

Saving and Investment Patterns of Cooperative Farmers in Southwestern Nigeria

R. Adeyemo and A. S. Bamire

Department of Agricultural Economics, Faculty of Agriculture, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria

KEY WORDS Income; loan; rural farmers; gender; regression

ABSTRACT This study examined the pattern of saving and investment among four hundred cooperative farmers in southwestern Nigeria. Data were collected using structured questionnaires. Data were analysed using descriptive statistics and multiple regression technique. Results show that cooperative farmers in southwestern Nigeria are mostly males, literate and of average age of 47 years. About 40% of total capital borrowed was expended on farm work and mean annual total investment was N75,043.00, with cooperative farmers earning more than 3 times the investment made. Average annual savings was N31,572.00 and this increased in proportion to annual incomes in the area. However, the unavailability and inadequacy of credit was a major problem of the farmers. Different factors influenced cooperative farmers' saving and investment patterns. Income, loan repayment and amount of money borrowed were significant variables that influenced saving patterns while the fund borrowed significantly influenced investment patterns. These factors therefore have to be considered in designing strategies aimed at improving the saving and investment patterns of cooperative farmers in southwestern Nigeria. Additionally, the saving and investment level of the cooperative farmers can be enhanced if loans are adequately made available and proper supervision and monitoring of funds for specified production purposes are put in place.

INTRODUCTION

Savings are of great importance in a developing economy like Nigeria. This is because of the direct bearing it has on the level of economic activity of the nation. Similarly, within the agricultural sector, the degree of progress attained will largely depend upon what the farmers do with the additional incomes generated from year to year from their farm activities. This stems from the fact that the growth rate in the farming economy largely depends on the stock of capital built in a farm organization and the ploughing back of such stocks in form of savings for further improvement of the farm organization. If these increments are spent on household expenditure, without building up the necessary infrastructure, the future economic development of the nation will be hampered. Adequate integration of saving and investment programmes into development strategies is capable of improving resource allocation, promoting equitable distribution of income, and reducing credit delivery and recovery costs. Cooperatives serve as useful instruments for marketing farmers' produce and as avenues for saving and credit facilities as these informal financial institutions are mostly preferred by farmers due to easy accessibility, smallness of

scale, and informal nature of transactions (Adeyemo, 1982; Onyenwaku and Ozoh, 1992).

Among the government programmes involved in loan schemes for cooperative farming is the Family Economic Advancement Programme (FEAP) all over the country. For example, by the end of August 1998, loans approved to cooperative farmers in Ondo and Osun states under this scheme were about N145 million and N122 million respectively. There is therefore need to examine the impact of these loans on income and increments in income, if any, while considering gender differentials of the farmers.

The objectives of this study are to (i) examine the existing income levels of the cooperative farmers (ii) determine the pattern of investment and (iii) estimate the savings of the cooperative farmers.

The justification for this study centers on the dearth of information on the saving and investment patterns of cooperative farmers in Nigeria. It is important to check if the flow of investment has been stable and whether saving is constant, now that the attention of Family Economic Advancement Programme (FEAP) is focused on cooperatives throughout Nigeria. The study findings will be useful for FEAP and other credit agencies for improving their programmes for effective and efficient cooperative farming activities.

KNOWN WORK IN THE FIELD

The technical contribution which capital saving can bring about in the agricultural sector especially in a capital deficient system is not in dispute. Adeyemo (1994) reported that members of cooperative societies performed better in terms of gross margins than individuals who were non-members. This had been largely due to the involvement of the government through cooperatives in terms of financial and technical 'assistance'. According to Adeyemo (1982) most farmers join organizations to obtain needed inputs for their farm work, especially credit, while loan assurance had made women cooperators to patronize their organizations.

Osuntogun and Adeyemo (1981) used a Pearson correlation matrix to examine the interrelationships between the value of members' savings in the group and some other features. They found that, the larger the membership strength of the group, the higher would be the number of members striving hard to make their savings, which invariably increases the capital base of the societies. In addition, there is positive correlation between the value of members' savings and frequency of savings. While examining the saving-income ratio, Aluko (1972), Kessler and Strauss-Kalm (1984), Ayanwale and Bamire (2000) claimed that the saving behaviour of farmers in developing countries is less dependent on the absolute level of aggregate income and more dependent among other factors on the relationship between current and expected income, the nature of business, household size, wealth and demographic variables like age. Adeyemo and Akala (1992) carried out an in-depth analysis of the financial behaviour of cooperative fishermen in Ondo State, and showed that the marginal propensity to save among fishermen was greater than unity (1.95), indicating that there is a high degree of responsiveness of saving to changes in income. According to UN (1981), capital accumulation is a major prerequisite of economic development and if the volume of savings was inadequate to meet investment requirements, major bottlenecks were likely to develop in the process of capital formation and the drive for development. The volume of investment has been found to depend on income, cost of procuring investible fund, and entrepreneur's expectations on the trend of the business in future (Openiyi, 1982). However, we

are not sure of cooperative farmers' saving and investment behaviour. This study therefore examines the saving and investment parameters of cooperative farmers in southwestern Nigeria.

