DETERMINANTS OF SAVING BEHAVIOUR IN RURAL AND TRIBAL HOUSEHOLDS (AN EMPIRICAL ANALYSIS OF VISAKHAPATNAM DISTRICT)

Dr.Surya Prakasa Rao Gedela*

Abstract

The present study aims at investigating the determinants of the saving behavior of the tribal and rural households in the district of Visakhapatnam. The data of 120 sample households has been collected from both tribal and rural households by using interview schedule. This study has been used the Multiple Regression Model and Logistic Regression Model for finding out the determinants of saving behavior of households situated in tribal and rural areas. The results ultimately reveals that the age of the head of the household, sex, dependency ratio, income and medical expenditure are significantly influencing the saving behavior in the entire study area. In the tribal area, dependency ratio and medical expenditure has severely affected of household savings.

Key words: savings, tribal area, rural area, Regression, odds ratio,

* Associate Professor, P.G.Department of Economics, G.V.P.College for P.G.Courses, Visakhapatnam, Andhra Pradesh.

Introduction:

From the classical times, saving has been considered as one of the determinants of growth. To lead the underdeveloped countries to the path of development, rate of savings must be enhanced. For the individuals and households, savings provide a cushion of security against future contingencies, whereas for the nation, savings provide the funds needed in the developmental efforts. To achieve higher rate of growth with relative price stability, the marginal propensity to save should be raised by appropriate incentives and policies. Also, in an era of international financial integration, for macro economic stability, higher domestic savings are essential.

Keynes (1936) identified absolute disposable income as the important determinant of saving. Other two post-keynesian theories, Friedman's (1957) Permanent Income Hypothesis (PIH) and Modigliani's (1963) Life Cycle Hypothesis (LCH) explains the determinants of savings point out that other variables also affect the saving of the households. Friedman (1957) PIH differentiated between permanent and transitory income and indicates that savings are influenced by both permanent and transitory income as well as present level of wealth (both human and non-human). As per the Modigliani's LCH, the main reason for savings is to meet the expenses after the retirement and to acquire wealth. Hence, the age of the household plays an important role in the saving behavior. These three traditional theories and their variants have been extensively used in the empirical studies focusing on the household saving behavior in developed and developing countries. The results obtained for the developing countries have quite often deviated from inferences derived from the studies based on the analysis of the developed countries. The micro and macro studies focused on the saving behavior of households in developed countries are based on the premises of perfect capital markets and the absence of risk aversion. Thus, these theories are found to be deficient in explaining the saving behavior of the households in developing countries where most of the households are poor, risk averse and operate in the scenario of uncertainties and imperfect financial markets.

In India, the notable feature of recent GDP growth has been a sharply rising trend in gross domestic investment and saving, with the former rising by 13.1 per cent of GDP and the latter by 11.3 per cent of GDP over five years till 2006-07. The average investment ratio of Tenth Five - Year Plan at 31.4 per cent was higher than that for the Ninth Five - Year Plan, while the average

saving rate was also 31.4 per cent of GDP higher than the average ratio of 23.6 per cent during the Ninth Five - Year Plan. Gross domestic savings as a proportion of GDP continued to improve, rising from 26.4 per cent in 2002-03 to 34.8 percent 2006-07 with an average of 31.4 per cent during the Tenth Five - Year Plan. The saving-investment gap, which remained positive during 2001-2004, became negative there after. In a modern economy, the excess of domestic saving over domestic investment suggests a deflationary situation in which demand has not kept passé with increased capacity. Thus the reversal of the saving-investment balance should be viewed as a correction of the domestic supply-demand balance, occurring through above normal increase in demand during 2005-06 and 2006-07.

Both private and public savings have contributed to higher overall savings. Private savings have risen by 6.1 per cent points of GDP over the Tenth Five - Year Plan period while public sector savings increased by 5.2 per cent of GDP. Both have increased steadily over this period, though private savings appear to have reached a plateau in 2005-06.the saving from the private corporate sector were particularly buoyant, while the turnaund in public sector savings from negative to positive from 2003-04 onwards is heartening. The increase in private savings is due to a doubling of rate of corporate saving over the plan period. Savings of the household sector were stable at 23 to 24 per cent of GDP, averaging 23.7 per cent during Tenth Five - Year Plan. The physical and financial components house holds savings also remained stable. With upsurge in private corporate and public sector savings, the share of the household sector in gross domestic savings declined from 94.3 per cent in 2001-02 to 68.4 per cent in 2006-07.

