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### **Household Budgeting and Alcohol Consumption Determinants: A Study on Limboo Tribes of Sikkim**

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#### **ABSTRACT:**

This paper has empirically studied the composition of consumption pattern of the Limboo households (one of the original inhabitants of Sikkim) and the share of the food and non-food items in the total consumption basket and the determinants of the alcohol consumption, being a major component in consumption basket. The study finds that the share of food is highest followed by education and health in the total monthly consumption. District wise sample data shows the value is highest in East district. In case of alcohol, the Limboos in the East spend almost 9.5% of the total expenditure on alcohol and this amount exceeds the expenditure on education. The logit regression analysis shows that 67%-72% of variation of the chance of consuming alcohol is due to the factors such as average education, log of income, religion dummy and education of head and interaction effect of average education and log of income. Among the factors log of income is positive and significant in boosting the probability of drinking habit. Hence, efforts at government and at individual family level should be made not only to improve the education of households but also to aware them of the consequences of alcohol consumption. The state government must seriously go for awareness campaign for more education.

**KEY WORDS:** Household Budgeting, Alcohol Consumption, Limboo Tribe, Logit Regression.

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## INTRODUCTION:

Sikkim, one of the states of India, it is located in the northern part of India sharing its boundary with Nepal, China and Bhutan. It has a geographically distinct climatic condition, characterizing different life style pattern but also have different economic activities such as tourism and other services making a distinct economy from the rest of the country. The total population of the Sikkim is about 6.07 lakh, which constitutes only 0.05 per cent of the country's population<sup>1</sup>. In the State almost twenty-one sub-communities are residing across the State. Furthermore, these communities are divided into five social groups they are Scheduled Castes (SCs), Scheduled Tribes (STs), Other Backward Classes (OBCs), General and Others. Tribal population (STs) composed of consists of four different sub-ethnic groups; Lepcha, Bhutia, Limboo<sup>i</sup> and Tamang. Though they are in same social group but their economic conditions, culture and food habits are distinct from each other. In Limboo community alcohol consumption is traditionally, a cultural and social habit. In Sikkim more than 55 percent of the Limboo Households consumed alcohol<sup>2</sup>.

The term Limboo means Archers<sup>3</sup> and it is commonly used in Darjeeling and Sikkim. History gives enough evidences to prove that Limboos are also original inhabitants of Sikkim. The word 'Limboo' literally denotes to the people those who are residing in other side of mountain range<sup>4</sup>. The Limboo language is descendant of *Kirati* branch of *Tibeto-Burman* language. In fact they follow the principles of 'Yumaism' religion. But large number of community has become Hindu and also the small portion of Limboos is being converted into Christianity in the Darjeeling Hills and Sikkim<sup>3</sup>. Basically they are agriculturists, pastoralists and laborers. Very few numbers of them are engaged in Government service sector. Like the Lepcha and Bhutia tribes, Limboos also practice polygamy and trend of bride price. Limboos are living in Darjeeling (WB), Kalimpong (WB), Assam and Nepal. In case of Sikkim, Limboos are scattered in all the multi-ethnic villages but majority of them are residing in West district of Sikkim<sup>ii</sup>.

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<sup>i</sup> Limboo or Limbu or Yakthung or Subba or Tsong

<sup>ii</sup> Population of Sikkim has grown by 12.31 per cent during the last 10 years. Broadly, population of Sikkim can be divided into Bhutia, Lepcha and Nepali community. By Sikkim Schedule Tribe Order 1978 the Bhutia and the Lepcha are declared as Schedule Tribe of Sikkim. Nepali community consists of several sub-communities and among them the Limboo and the Tamang are also categorized as Schedule Tribe of Sikkim in the year 2002 by Indian Constitution. In the state, ST grew by 13.2 percent in a decade. In fact within a decade tribal sex ratio has increased to 960 females from 957 in 2001 but is less than national level i.e. 991. In North district of Sikkim 65.7 percent population of the district is ST followed by West district (42.1%) South district (28.2%) district population is tribe. Perhaps, in East district tribal population is less than 25 percent.

In the year 2002, Limboo and Tamang Tribes are designated as ST by the Constitution of India<sup>5</sup> after this declaration, number of tribes has increased remarkably in Sikkim. The Lepcha and Limboos are indigenous as well as real habitant of Sikkim<sup>3</sup>. According to State Socio-Economic Census (SSEC), 2006 total population of the Limboo community constitutes (57 thousand) is about 9.75% of the total population of the state and 26.05 percentage of total tribal population of Sikkim.

