

# Effects of Incentives and Socio-economic Factors on Investments of Patron Members in Co-operative Societies in Benue State, Nigeria

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**Abstract:** *The study investigated the influence of incentives and socioeconomic variables on investments of a random sample of 100 cooperative member-patrons distributed among 20 cooperative societies that were purposively selected for analysis based on the reliability of available data furnished by the societies. Regression technique was used to investigate the influence of socioeconomic and incentives on investment levels of cooperative members and to test statistical hypotheses in association with the t – statistic. Correlation analysis was used to determine relationships of socioeconomic factors with incentives. Results show that Returns on shares, and savings had highly significant ( $p < 0.01$ ) and positive influence on investments of the respondents. There was a negative and significant ( $p < 0.05$ ) relationship between age of respondents and investment amounts, younger members would invest higher than older cooperative members. Furthermore results indicated positive, significant ( $P < 0.01$ ) correlations between savings and returns on shares ( $r = 0.5108$ ); Savings and Returns on savings ( $r = 0.5668$ ), and Savings and Dividend ( $r = 0.8321$ ). Total assets (savings plus value of investment in shares were positively, significantly ( $p < 0.01$ ) correlated with returns on shares ( $r = 0.81554$ ), returns on savings ( $r = 0.4645$ ), and dividend ( $r = 0.9356$ ). Improvement in provision of incentives to members according to socioeconomic factors would enhance higher investment for rural development.*

**Key words:** *Investments, cooperative societies, incentives, socioeconomic factors.*

## 1. INTRODUCTION

Corporate societies have the potential to promote entrepreneurship development programme of people, both within the formal and informal sectors of the economy through resource mobilization in form of savings and investment. This role is important because growth in the rural economy depends largely on what people do with the additional incomes generated from farm activities, if what is saved is invested.

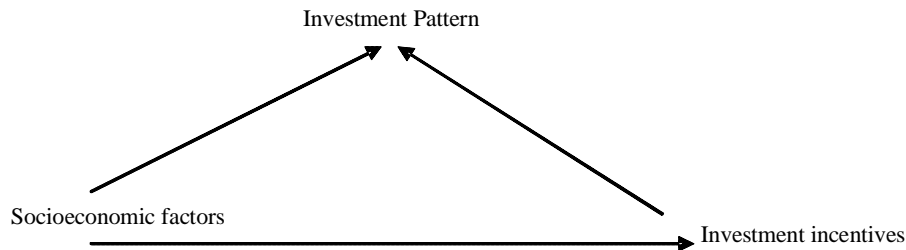
Theoretically, the investments depend on education, income, and savings levels of an individual (Koti, 2014). But in agrarian economies, it has long been recognized that the classical investment theory has failed to explain and predict people's investment patterns (Olsen, 2009). In the rural sector of Nigeria, people make huge investments despite that the calculated net present value (NPV) is less than zero, or without recourse to investment viability criteria. Gasson *et al.*, (1988) find that profit

maximization may not be the only or even prime objective of the people in investment.

This research is motivated because of the need to better understand the investment decisions of people as members of rural community self-help organizations. It is believed that such understanding is important in policy-making process. When rural development policies are designed, it is important to know how people are going to react on the incentives inherent in the policies.

## 2. THE CONCEPTUAL MODEL

The relationship between socioeconomic factors, incentives, and investment behavior are captured as seen in figure 1.



**Figure 1: Conceptual model of the relationship between investment behavior, socioeconomic factors, and investment incentives.**

Source: (Olsen, 2009).

The core concept in the conceptual model is the investment behavior. It is the marginal propensity to invest in assets (e.g cooperative society stocks and shares). The socioeconomic factors included in the analysis are: age, sex, education level, debts, interest rate on loans, assets, and years of settlement (years since becoming member of the cooperative). The socioeconomic factors have relationship with incentives (e.g amount of savings and dividend earned) that influence investment behavior. Arising from the conceptual model are questions which the research sought to address:

- i) Which socioeconomic factor have an influence on investment?
- ii) Which incentives are most important in investing in shares and stocks?
- iii) What influence has socioeconomic factors in terms of attracting investment incentives for higher investments?

## 3. HYPOTHESES

Arising from research questions are the following statistical hypothesis which were formulated and tested.