The CSO Quick estimates for 2009-11 placed gross domestic savings at 33.7 percent of the GDP at current market prices. The saving rate for 2008-09 was also revised from 32.5 percent to 32.2 percent with private sector savings more or less static, it was the savings of the public sector that went up from a revised level of 0.5 percent in 2008—09 to 2.1 percent in 2009-10. Private sector savings had remained sticky in the range of 30.1 percent to 31.9 percent in the last sixty years and seemingly the global crisis had no significant impact.

A positive relationship between the saving rate and income in developing countries, at least within certain ranges of income levels, has been obtained in past empirical studies using household survey data (Bhalla 1980) for India, or cross country national income accounts (Moore 1981) for Asian countries. An observed lower average saving rate for rural households may then be explained simply by lower average income. However, rural household incomes can increase

rapidly in the course of agriculture based development, which may prevent a decline in the aggregate saving rate or even raise it. A few studies (Muraleedharan, D.2008, Loayza, N and Shankar, R. 2000, Shetty S.L., 1990, Joshi V.H, 1970) have been concentrated on the saving behaviour of the households of both rural and urban areas in India. But in reality, the saving behaviour of the tribal households is quite different from saving behaviour of rural households.

In the light of these earlier studies, the present study itself addressed to study the saving behaviour of tribal and rural households in general and agricultural households in particular in the district of Vishakapatnam in the state of Andhra Pradesh.

Profile of the Study area:

Visakhapatnam district is one of the North Coastal districts of Andhra Pradesh and it lies between 17^{o}-15' and 18^{o}-32' Northern latitude and 18^{o}-54' and 83^{o}-30' in Eastern longitude. The population of the district is 38.32 lakhs as per 2001 Census and this constituted 5.0 percent of the population of the state while the Geographical area of the District is 11161 Sq. KM., which is only 4.1 percent of the area of the State. Out of the total population 19.30 lakhs are Males and 19.02 lakhs are Females. The Sex Ratio is 985 Females per 1000 Males. The District has Density of population of 343 per Sq.Km. There are 20.02 lakhs literates forming 52.25 percent of the total population of the District. Male literates constitute 69.7 percent while female literates forming 50.1 percent; the literacy rate is 60.0 percent in the District.

The District presents two district geographic divisions. The strip of the land along the coast and the interior called the plans division and hilly area of the Ghats flanking it on the North and West called the agency Division. The agency Division consists of the hilly regions covered by the Eastern Ghats with an attitude of about 900 meters dotted by several peaks exceeding 1200 meters. Sankaram Forest block topping with 1516 meters embraces the Mandals of Paderu, G. Madugula, Pedabayalu, Manchingput, Hukumpeta, Dumbriguda, Araku Valley, Ananthagiri, Chinthapalli, G.K.Veedhi, and Koyyuru erstwhile Paderu, Araku Valley and Chinthapalli takuks. The total geographical area of the district is 11.16 lakh hectares of this 30.5percent alone is arable area while 39.53 percent is forest area. The rest is distributed among "Barren and Un cultivable land about 11.7 percent and "land put to non agricultural uses" about 9 percent. Out of the arable area the net area has sown form 27.2 percent while cultivable waste and fallow (current and old)

lands constitute about 9.2 percent during 2006-07. More than the one third of the area in the district is covered by forest. The forests are of moist and dry deciduous type.

Methodology:

The study was based on both primary and secondary data. The secondary data has been collected from various reports published by Govt.of India the district hand book of statistics published by Chief Planning Officer, Visakhapatnam. The primary data relating to the socio-economic particulars of selected households and the other data relating to the saving behavior of the households has been collected by using structured interview schedule.