**Table 1: Comparison of Percentage Distribution of Tribal Population in Sikkim (1891 to 2006)**

Community	Total population (1891)	In %	Total population (2006)	In %
Lepcha	5762	18.91	45239	7.77
Bhutia	4894	16.06	76070	13.08
Limboo	3356	11.01	56650	9.74
Tamang	-	-	39457	6.78
State	30458		581546	33.79

Source: Gazetteer of Sikkim, 1891 and SSEC, 2006 (the new data is not yet published by the Sikkim Government).

The Limboo Community stands second rank just after Bhutia in terms of population among tribal community in state. In Sikkim, for the first time census was conducted in Feb, 1891<sup>6</sup> the total population of Sikkim was 30458. During that time percentage of the Lepcha community was 18.91, Bhutia with 16.06 and Limboo was 11.01 percent. And others were Nepalese. In this census Tamang community has not been registered in the list, (refer Table 1).

Late recognition of Limboos as STs has deprived the tribe from several government (both centre and state) benefits of welfare programs declared from time to time. So the tribe is facing with several challenges in all aspects of day to day activities requiring an urgent solution. It means community deprived virtually state of basic needs. Still some of the Limboos have been believed on shamans and black magic for health related matters. Traditional medication has remained their first preference to care many diseases. In political participation they seem to be lacking behind for a long period. During colonial period or post colonial period, the Limboos of Sikkim were politically marginalized, and the consequence is that they are facing identity and endogenous crisis<sup>7</sup>. Because of the peace loving and shy nature most of the community members have been residing in rural areas a place of complete negligent in all aspects. In addition to this, inadequate social infrastructure and absence of credit institutions are serious problems of the community. Their economy is mainly based on primary sector. Low level of literacy rate, high unemployment and mortality rate, less number of government employee from the community, and high poverty rates are major challenges faced by the

Limboos of Sikkim. As it is already mentioned although total population of Limboo community has increased but percentage to total population of state is going down.

Some of the related studies conducted in Sikkim shed light on socio-economic and political status of tribal community of Sikkim. However, no study is found with respect to the analysis of economics of consumption pattern. Within tribal communities of Sikkim, the Lepchas and the Limboos are politically, socially, economically and educationally more backward than the Bhutias. In addition to this it is also highlighted that Limboos are politically marginalized and facing political identity crisis<sup>7</sup>. Most of the community members are engaged in primary sector. Some of them are landless, small and marginal farmers. Daily workers carpenter and mason mostly contributing into their economy. In the community mixed farming is common practice and it may be because of less land possessing. Similarly livestock rearing and cultivation of horticultural crops is general trend. Though the Limboos' economy is not up to mark but still their expenditure exceeds income. Debt burden is common phenomenon to bridge deficit and they borrow money from informal sectors in which they may have to pay high rate of interest<sup>3</sup>. Even some of the members mortgage their land to meet social expenses in special occasion. In each and every social circumstance Limboo people use alcohol and alcohol drinking is very common in community. In Limboo language it is called 'Thi' and majority of community member drink home-made alcohol. In Sikkim Limboos are comparatively poorer than other tribal communities.

Household budgeting (budget allocation) is a vital economic indicator of Knowing the pattern of expenditure of given income on various needs of sustaining a family. It not only indicates the standard of living but also indicates how families assign weights to different components of households needs such as food, clothing, shelter, education, health care, alcohol and others their budget. The empirical studies on family budgeting are;<sup>8-11</sup>.

The study of the prevalence of weight concerns and subsequent eating behaviour modifications among a group of adolescent girls in Sikkim shows that girls from families with higher income and higher economic status are about two times more likely to report dissatisfaction with their body weight and girls are five times more likely report the need for dieting<sup>12</sup>. Like-wise different studies in different aspects such as Soil, water and nutrient conservation in mountain farming system<sup>13</sup>, comparative assessment of runoff characteristics under different land use pattern within a Himalayan watershed, hydro logical process<sup>14</sup>, Hydrology and nutrient Flux in an agrarian watershed of the Sikkim Himalaya<sup>15</sup> etc. have been done in Sikkim.

The tiny Himalayan state, Sikkim is well known for its multi-cultural and multi-ethnic identity. There is a political and historical debate regarding the identity of communities in Sikkim. Lepchas are considered original inhabitants<sup>16</sup>.