RESEARCH METHODOLOGY

The study was carried out in four states comprising Ekiti, Ondo, Osun and Oyo. Data were obtained through fieldwork. In selecting the respondents, the list of Cooperative Unions in each of the Cooperative divisions in the Ministry of Commerce was collected in the four states. The cooperative offices in the four states provided the list of registered and unregistered societies. With the help of the assistant registrar in charge of membership in each state, cooperative male and female farmers were selected. Based on the proportion of cooperative farmers in each state, 70, 100, 125 and 105 respondents respectively were selected for Ekiti, Ondo, Osun and Oyo states. Data collection was through the administration of structured questionnaires, which was developed after the review of relevant literature. The questionnaire contained such variables as family size, gross income, cooperative experience, distance to the nearest bank, age, level of education, source of initial capital, technology level, total consumption and household living expenses. A total of four hundred cooperators were involved in the study.

Data were analysed using descriptive statistics to explain the relationship between study variables, and the multiple regression technique. Two functional forms, the linear and Cobb-Douglas were fitted to the data collected. Two models were fitted, one, has savings as the dependent variable, while the other has investment as the dependent variable. Both models contain the same set of independent variables, specified as:

$$Y_1 = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, i) \quad \dots \dots \dots (1), \text{ and}$$

$$Y_2 = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, i) \quad \dots \dots \dots (2)$$

Where,

Y_1 = Annual household savings (N) ; Y_2 = Household annual total investment (N)

X_1 = Interest rate charged on borrowed fund (N); X_2 = Annual income of household head (N); X_3 = Age of respondent (years); X_4 = Farming experience (years);

X_5 = Family size (number); X_6 = Level of education (years)

X_7 = Duration of loan repayment in years (Dummy: = 6 months, 0; otherwise, 1)

X_8 = Amount borrowed (N); ε_i = Disturbance term

The 'a priori' expectation of these variables for the savings and investment functions can be summarized as follows: $\partial y/\partial x_i > 0$ where $i = X_2, X_4, X_6, X_7, X_8$ and $\partial y/\partial x_i < 0$ where $i = X_1, X_3, X_5$. Ninety-seven percent of the questionnaire was suitable for data analysis comprising 64, 100, 122 and 102 respondents respectively in Ekiti, Ondo, Osun and Oyo states.

RESULTS AND DISCUSSION

Socioeconomic characteristics of Respondents

Age: In all the states, none of the respondents was less than 17 years old, while only about 5% were above 70 years of age in Ekiti and Oyo states respectively (Table 1).

With the maximum mean age of 53 years in Osun and a minimum of 39 years in Oyo state, the average age of the cooperative farmers in southwestern Nigeria was 47 years. Studies (Onyenwaku and Ozoh, 1992) have shown that cooperative farmers in this age range are active and resourceful in their productive ventures, and this can positively enhance their investment and savings pattern.

Sex of Respondents: On the average, 76% of the respondents are male with the minimum of 70% in Ekiti state and a maximum of 82% in Osun state (Table 2). This suggests that cooperative farmers in southwestern Nigeria are mostly male.

Studies (Olayide et al., 1980; Onyenwaku and

Ozoh 1992) have shown that male farmers have easy access to productive assets and are more energetic in carrying out productive ventures. This suggests that the cooperative farmers are capable of improving their farm output, productivity, income and hence savings level when the required assets are provided to them.

Farming Experience: Respondents experience in cooperative farming range between 1 and 70 years, with a mode of 5, 15, 50, and 20 years in Oyo, Ondo, Osun, and Ekiti states respectively (Table 3). The mean was 13, 17, 26, and 25 for Oyo, Ondo, Osun and Ekiti states respectively and 20 for southwestern Nigeria. This shows that cooperative farmers in Osun state are more experienced while those in Oyo state are least experienced. Altogether, cooperative farming in southwestern Nigeria is still young, and according to Osuntogun and Adeyemo (1981), this can affect their volume of savings and investment.

Nature of Farming Business: Majority (63%) of the farmers in southwestern Nigeria engage in full time farm business (Table 4). This enhances the search for new techniques of improving their savings/investments through farm work.

Ondo state (76%) recorded the highest percent while the least is in Osun state (54%). Thus, more than half of the respondents in each of the states fully engage in farm work.