The multi-stage purposive sampling method was adopted for the selection of the study area. In the first stage, Visakhapatnam district has been selected, in the second stage two mandals each are selected in trial and rural areas, and in the final stage one village from each mandal has been selected and a named Legasipalli village in paderu mandal and Bistum guda from Araku valley mandal in the tribal area and Jangalapalli village in Makavarapalem mandal and Surangalapalem in Yelamanchali mandal in the rural are selected purposively. A simple random technique was adopted for the selection of sample households. A detailed and structured interview schedule has been prepared and canvassed to all the 120 sample households in the selected villages in the study area. The reference period of the study was 2010-11.

Model Specification-I:

Theoretical Framework of the Model:

The estimation of the household saving function for this study is obtained by using the Ordinary Least Squares (OLS) method. The package used for estimation is SPSS. The objective of the study is to analyze household savings with respect to the characteristics of the households. The study analyses the household saving function by using the dummy variable approach.

The difference between the household income and expenditure is taken as household saving. Symbolically the household saving may be expressed as below:

$$S = Y - C$$

Where,

S = Household saving

Y = Total income

C = Total household consumption expenditure

We begin our analysis with the Absolute Income Hypotheses, which relates household saving behaviour with household income and other socio-economic variables.

$$S = \alpha + \beta_1 Y + Z + u_i$$

Where,

S = Saving

Y = Income

Z = other socio-economic variables

ui = Error term

$$S = \alpha + \beta_1 AGE + \beta_2 AGESQ + \beta_3 SEX + \beta_4 EDU + \beta_5 WEL + \beta_6 DEPR + \beta_7 INC + \beta_8 MED + u_i$$

α	The Constant term
$\beta 1$ to $\beta 8$	The Coefficients of the independent variables
S	Savings for rural households
AGE	Age of the head of the household
AGESQ	Age square. It is used to check the rate of change of saving with respect to increasing age of the household head.
SEX	Dummy for the household sex (It assumes the value of 1if the head of household is a male, 0 otherwise)
EDU	Dummy for the household educational status (It assumes the value of 1 if the head of household is illiterate, 0 otherwise)
WEL	Dummy for wealth (since we cannot measure wealth easily so we are using house-ownership as a proxy for wealth, therefore we assumes the value of 1 if household is an owner of a house and 0 otherwise)
DEPR	Dependency ratio, where the dependency ratio is measured as $DEPR = \frac{HS - NE}{HS}$ where HS = Household size,

NE = Number of earners

INC Total income of the household

MED Medical Expenditure

Variables and Theoretical Expectations:

1. Age of the Household Head:

The life-cycle model suggest that there exists a relationship between age and saving rates. In this study, the age of the household head and its square is included to establish the relationship. Burney and Khan (1992) found that savings increase with the age crossing a certain limit.

2. Sex:

Sex of household head is also considered as an important variable to determine the saving behaviour of a household. If the head of household is male, dummy assumes the value of 1, otherwise 0.

3. Educational status:

The variable educational status is included as an explanatory variable to estimate the impact of the educational status of the head of the household. If the head of the household is an illiterate then we expect the negative sign.

4. Wealth of Household:

Apart from income, wealth has been taken as another determinant of saving behaviour. Since it was difficult to get data on wealth, ownership and having pucca house was taken as a proxy for wealth. If a household head owns a house and pucca house then the dummy takes a value equal to 1 and if the household head does not have own house and not pucca house, the dummy variable takes the value equal to 0. Here wealth is taken as an explanatory variable because wealth plays an important role in influencing saving behaviour in the households.

5. Dependency Ratio:

The dependency ratio is defined in the literature as the percentage of the population aged 14 and below plus the percentage of the population aged 65 and above. In defining dependency ratio it has been implicitly assumed that the population aged 14 and below plus 65 and above adds to

household consumption and contributes nothing towards production. In developing counties, where 70 percent of the population lives in the rural areas and where children are considered an asset because of their contribution to household activities, the above assumption appears to be rather strong. The impact of the dependency ratio on household savings can be more meaningfully examined if, instead of putting a restriction on the age of the household member, their earning status is explicitly taken into account. $$DEPR = \frac{HS - NE}{HS}$$

Where DR is the dependency ratio, HS is the household size and NE is the number of earners in a household.