Climate, geographical location and wide and easy availability of alcohol in Sikkim make this state venerable for alcohol use. Alcohol drinking among parents, siblings and friends found to be important risk factor<sup>17</sup>. The National Household Survey (NHS) of drug use in India is the first systematic survey to document the nation-wide prevalence of drug use in India. The study shown that the primary substance used (except tobacco) was alcohol (21.4%) and opioid (0.7%) 17 to 26% of alcohol users qualities for international classification of disease<sup>18</sup>. The drug abuse maintaining system which evaluates the primary substance of abuse in inpatient treatment centers found that major substances were alcohol (43.9%) opioids (26%) and Cannabis (11.6%)<sup>19</sup>. The result of National Family Health Survey-3 (NFHS-3)<sup>20</sup> reflects an increase in alcohol use among males since the NFHS-2 and increase in tobacco use among women. There is marked various in alcohol use prevalence in different states of India (low of 7% in western State of Gujarat) to 75% in North-Eastern state of Arunachal Pradesh<sup>21</sup>. Alcohol use has traditionally been prevalent among population of Sikkim. There is rampant drug abuse in Sikkim even in advertently; students start as early as from the age of 9 to 10 years when they start using dendrite, alcohol and tobacco<sup>22</sup>. NFHS-3, Government of India has also highlighted a significant prevalence of alcohol use in Sikkim-45.4% and 19% among above 15-49years<sup>20</sup>. There is dearth of information on socioeconomic status and pattern of alcohol and other substance users of Sikkim. Empirical analysis on the determinants of the socio-economic characteristics of alcohol consumption will be a fruitful attempt to understand the present position of the Limboo tribes in Sikkim.

Keeping these above information in view the present paper aims at studying the composition of consumption baskets of the Limboo households and the share of food, clothing, education, health care, alcohol and others in total consumption basket. Realizing alcohol as a component of consumption has economic, non-economic and religious implications, the paper aims at empirically studying the probability of consuming alcohol by the Limboo households.

The study has considered Sikkim because Limboos are the indigenous community of Sikkim and even though they are found in other places such as Nepal and Darjeeling. Secondly, Limboo have been considered as among the Scheduled Tribe (ST) population of Sikkim. Limboos are marginalized and economically and socially less advantageous position (literacy, per capita income,

employment in government sector). Lastly, alcohol is considered due to its significance from the point of view of climate, economic status, religion, social status etc.

## **MATERIALS AND METHOD**

### ***Sources of Data***

Primary data have been collected with the help of a questionnaire written in English and local language to make it convenient for the respondent to understand and answer the questions properly. Since Limboo tribes are scattered in all four districts of Sikkim with unequal concentration, three villages from each district (Mulukey, Bering and Dugalakha from Rhenock block in East, U/Thambong, L/Thambong and Okharey from Daramdin block in West district, Mangsila, Namok and Samten from Mangan block in North and Lingmoo, Niya and Rangrang in South district) have been selected purposively (where concentration of Limboo community is more) making a total of 12 villages are surveyed. Further from each village 5 Limboo households have been selected randomly. The required information was obtained through direct interview method. Hence a total of 60 Limboo households from four districts of Sikkim are being selected.

Further, secondary data have been collected from following sources; State Socio-Economic Census 2006 (Sikkim)<sup>2</sup> and Census Data, Government of India, 2011<sup>1</sup> and Sikkim Human Development Report 2014<sup>23</sup>.

### ***Nature of Data***

Since the present study is related to economic aspects of Limboo community, the collected information is on following issues; Basic information of the household (family type, size of family), The composition of household (sex wise, occupation wise, age wise, education wise), Sources of income; Income from agriculture/ farm, non-farm income like income from government services and private sector, (permanent/temporary/contractual/adhoc), income from business (temporary or seasonal/permanent) and Expenditure pattern; Expenditure on food, clothing, education, housing, health and expenditure on others.

2 factors 2 level ANOVA test have been conducted to analyze the impact of education level, family size and religion level on mean monthly expenditure. Tukey test is conducted to know which districts homogeneous groups are as far as mean monthly expenditure is concerned.

### ***Logit Model***

The second part is using the logistic regression model to know the factors of alcohol consumption.

The decision to drink alcohol or not depends on an unvaluable index  $A_i^*$ , which depends on explanatory variables such as;  $A_i^* = BX + U_i$

$BX$  is the matrix of the product of coefficients and independent variables.