- i) There is no significant relationship between age and investment levels of the respondent
- ii) There is no significant relationship between gender and investment.
- iii) There is no significant link between income and investment.
- iv) Education level has no significant relationship with investment.
- v) There is no significant relationship between dividend received and investment.
- vi) There is no significant relationship between returns on shares and investment.
- vii) There is no significant relationship between investment level and returns on savings.
- viii) There is no significant relationship between incentives and socioeconomic factors.
- ix) There is no significant relationship between household size and level of investment.
- x) There is no significant relationship between marital status and investment.
- xi) There is no significant association between interest rate charged on cooperative loans and investment.
- xii) There is no significant relationship between years of settlement and Investment levels.

## **4. RESEARCH METHODOLOGY**

### **4.1. The Study Area**

The study area is Benue State. The State is located between longitude 6°35'E and 8°10'E, and latitude 6° 30'N and 8° 10'N of the equator (Ani *et al.*, 2016), occupying a land area of about 804Km<sup>2</sup> (National Population Census,2006), with large population of about 4,219,244(Census,2006), mostly engaged in farming and other Small and Medium-Scale Enterprises. Many people in the area are members of rural community self-help groups such as cooperative societies which support their livelihood activities.

### **4.2. Sampling and Data Collection**

A reconnaissance survey was conducted to identify registered cooperatives in the area. Consequently, 20 societies were purposively sampled for analysis based on availability of relevant data; only cooperatives with up-to-date records of incentives to member- patrons were selected. A random sample of 100 cooperatives was taken; 5 patron-members per society

distributed among 13 local government areas also purposively chosen based on convenience, including Kwande, Gboko, Katsina-Ala, Guma, Buruku, Logo, Makurdi, Gwer-East, Gwer-West, Ukum, Vandeikya, and Ushongo local government areas. Detail data were taken from annual statements of the societies as published. Most of the data on socioeconomic characteristics of respondents were derive from the questionnaire administered to the respondents.

### 4.3. Data Analysis

Data were analyzed using descriptive statistics and inferential statistics. In the case of inferential statistics, multiple regression analysis in association with t-test was used to test the statistical significance of the relationship between investment and socioeconomic factors as well as economic incentives and socioeconomic characteristics of respondents. STATA12 was used to carry out all necessary analyses because the software provided all the statistics needed to complete the analyses.

#### 4.3.1. Econometric Model

The regression model was specified in implicit form as;

$$Y_i = f(X_i, Z_i) \quad (1)$$

Where;

$Y_i$  = Level of investment in cooperative shares.

$X_i$  = Socioeconomic factors.

$Z_i$  = Incentives.

Four (4) functional forms of equation (1) were tried in estimating the specified model coefficients. However, the estimates of double –log functional form were chosen on theoretical and econometric grounds: highest R-Squared, and number of correctly signed coefficients. Double-Log equation may be expressed as follows:

$$\ln(\text{invest}) = \beta_0 + \beta_1(S_x) + \beta_2 \ln(A_g) + \beta_3(M) + \beta_4 \ln(eD) + \beta_5 \ln(HH_s) + \beta_6 \ln(\text{Sal}) + \beta_7 \ln(\text{in}) + \beta_8 \ln(R_d) + \beta_9 \ln(R_s) + \beta_{10} \ln(R_v) + \beta_{11} \ln(Y_s) + \beta_{12} \ln(aD) + \beta_{13} \ln(D_v) + \mu$$

Where

$S_x$  = Sex of respondent

$A_g$  = Age (years)

M = Marital status

eD = years of formal education

$HH_s$  = Household size (number)

Sal = Monthly Income ₦

In = Interest rate on loan received

Invest = Investment ₦

$R_d$  = Repayment duration (years)

$S_v$  = Savings (₦)

$R_s$  = Returns on shares (₦)

$R_v$  = Returns on Investment (₦)

$Y_s$  = Years of Settlement

aD = Debt to asset ratio (Dimensionless)

Div = Dividend received (₦).  $\beta_1, \dots, \beta_{13}$  = regression parameters to be estimated

The relationship between relevant socioeconomic characteristics and incentives was tested via correlation analysis.

## 5. RESULTS AND DISCUSSION

### 5.1. Summary statistics of the incentives and socioeconomic variables influencing investments

The summary of the incentives and socioeconomic factors influencing investment of patron-members of cooperative societies in the study area are reported in Table 1.