6. Income:

Income has been considered the most important factor in the determination of the saving behaviour of an individual. More income means, normally, more saving and vice versa.

7. Medical Expenditure:

The medical expenditure of the household is an important factor of the rural and tribal households. If the medical expenditure increases then the household's savings automatically decreases. Hence we expect negative sign.

Descriptive Statistics:

It can be seen from the Table-1 that the mean, minimum, maximum and standard deviation of the data series. The average age of the head of the household is 46.15 years, the average income of the household is 68452.50 rupees per annum. The minimum income of the household is Rs.10500 and the maximum income of the household is 313700 rupees. With regard to the average medical expenditure of the household is 566.50 rupees. The average dependency ratio of the household is reasonably quite high it 0.5227.

Table-1: Descriptive Statistics of the Independent Variables

Variable	Minimum	Maximum	Mean	Std. Deviation
Age	25	69	46.15	10.044
Sex	0	1	0.86	0.350
Edu	0	1	0.37	0.486
Wel	0	1	0.56	0.499

Depr	0.00	0.80	0.5227	0.19279
Inc	10500	313700	68452.50	57970.892
Med	200	3000	566.50	473.602

Correlation Matrix:

Correlation matrix indicates the relationship between two independent or independent –dependent variables. Correlation matrix examines the direction of relationship among two variables and how one variable is related to another. Correlation matrix also indicates the problem of multicollinearty. If coefficient of correlation among two explanatory variables has absolute value equal or above 0.80, there is severe problem of multicollinearty (Gujarati, 1995). Table-1 represents the correlation among some selected independent variables and verifies no problem of multicollinearty, as all values are less than 0.7. Hence there is no multicollinearty among the independent variables.

Table-2: Correlation among independent variables

	constant	Age	sex	edu	wel	depr	inc	med
Constant	1.000							
Age	-0.706	1.000						
Sex	-0.362	-0.122	1.000					
Edu	-0.108	0.003	-0.051	1.000				
Wel	-0.096	0.175	-0.015	-0.471	1.000			
Depr	-0.479	-0.010	0.164	-0.075	0.099	1.000		
Inc	-0.004	-0.270	0.134	0.374	-0.647	-0.169	1.000	
Med	-0.141	0.176	-0.008	-0.171	0.313	-0.061	-0.423	1.000

Average Propensity to Save (APS):

The average propensity to save is the ratio of the savings on income has been analysed on the basis of region where the households are situated i.e. the rural and tribal areas. Mathematically the term average propensity to save can be expressed as following:

$$APS = \frac{Savings}{Income}$$

as it is observed from the Table-3 that the average propensity to save is 0.85 for the total study area. In rural households the APS is 0.98, but in the tribal households it is 0.56.

The

Table-3: The Average Propensity to Save to the Total study area

Region	Income	Savings	APS
Rural	3801800	3711800	0.976327
Tribal	1693300	946800	0.559145
Total	5495100	4658600	0.847773

Marginal Propensity to Save (MPS):

The marginal propensity to save is the rate of increase in savings per unit in relation to the rate of increase in income per unit. Marginal propensity to save is a function of the level of income. In order to analyse the marginal propensity to save, the linear regression is used with respect to the overall income. It can be measure by the following formula:

$$Y = a + b\,X$$
$$Y = Incremental\ Saving$$
$$X = Incremental\ Income$$

The marginal propensity to save is $Y = 10892.541 + 0.610\,X$

Table -4 depicts that the marginal propensity to save is equal to 61 paisa for every increase in the income per rupee. The marginal propensity to save in the rural area is equal to 99.1 paisa for every increase in the income per rupee. But in the tribal area the marginal propensity to save is not significant even at 10 percent level.