$I$  = the individual

$u$  = error term

It is reasonable to assume that

$Y_i = 1$  (a person drinks) if  $A_i^* \geq 0$

$Y_i = 0$  (a person does not drink) if  $A_i^* \leq 0$

$\Pr ( Y_i=1)=\Pr ( A^* \geq 0 )$

$=\Pr [ ( BX + U_i ) \geq 0 ]$

$=\Pr ( U_i \geq - BX )$

The logit model assumes that the probability distribution which can be written as

$$P_i = \frac{1}{1 + e^{-z_i}} \text{ -----(1)}$$

$P_i$  = Probability of drinking alcohol (  $y_i = 1$  )

$$Z_i = BX + U_i \text{ -----(2)}$$

The probability that  $y=0$  is given by  $1/P_i = \frac{1}{1+e^{z_i}}$

Now  $\frac{P_i}{1-P_i}$  is simple odd ratio in favor of drinking alcohol

$$\frac{P_i}{1-P_i} = \frac{\frac{1}{1+e^{-z_i}}}{\frac{1}{1+e^{z_i}}} = e^{z_i} \text{ -----(3)}$$

Taking log of equation (3) we get

$$L_i = \ln \frac{P_i}{1-P_i} = Z_i = BX + U_i \text{ -----(4)}$$

The empirical logit model for the study is as specified in the equation (5)

$$L_i = \beta_0 + \beta_1 X_{1i} + \beta_2 \ln X_{2i} + \beta_3 d_1 + \beta_4 X_{3i} + U_i \text{ -----(5)}$$

Where,  $X_1$  = Average year of education

$X_2$  = Ln (income)

$d_1$  = Religion dummy

$X_3$  = Education of head of family

$U_i$  = error term

## RESULT AND DISCUSSION

**Table 2: Monthly Average Expenditure of the Limboo Households in**

Average expenditure on	District			
	East	West	North	South
Food*	3533 (55.32)	5166 (46.04)	3767 (39.48)	2566 (52.76)
Clothing	574 (8.98)	888 (7.91)	534 (5.59)	291 (5.98)
Education	574 (8.98)	3086 (27.50)	2544 (26.66)	1192 (24.51)
Health	365 (5.71)	1034 (9.21)	699 (7.32)	173 (3.55)
Social Rituals**	274 (4.29)	283 (2.52)	1277 (13.38)	287 (5.90)
Alcohol***	608 (9.52)	177 (1.57)	234 (2.45)	190 (3.90)
Others#	458 (7.17)	586 (5.22)	486 (5.09)	164 (3.37)
Total	6386 (100)	11220 (100)	9541 (100)	4863 (100)

Source: Primary Data (The figures in bracket are in percentage)

\*Food includes all staple foods, cereals, seafood, edible nuts and seeds, edible fungi, edible tubers, edible legumes, edible plants, eggs, dairy product, meats breads, confectionary food, processed food, sweet food, dried food etc. \*\*Expenditure on Social Rituals includes expenses on; healing rituals, birth day party, attending wedding party, funeral, housewarming, and all kind of certain and uncertain social circumstances. \*\*\*All type of alcohol like liquor and country liquor or homemade alcohol (Thi). They are habituate of taking alcohol and Limboo tribe uses homemade alcohol during social events as compulsory and they offer it instead of tea for their guest which shows respectful and prestige toward guests. # Others means life maintenance like electricity bill, TV recharge, mobile recharge expenses on entertainment, jewellery, miscellaneous, conveyance etc.

The sample data shows that monthly expenditure on food varies from district to district. In east district the monthly food expenditure is 55% of their monthly income. In west district 46 % of household monthly expenditure spends on food, in north it is 39% and in south district it is 52%. The percentage of monthly expenditure on clothing seems almost equal in all four districts. There is huge difference in monthly expenditure on education among the four districts. In east district out of total



monthly expenditure of the Limboo households around 8.9% spend on education whereas in other three districts expenditure on education is much higher than east district. West district spends 27% of its monthly expenditure on education, likewise in north district 26% of their monthly expenditure expense for education and in south district it is 24%. The factors like; less number of school going children, no private schools within the society or nearby, low education level of head of household and lack of campaign regarding importance of education are main causes of low expenditure on education. As per primary data Limboos of west district and north district are a bit more conscious about taking their health care. Monthly expenditure on health west and north district is slightly higher than health care expenditure of east and south districts.

There is vast disparity of monthly expenditure on alcohol among the four districts. In east district the percentage of expenditure on alcohol even exceeds the percentage of expenditure on education. In east district the monthly expenditure on alcohol is 9% whereas in west district it is only 1.5%, in north district it is 2.4% and it is 3.9% in south district. Though majority of the Limboos reside in west district but then their expenditure on alcohol is less than east district. Low literacy rate of the Limboo community, high dropout rate in locality and social rituals are the main responsible factors of higher expenditure on alcohol by the Limboo community in east Sikkim.