**Table 1**  
**Socioeconomic and incentives influencing investments of respondents.**

<i>Variable</i>	<i>Mean</i>	<i>CV(%)</i>	<i>Standard deviation</i>
Age	46.00	17.33	7.97
Household Size	10.00	60	6.00
Years of formal Education	18.00	16.67	3.00
Income (monthly salary)	208941.00	38.50	80820.87
Interest on Loan	10.00	28.9	2.89
Repayment duration (months)	11.00	25.73	2.83
Investment	518718.70	86.66	449496.00
Savings	636472.20	99.68	634455.90
Return on shares	38873.07	85.73	23001.54
Return on savings	38873.07		65271.07
Assets (total)	11,11,802.00	87.27	970227.60
Debts	1178626.00	78.42	924308.80
Years of settlement	10.00	50	5.00
Debt of asset ratio	2.16	167.13	3.61
Dividend	132,573.80	90	119418.70

Source: Data analysis output (STATA 12); Cv = Coefficient of Variability(%).

The samples' investment on average was about ₦ 518,718 70 per annum; there were wide variability in investments as indicated by Coefficient of variability of 86.66% across the sample (Table 1). Dividend, and return on shares also showed wide variability; these were, respectively, 90% ( $\bar{X} = ₦ 132,573.80$ ), 85.73% ( $\bar{X} = ₦ 26830.98$ ). The findings suggest great deal of differences in incentives received by the respondents, hence the large variability observed in their investments patterns. In contrast, there were low variability in the socioeconomic variables among respondents including: Age (CV = 17.33%), Years of formal Education (CV = 16.67%), and Income ( $\bar{X} = ₦ 209941$ , CV = 38.50%).

## **5.2. Influence of Socioeconomic and Incentives on Investments**

This section deals with research questions (i) and (ii); namely, which socioeconomic, and incentives have an influence on the amount of investments of the respondent?

The estimates reported in the table relate to the double-log model.

### **5.2.1. Influence of socioeconomic factors on investments**

Contrary to Koti, (2014), this study finds a negative significant ( $P < 0.10$ ) relationship of income with investments; cooperative members earning a higher income tend to reduce the level of investments in shares and stocks of cooperatives. A somewhat similar trend was also observed in the case of years of settlement whereby a statistically significant ( $P < 0.05$ ) decrease in investments in shares was observed, the longer the years of settlement. There was a positive, significant ( $P < 0.05$ ) association between household size and investments. Large-size households tend to invest more than small size households probably in effort to provide safety nets and welfare for their families. Level of education, though had positive influence on investments but at insignificant ( $P > 0.05$ ) level.

### **5.2.2. Influence of Incentives on investments**

Economic incentives investigated include Dividend paid to patron-members, returns on shares, and returns on savings of the respondents. Returns on shares, and returns on savings, and dividend had statistically positive and significant influence on investments at the 1%, 5%, and 10% levels of probability respectively. The underlined the importance of economic incentives in investment decisions of people in rural communities.

## **6. RELATIONSHIP BETWEEN SOCIOECONOMIC FACTORS AND ECONOMIC INCENTIVES**

Which socioeconomic factors influence investment incentives? The study made efforts to investigate how socioeconomic factors influence the

**Table 2**  
**Parameter estimates in the model showing the relationship between socioeconomic, incentives and investments of respondents**

Regressors	Coef	S.E	t	P>/t/	95% Confidence interval	
					Lower	Upper
Sex	0.0058	0.0257	-0.23	0.821	-0.0572	0.0456
Age	-0.0647	0.0592	-1.09	0.279	-0.1833	0.0539
Household size	0.0329	0.0141	2.34	0.023	0.0048	0.06102
Level of Education	0.0029	0.0479	0.06	0.952	-0.0930	0.0989
Salary (month income)	-0.0554	0.0323	-1.72	0.092	0.1200	0.0925
Years of settlement	-0.0319	0.0134	-2.39	0.020	-0.0586	-0.0051
Debt-to-asset ratio.	-0.0007	0.0063	-0.11	0.911	-0.00134	0.0120
Interest on loan	0.0842	0.0463	1.82	0.074	-0.0086	0.1769
Repayment duration	-0.0502	0.0547	-0.92	0.362	-0.1597	0.0592
Return on shares	0.9891	0.0149	66.24	0.000	0.9592	1.0190
Returns on savings	0.0266	0.0101	2.63	0.011	0.0064	0.0469
Dividend	0.0215	0.0147	1.46	0.100	-0.0079	0.0508
Marital status	0.0549	0.0473	1.16	0.251	-0.0398	0.1495
Constant	3.3348	0.3179	10.49	0.000	2.6985	3.9712

R-Squared = 0.9957, F-value= 1253.42, Prob.>F=0.000; N= 100.

Source: statistical Data analysis output (STATA 12)

incentives to make investments. This question was answered using correlation analysis and the findings are presented in Table 3.