Table-4: Marginal Propensity to Save for the Total Study area

Variable	Coefficient	Std. Error	t-value
Constant	10892.541	3541.064	3.076
Income	0.610*	0.051	12.029
	R^2 = 0.551 Adjusted R^2 = 0.547		

Table-4.1: Marginal Propensity to Save for the both rural and tribal

Variable	Coefficient	Std. Error	t-value

Rural			
Constant	-1233.674	2261.688	-0.545
Income	0.996*	0.028	35.533
R^2 = 0.956 Adjusted R^2 = 0.955			
Tribal			
Constant	14691.183	1505.381	9.759
Income	0.039	0.026	1.459
R^2 = 0.035 Adjusted R^2 = 0.019			

Analysis of Regression results:

Table-5 depicts that the affect of household saving behaviour with different socio-economic variables in the entire study area. Out of eight independent variables only four variables are significant at different probability levels. The study reveals that there is a positive relationship between age of the head of the household and households' savings but it is insignificant. Age squared is negatively related to saving but it is also insignificant and it explains non-linear relationship between age of the head of the household and household savings. As the age of the head of the household increases by one year, his savings will increase by about Rs. 420.46 on the average per month. As head of the household becomes old, his savings will start declining in the present empirical analysis.

The Sex (SEX) of the head of the household is also affected by the saving behavior of the households. Male headed households have a coefficient with expected positive sign and it is significant at 5 percent probability level. This shows that male headed households save more than female headed households. But in general the female headed households are more savers than male and these results are not confirmed in the study area. In the tribal households it is less significant impact on the household savings.

The Educational status (EDU) of the head of the household is not affected by the saving behavior of the households. If illiterate head of the households have a coefficient with unexpected

positive sign but it is insignificant. This shows that literate head of the households save more than illiterate households. The variable Wealth Status (WEL) is not significant even at 10 percent probability level. The Wealth status of the households is negatively associated with household savings in the entire study area. A similar trend continues in rural and tribal areas.

The Dependency ratio (DEPR) is inversely related to the saving behavior of the households. In this study, the dependency ratio is found to have a strong negative influence on household savings in the total study area. The coefficient of this variable is found to be significant at 5 percent level. The results suggest that as the number of dependent members in the household increases leads to the households savings declines drastically. In the tribal area, the coefficient of this variable is significant at 1 percent level with expected negative sign and it can be conclude that the dependency ratio is strongly affected by household savings.

The Income (INC) of the households is turned out to be statistically significant at 1 percent level with expected positive sign. A one percent increase in income leads 82.4 percent increase the household savings. This indicates that large and rapid increase in income tends to raise the rate of household saving because households capacity to save increases with household income. A similar scenario continues in the rural and tribal areas. But especially in the tribal households, a one percent increase in income leads to 71.1 percent increase in household savings and it is quite less than the rural households.

The Medical expenditure (MED) of the households in the study area is also severely affected by household savings. The coefficient negatively associated with households savings. The study area covers both rural and tribal area, the accessibly of medical facilities is very poor and hence the medical expenditure is a significant effect on household saving especially in the tribal area.

The value of adjusted R^2 is 0.82, which is very high and is quite reasonable given the fact that the data used is cross-sectional, and not the time series one.

The value of F shows the overall significance of the relationship between the dependent and independent variables. It represents the relationship between explained variations and unexplained variations in the dependent variable. Large F-value means that unexplained variation is small. From that point of view large F-value is a positive sign for the estimated regression. The Durban-Watson

(D.W) test is used to detect the serial correlation in the estimated regression function. The results of this study suggest that the Durban –Watson value is in acceptable limits and that there is no serial correlation.

Table-5: Regression results of the saving behavior of both Rural and Tribal households in Visakhapatnam District

Independent Variable	Coefficient	Stand. Error	t-value
Constant	-12872.937	36108.001	-0.357
AGE	420.460	1520.220	0.277
AGESQ	-12.530	16.045	0.436
SEX	11761.495**	5792.937	2.030
EDU	431.292	4400.147	0.922
WEL	-5756.803	4731.152	0.226
DEPR	-25736.302**	10879.141	-2.366
INC	0.824*	0.039	20.899
MED	-12.106*	4.352	-2.782

No.of Observations =120
Adjusted R^2 = 0.824
F = 70.759
DW = 1.194

*indicates that the variable significant at 1 percent level
**indicates that the variable significant at 5 percent level

Table-1.1: Regression results of the saving behavior of the Tribal households in Visakhapatnam District