The result shows that region level, family size level and education level has significant impact on the mean monthly expenditure. But all the interaction effects are insignificant. South and East fall in one group and East, North and West district is a universal group has similarity with both the groups. Means for group in homogeneous subsets are displayed.

**Table 3: Tukey Test for Homogeneity of Groups for Expenditure**  
(Dependent variable: expenditure)

	N	Subset	
Regionlevel	1	2	1
South	15	1897.20	
East	15	2385.33	2385.33
North	15		4225.47
West	15		4399.27
Sig.	.942	.108	

Source: Primary Data

From the raw data it is clear that the maximum amount of alcohol expenditure in a month per family is Rs. 2000 and minimum is 0. The mean percentage of total expenditure spent on alcohol is 31.9% and maximum mean % of total expenditure on alcohol is 30.7% with minimum of zero.

The Omnibus Tests of the model coefficient gives general test of how well the model performs. From the model summary Table 4 Cox Snell and Nagel Kerke R Square value gives an approximation about how variance in the dependent variable can be explained with the hypothesis model. As per the value it shows 67% to 72% variation in the dependent variable due to the model.

**Table 4: Logit Model Summary**

	Cox and Snell R Square	Negel Kerke R <sup>2</sup>
1	.67	.72

In the Table 5 the summary of the result of prediction about the alcohol drinking habits based on average education, log of income, religion dummy, education of head and interaction effect of average education and log of income. The model correctly predicts 70% of the non alcohol drinkers and 66.7% of the alcohol drinkers. Overall prediction is 68.3%.

**Table 5: Estimates of Parameters of Logit Regression**

Variable	Beta coefficient	Exp(B)	P Value
Constant	-5.65	.003	.140
Avgyear of edu	.007	1.007	.992
Ln(income)	.66	1.93	.023*
Religion dummy	1.69	5.101	0.5
Edu of head	-.330	.719	.010*
Avg.edu.log(income)	.017	1.017	.819

Hence the covariant of the logistic regression are taken as average education, total income, education of the head of the family and religion of the family. The religion of the family (Hindu and non Hindus) taken as categorical variable. The logistic regression .parameters as per the equation (5) has been presented in Table-5.

As per the Table, positive beta coefficient for average education, income, religion dummy and the interaction effect shows higher chances of a drinking habit with increase in those variables. Whereas education of the head shows negative beta coefficient meaning increase in education of head reduces the chances of alcohol drinking habit. The exp (B) shows that increase in 1 year of schooling increases the habit of a drinking by 1.007 among those entire coefficients.

## **CONCLUSION**

Broadly speaking the population of Sikkim is divided into Bhutia, Lepcha and Nepali community. Limboo and Tamang were included in Nepali community till 2002. After that they were declared as ST people. Limboo community consists of 9.75% of the total population. Despite their second ranking in number just after Bhutia, the Limboos are struggling with several challenges like conversion of religion and culture, inaccessibility of safe drinking water and food means almost deprived state of basic needs. Still some of the Limboos have believed on shamans and magi co-religion for health treatment. Traditional medication has remained their first preference to care of any diseases. Their economy is mainly based on primary sector. Low level of literacy rate, high unemployment and mortality rate, less number of government employee from the community, and high poverty rates are major challenges faced by the Limboos of Sikkim. It was 11.01% during 1891 but has fell down to 9.74%.

Keeping these statistical figure in background, a sample of 60 Limboo households have been surveyed to examine the socio-economic status of the Limboo families, their differences with respect to district type, religion, size of family and other more specially the factors influencing the level of expenditure. As per the social status is concerned the average family size of the sample households is 5.6 and it is highest in West district followed by South and North. The overall impact of region level (districts), family size, education level has significant impact on the mean monthly expenditure of the Limboo households and individually the expenditure level deferred district wise, family size wise and education level wise. But the interaction effects of these three variables do not have any impact on the mean monthly expenditure. Similarly religion and family type has an impact on the monthly expenditure of the households.

Further one important aspect of the monthly expenditure is share of expenditure on alcohol. Since more than 5% of the total expenditure of the Limboo community goes on alcohol, the logit regression has been used to predict about the factors of spending and not spending on alcohol. The result suggests that increase in one year of education of the family increases the chance of spending on alcohol by 1.007 times. But this is statistically not significant. However, income has significant chance of improving the odd ratio in favor of alcohol consumption (1.93). Religion has a favorable chance of increasing alcohol consumption. But education of the head has negative impact on the chance of consuming alcohol.

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