant of access. The variable named social status is special type of determinant in that it is most probably unique to this study and carrying socio-cultural representation of households' economic status. As coded in the

output Table the result shows that clan leaders (upper status) have 27% & 24% more probability of getting employment in high return activities relative to households in lower (INTARAITA) and middle (TOLLA) statuses respectively. The findings importantly predict that across the social status from bottom-up the probability of participation in remunerative jobs increase. This is a reasonable prediction because across the status bottom-up both the level of household's wealth status and the amount of labor force increases.

The proximity to the nearest market or town is critically an important variable expected to have negative sign but unfortunately the variable is insignificant and not carrying the expected sign. However, at 10% level of significance households at distance of greater than 20kms from the nearest market or town have 9% more probability of participation in high return non-farm activities relative to households at a distance of less than 10kms. The unexpected positive effect of the distance from market or town or accessibility of important infrastructure on employment choice suggests that households start non farming at high profit margin in remote areas to compensate for low agricultural margins. Most of the findings in Ethiopia shows that proximity to town has positive impact on the probability of participation however, Beyene (2008) in Ethiopia and Atmouve (2011) in Kyrgyzstan, has found positive relation with an increase in distance from Towns. Moreover, Loening et al. (2008) in their analysis of challenges and prospects of non-farm in Ethiopia they found strong nonlinear relationship between proximity and participation since participation rate decreases at a decreasing rate as the distance to nearest market or Town increases. According to the context of the study the findings are acceptable because the important characteristics to be captured by distance availability of infrastructures such as telephone, mobile phones, pipe water etc are almost nonexistent for both those at periphery and those within the town itself. Moreover, both econometric and the descriptive result accepts the hypothesis that the rate of participation in to non-farm sector decreases with distance and rejects the hypothesis of households near towns could participate more in remunerative jobs. Nevertheless, this doesn't suggest that jobs shouldn't be made available within a reasonable distance from settlement or Towns.

The last but not the least important determinant is households experience to shock that critically explains the distress push scenario. The result shows that households that experienced shock in the previous periods have 51% more probability of participation in low return non-farm activities relative to those who didn't faced any type shock in the past. This indicates that shock is a predominant push factor in determining rural employment participation within non-farm activities.

5. CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Most of the previous studies in this area were at country level and undermines the effects of contextual variables. Particularly, no study yet used to control for important institutional and cultural variables determining peasants' decision towards non-farm participation in Ethiopia. Besides it is also noted that most researchers in rural Ethiopia analyzed participation without controlling for heterogeneity characteristics of non-farm activities based on level of return. Thus, the structure of this paper is in a way to overcome these limitations. The objective of the study was to analyze determinants of peasants' employment participation in rural non-farm activities.

The survey result shows that participation in non-farm economic activities is widespread among rural populations in the study area. In terms of gender distribution the survey revealed that women have more opportunities available for working non-farm than men. However females feed on the lowest mean of particularly in service sector. Participation in non-farm economic activities was found to be influenced by several factors and not a single factor. Years of schooling, dependency ratio, accessibility to credit, social capital, cast, prestige and experience to shock plays a predominant role in determining participation decisions of rural peasants. While the majority of households do diversify their activities, access to high return non-farm activities might be limited due to lack educational qualifications, financial capital or shortage of capacity in terms of human, financial, social and physical capital or assets. In general, household in rural Ethiopia participated in non-farm activities when they have surplus labor, personal capability, financial resource, opportunity and when farm output reduced because of shock, lower agricultural productivity or wealth.

5.2. Recommendations

The results of the current study provide evidences on factors determining participation in non-farm sector; its contribution in terms of employment and income in rural areas of Ethiopia. The findings of the study also have important implications for the countries growth and transformation plan particularly to small and micro enterprise programs and the rural employment generation schemes. Investment in agricultural productivity growth is important for poverty reduction in rural areas. Nevertheless, the growth of the rural non-farm sector could be an important complement to investments in agricultural productivity. Empirical evidences show that agriculture would be no longer the only livelihood source for rural areas in Ethiopia. The trade-off between the registered fast population growth rate and average farm size already stood at less than a hectare to meet the subsistence needs of about 7 people. Furthermore, the current monthly average value of income from cropping is about 34 Ethiopian

birr per person an extremely below minimum subsistence level of income. Under such circumstances, the prospects for growth and poverty reduction will crucially depend on the performance of the non-agricultural sector. Therefore, the alternative source of employment in non-farm sector should be given its due share not only in financial sphere but also in development debates. Hence, policies designed for the improvement of the rural non-farm sector must give attention to the factors that influence participation in non-farm economic activities.

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