Independent Variable	Coefficient	Stand. Error	t-value
Constant	41953.944	48493.497	0.865
AGE	-1048.417	2065.554	-0.508
AGESQ	2.683	21.850	0.123
SEX	15471.724***	9540.215	1.622
EDU	1580.618	8591.429	0.184
WEL	-682.624	9882.960	-0.069
DEPR	-58122.350*	17806.996	-3.264
INC	0.717*	0.077	9.263
MED	-17.962***	9.897	-1.815

No.of Observations =60
Adjusted R^2 = 0.701
F = 18.324
DW = 1.087

*indicates that the variable significant at 1 percent level
*** indicates that the variable significant at 10 percent level

Table-1.2: Regression results of the saving behavior of the

Rural households in Visakhapatnam District			
Independent Variable	**Coefficient**	**Stand. Error**	**t-value**
Constant	8911.510	72391.847	0.123
AGE	-1833.312	3357.362	-0.546
AGESQ	17.558	38.383	0.457
SEX	967.049	6381.554	0.152
EDU	-1226.388	5226.469	-0.235
WEL	-5491.445	5275.183	-1.041
DEPR	-4025.076	11650.824	-0.345
INC	0.938*	0.048	19.719
MED	-4.094	4.559	-0.898
No.of Observations =60 Adjusted R^2 = 0.893 F = 62.725 DW = 1.401			

*indicates that the variable significant at 1 percent level

Model Specification-II:

Theoretical Framework of the Model:

It is common to see using dummy variables with Ordinary Least Squares (OLS) linear regression to analyse dichotomous variables. But it is difficult to use it when dichotomous variable is a dependent variable. In such situations logistic regression can be used with advantage. But as an approximate method, OLS linear regression also does a surprisingly good job with dichotomous variables, despite clear-cut violations of assumptions[1]. In this context an attempt has been made to analyse the factors influencing the saving behaviour of the rural and tribal households, the logistic regression has been adopted because it is suitable technique for analysing the dichotomous nature of saving behaviour i.e. savings exceeds consumption expenditure and, consumption expenditure exceeds savings.

A large number of variables in the social sciences are dichotomous viz., Male Vs female, literate Vs illiterate, employed Vs unemployed, married Vs un-married, guilty Vs not guilty, high income Vs low income, High savings Vs low savings and so on. To deal with such cases, general

[1] Paul D, Allison, **"Logistic Regression-Theory and Application"**, Statistical Analysis Software (SAS), page no: 8.

linear regression models are not found to be useful, but Logit or Probit regression models are of use.

To explain the logit model, it's helpful to know odds and odds ratios. Probability is generally regarded as the "natural" way to quantify the chances that an event will occur. We automatically think in terms of numbers ranging from 0 to 1, with a '0(zero)' meaning that the event certainly will not occur. But there are other ways of representing the chances of an event, one of which the odds, has a nearly equal claim to being "natural". Although 'α' cannot be estimated from a case-control or cross-sectional study, theβ's can be estimated from such studies as β's provide information about odds ratios of interest. Thus, even though we cannot estimate 'α' in such studies, and therefore, cannot obtain predicted risks. We can, nevertheless, obtain estimated measures of association in terms of odds ratio[2].

Here the dependent variable is whether the household spending more than income during the previous year can be given a value (1) and Where, the households spending less than income during the past year can be given a value (0) and if the respondent indicated spending about the same as income, but also reported that spending included purchases of a home or automobile or spending for any investments, the household is categorized as spending less than income. The select the independent variables are the Age of the head of the household (AGE), Sex (SEX), Educational status (EDU), Wealth status (WEL), Dependency Ratio (DEPR), Income (INC) and Medical Expenditure (MED) of the households.

Using the above mentioned seven variables, the logistic regression model is used in this study. It is specified as follows.

$$Ln\left(\frac{P}{1-P}\right) = \alpha + \beta_i x_i + u; \qquad i = 1,2,.....7$$

Where Ln = natural logarithm

P = Probability of obtaining a household spent more than income.

$Ln\left(\frac{P}{1-P}\right)$ = The log odds ratio a household of spent more than income.