**Table 3**  
**Correlations between socioeconomic and incentives**

	Shares	Savings	Returns on shares	Return on savings	Dividend	Total Assets
Shares	1.00					
Savings	0.5147 (0.000)	1.000				
Returns on shares	0.9983 (0.000)	0.5108 (0.000)	1.000			
Returns on savings	0.1793 <u>Ns</u>	0.5668 (0.000)	0.1773 <u>ns</u>	1.000		
Dividend	0.7981 (0.000)	0.8321 (0.000)	0.7894 (0.000)	0.4283 (0.000)	1.000	
Total assets held in cooperative society	0.8189 (0.000)	0.9136 (0.000)	0.8154 (0.000)	0.4645 (0.000)	0.9356 (0.000)	1.000

Source: Statistical data analysis (STATA 12 OUTPUT);ns = not significant. figures in parenthesis are the p-values associated with correlation coefficients.

Table 3 shows that there were correlations between incentives and socioeconomic factors. the results indicated positive, significant ( $P < 0.01$ )

correlations between savings and returns on shares ( $r = 0.5108$ ); Savings and Returns on savings ( $r = 0.5668$ ), and Savings and Dividend ( $r = 0.8321$ ). Total assets (savings plus value of investment in shares) were positively, significantly ( $p < 0.01$ ) correlated with returns on shares ( $r = 0.81554$ ), returns on savings ( $r = 0.4645$ ), and dividend ( $r = 0.9356$ ).

The findings show that certain socioeconomic characteristics of the patron-members of the cooperative societies (savings and assets), are strongly linked to incentives which are in turn critical for decisions of the respondents to make investments.

## 7. CONCLUSION

The study finds that some socioeconomic variables link savings, total assets of patron-members are linked to incentives such as dividend, returns on savings, and returns on shares which encourage investments. There are also socioeconomic characteristics of cooperative members which are important in their investment decisions including income, household size; Large-size households tend to invest more than small-size household, but investment tend to decrease, the higher the years of settlement of the member-patrons.

## 8. RECOMMENDATION

In order to enhance investments and improve the welfare of people, stakeholders and policy-makers should improve on provision of economic incentives to members of self-help groups like cooperatives according to socioeconomic factors.

### References

- Ani, D.P., Chidebelu, S.A.N.D., and Enete, A.A. (2006). Analysis of price velocity in soyabean marketing in Benue and Enugu States, Nigeria. *Journal of Agricultural Economics, Extension, and Science*, 2(1): 155-166.
- Gasson, R., Crow, G., Errinton, A., Huston, J., Marsden, T. and Winthers, D.M. (1988). The farm as a family business: a review. *Journal of Agricultural Economics*, 39(1): 1-41.
- Koti, K. (2014). *Investors' preference towards stock market and other investment options*. IJRMBSS, volume 21, Issue 1.
- Olsen, J.V., and Lund, M. (2009). Incentives and socioeconomic factors influencing investment behavior in agriculture. Global Agriculture 17<sup>th</sup> international farm management congress, Bloomington/Normal, Illinois, USA. Pp. 1-13.
1. List of sampled cooperative societies.
  2. Vandeikya Town Rice Millers Coop.
  3. Zaki Biam HUD T & L coop.
  4. University of Agric. MKD. Staff coop society.



5. Fed. Min. of Agric. Staff MCS
6. Federation of Benue state cassava dealers coop Ltd.
7. Ichembe farmers cooperative society ltd, jato-aka town, kwande.
8. Jotas fadama III food processing coop society, gboko-manufacturing.
9. Yiatar fadama II cassava producers coop katsina-ala
10. Kpekeleke youth farmers cooperative society, Guma
11. Jovet multipurpose cooperative society ltd, Buruku.
12. Tombo Fadama 3 Fishery Farmers Cooperative, Logo.
13. BCC staff shareholders multipurpose cooperative society, Gboko.
14. Albino development centre cooperative society, Makurdi.
15. Mbasor Agricultural cooperative society Ltd, Gboko.
16. Adawa young farmers multipurpose cooperative society, Gwer-East.
17. Katsina-Ala SPFS farmers' cooperative society.
18. Gbor farmers poultry farm cooperative society(Gwer-west)
19. Works Department cooperative society, Buruku.
20. Nagi mechanize Agricultural cooperative society, Buruku.
21. Duuv multipurpose cooperative society Ltd, Gboko.
22. Makurdi anointed sisters multipurpose investment cooperative society, (makurdi).
23. Hiltom multipurpose cooperative society, Ushongo.
24. Doo Ayolave multipurpose cooperative society (Makurdi).
25. Amber supporters club multipurpose cooperative society.
26. AOCAY Multipurpose cooperative Society Ltd, Gboko