α = a coefficient on the constant term

[2] K, Dietz and M, Gail., et.al, "**Statistics for Biology and Health**" , Springer Publishers, page no-14.

β_i = are the coefficients of the eight independent variables

X_i = are the independent variables

And u_i = error term

Using SPSS 13.0 Statistical package results have been estimated. The results are interpreted with the help of odds ratio i.e. $e^{\beta i}$, instead of the actual coefficient, as the interpretation of odds ratio is more intuitive. It would mean that for a unit change in the independent variable there would be a corresponding change in the Odds ratio.

The results of the analysis of estimated logistic regression model for the saving behavior of the rural and tribal households in the selected study area are presented in Table-1.This analysis has been carried out for the entire sample of 120 observations collected from four villages in tribal and rural areas of Visakhapatnam district in the state of Andhra Pradesh. For the total study area, the select independent variables are seven in number to carry out the analysis.

Age of the head of the household (AGE) is statistically significant at 1 percent level of chi-square value with expected negative sign. As the age of the head of the households' increases then the savings accordingly decreases in the study area. The odds ratio associated with the age of head household increase by one year leads to 91 percent less likely to chance to the savings of the households than their counterparts. In the tribal area, the Age of the head of the household (AGE) is statistically significant at 5 percent level of chi-square value with expected negative sign. The odds ratio indicates that the age of head of the household increases by one year there may be 87.9 percent higher the likelihood chance of the households to those who spent more than income when compared to their counter parts.

The Wealth status (WEL) is turned out to be statistically significant at 1 percent level of chi-square value with unexpected negative sign. The odds ratio of this variable indicates that the household having own and pucca house is 11.2 percent more likey to chance of increase the savings than their counterparts. In the tribal area, the wealth of the household is statistically significant at 10 percent level of chi-square value with unexpected negative sign, the odds ratio of this variable suggests that the household having own and pucca house is 5.1 percent more likely to chance of increase the savings than their counterparts. Hence the wealth of the household especially in the tribal area is not severally affected of the tribal household savings.

The variable Dependency Ratio (DEPR) is statistically significant at 1 percent level of chi-square value with expected negative sign. The odds ratio indicates that a one percent increase in dependency ratio in the households leads to 0.9 percent lower the likelihood of saving behaviour than their counterparts. In the tribal area, it is also a significant impact on the saving behaviour of households to those who spent more than income when compared to their counterparts.

The variables Income (INC) and Medical expenditure (MED) are turned out to be statistically significant at 1 and 5 percent level of chi-square value with expected positive and negative sign. The odds ratio of Income of the households suggests that it is the key factor for influencing the saving behaviour of households. The odds ratio of medical expenditure indicates that a one percent increase in medical expenditure leads 99.9 percent less likelihood of savings in the households than their counterparts. It means that the medical expenditure is the most predominant factor for the households those who spent more than consumption expenditure. In the tribal area, the variable Income (INC) is significant at 10 percent level of chi-square value with expected positive sign, where as in the rural area it is more significant at 1 percent level. Therefore, the income of the household is quite less in the tribal households when compared to rural households it is also proved in the analysis of Marginal propensity to save in the previous section. Medical expenditure (MED) are turned out to be statistically significant at 1 percent level of chi-square value with expected negative sign in the tribal area and the odds ratio indicates that a one percent increase in medical expenditure leads 99.9 percent less likelihood of savings behaviour in the tribal households.

Table-1: Logistic Regression results of the saving behavior of both Rural and Tribal households in Visakhapatnam District

Independent Variable	Coefficient	Stand. Error	Wald ch-square	Odds Ratio
Constant	5.176	2.019	6.572	
AGE	-0.094*	0.036	6.803	0.910
SEX	0.657	0.809	0.660	1.930
EDU	0.019	0.695	0.001	1.019
WEL	-2.190*	0.812	7.283	0.112
DEPR	-4.757*	1.835	6.718	0.009
INC	0.000*	0.000	16.207	1.000

MED	-0.001**	0.001	4.071	0.999
No.of households = 120 -2log likelihood =76.205 Cox & Snell R^2 =0.472				

*indicates that the variable significant at 1 percent level
**indicates that the variable significant at 5 percent level

Table-1: Logistic Regression results of the saving behavior of households in Visakhapatnam District				Tribal
Independent Variable	**Coefficient**	**Stand. Error**	**Wald ch-square**	**Odds Ratio**
Constant	10.108	3.799	7.079	
AGE	-0.129**	0.063	4.239	0.879
SEX	0.488	1.284	0.144	1.629
EDU	1.055	1.601	0.434	2.871
WEL	-2.972***	1.756	2.864	0.051
DEPR	-9.814*	4.116	5.686	0.0000543
INC	0.000***	0.000	3.014	1.000
MED	-0.002*	0.002	1.262	0.998
No.of households = 60 -2log likelihood =34.118 Cox & Snell R^2 = 0.558				

*indicates that the variable significant at 1 percent level
**indicates that the variable significant at 5 percent level
*** indicates that the variable significant at 10 percent level

Table-1: Logistic Regression results of the saving behavior of households in Visakhapatnam District				Rural
Independent Variable	**Coefficient**	**Stand. Error**	**Wald ch-square**	**Odds Ratio**
Constant	-4.603	5.895	0.610	
AGE	-0.036	0.087	0.171	0.965
SEX	-0.981	1.585	0.383	0.375

EDU	-1.791	1.586	1.275	0.167
WEL	-1.228	1.538	0.638	0.293
DEPR	-3.394	4.567	0.552	0.034
INC	0.000*	0.000	5.628	1.000
MED	0.000	0.001	0.031	1.000
No.of households = 60 -2log likelihood =24.073 Cox & Snell R^2 = 0.359				

*indicates that the variable significant at 1 percent level

Conclusions:

Household savings is an important factor for the economic growth of the country. In India, the rural and tribal population is very high and the contribution of these particular population is very much need for economic development. The estimated two models of saving behavior in the tribal and rural households in Visakhapatnam district in the state of Andhra Pradesh. The following important conclusions may be drawn:

1. Income is the most crucial factor of the saving behavior in the entire study. In the tribal households, a one percent increase in income leads to 71.1 percent increase in household savings and it is quite less than the rural households.

2. The study found that male headed households save more than female headed households. But in general the female headed households are more savers than male and these results are not confirmed in the study area. In the tribal households it is less significant impact on the household savings.

3. The Dependency ratio (DEPR) is inversely related to the saving behavior of the households. In this study, the dependency ratio is found to have a strong negative influence on household savings in the total study area. The results suggest that as the number of dependent members in the household increases leads to the households savings declines drastically. In the tribal area, the coefficient of this variable is significant at 1 percent level with expected negative sign and it can be conclude that the dependency ratio is strongly affected by household savings. The odds ratio indicates that a one percent increase in dependency ratio in the households leads to 0.9 percent lower the likelihood of saving behaviour than their counterparts

4. The Medical expenditure (MED) of the households in the study area is also severely affected by household savings. The coefficient of this variable is negatively associated with

households' savings. The study area covers both rural and tribal area, the accessibly of medical facilities is very poor and hence the medical expenditure is a significant effect on household saving especially in the tribal area. The odds ratio indicates that a one percent increase in medical expenditure leads 99.9 percent less likelihood of savings behaviour in the tribal households.

5. The average propensity to save is 0.85 for the total study area. In rural households the APS is 0.98, but in the tribal households it is 0.56.The marginal propensity to save is equal to 61 paisa for every increase in the income per rupee. The marginal propensity to save in the rural area is equal to 99.1 paisa for every increase in the income per rupee. But in the tribal area the marginal propensity to save is not significant even at 10 percent level.

Policy implications:

1. The saving behavior of the study area is largely determined by income of the household. In this context there is a need to further intensively the income generating programmes both in tribal and rural areas.

2. The relatively very low rates of Average Propensity to Save in the tribal areas have to be improved by way of spreading post office saving banks etc., especially in the interior tribal areas.

3. The results ultimately reveal that there is an increasing need to improve medical and educational facilities improved in the effective manner in the tribal areas. So that they can work in healthy environment up to old age and increase their saving level.

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