Household Size: Respondents have between 1 and 23 people living under their roof (Table 5). With a mode of 6, and mean 7, farmers in

Table 1: Age (in years) of respondents

Age category	States				Average for all states
	Ekiti	Ondo	Osun	Oyo	
<17	-	-	-	-	-
17 – 34	04	08	11	33	14.0
35 – 52	23	82	42	64	52.8
53 – 70	34	10	63	05	28.0
>70	03	-	06	-	4.5
Total	64	100	122	102	97
Mean age	53.86	43.92	53.26	38.89	47.5

Source: Field Survey, 2002

Table 2: Gender of respondents

Sex	States				Average for all states
	Ekiti	Ondo	Osun	Oyo	
Male	45	76	100	74	74
Female	19	24	22	28	23
Total	64	100	122	102	97
% Male	70.0	76.0	82.0	73.0	76.0

Source: Field Survey, 2002

Table 3: Farming experience (in years) of cooperative farmers

Years of Experience	States				Average for all states
	Ekiti	Ondo	Osun	Oyo	
<15	18	58	51	70	49.3
16 – 30	27	36	36	28	31.8
31 – 45	13	05	11	04	8.2
46 – 60	06	01	23	-	7.5
> 60	-	-	01	-	0.2
Total	64	100	122	102	97
Mean	25	17	26	13	20
Mode	20	15	50	5	22.5

Source: Field Survey, 2002

Table 4: Nature of respondents' farm business

Business Nature	States				Average for all states
	Ekiti	Ondo	Osun	Oyo	
Full Time	40	76	66	61	61
Part Time	24	24	56	41	36
Total	64	100	122	102	97
% Full Time	63.0	76.0	54.0	60.0	63.0

Source: Field Survey, 2002

southwestern Nigeria have dependants that could assist in their farm work. However, this number also increases the consumption pressure on the farmers, and it is therefore capable of reducing their levels of investment, savings, and propensity to save.

Ekiti state recorded the highest (about 8), while Ondo state recorded the least (7). The highest number of dependants falls between the household size of 5 and 10.

Level of Formal Education: With a mean of approximately 3, about 3/5th (64%) of the cooperative farmers in southwestern Nigeria have post-primary and secondary education (Table 6). The highest number (89) was recorded in Ondo and Ekiti the lowest (41). Only about 18% had no formal education, with Osun state having the highest number of respondents in this category.

Thus, most cooperative farmers are literates. Education improves the quality of labour and the ability to derive, decode and evaluate information. It also exposes the farmer to more investment opportunities. Thus, it is expected to positively influence farmers' savings/investment decisions for improved farm production and increased income levels.

Sources of Funds: Six major sources of fund for respondents farm business was identified namely savings; family arrangements; cooperative societies such as marketing, thrift and credit, group farming, processing, farmers' multi-purpose, and fishery cooperatives; rent from leased land; purchase contracts; 'Esusu'; and moneylenders (Table 7).

This shows that respondents highly depend on both material and cash reserves from previous years farm operations for current production,

Table 5: Distribution of respondents according to household size

Size (No.)	States				Average for all state
	Ekiti	Ondo	Osun	Oyo	
< 5	04	15	19	27	16
5 – 10	53	80	90	65	72
11 – 15	06	05	10	06	07
16 – 20	01	-	02	03	1.5
> 20	-	-	01	01	0.5
Total	64	100	122	102	97
Mean	7.5	6.5	7.2	6.7	7.0
Mode	5.0	6.0	8.0	4.0	6.0
Median	7.0	6.0	7.0	6.0	7.0
Range	2 - 23	3 - 20	2 - 12	1 - 23	1 - 23

Source: Field Survey, 2002

Table 6: Level of formal education (in years) attained by respondents

Level of Education	States				Average for all states
	Ekiti	Ondo	Osun	Oyo	
Elementary	08	07	21	18	13.5 (13.9%)
Post primary	10	48	26	33	29.2 (30.1%)
Post secondary	31	41	32	26	32.5 (33.5%)
Apprenticeship	01	01	02	13	4.3 (4.4%)
None	14	03	41	12	17.5 (18.1%)
Total	64	100	122	102	97 (100%)
Mean	3.12	2.44	3.15	2.66	2.84
Mode	3.0	2.0	5.0	2.0	3.0
Median	3.0	2.0	3.0	2.0	2.5

Source: Field Survey, 2002

() Figures in parentheses are average percentages of respondents for all states

Table 7: Respondents sources of fund

Fund Source	States				Average for all states
	Ekiti	Ondo	Osun	Oyo	
Savings	32	76	80	74	65.5
Family	25	46	25	35	32.8
Cooperative societies	09	28	43	15	23.8
'Esusu' societies	08	12	17	07	11.0
Farmers' cooperatives	45	48	52	39	46.0
Rent from leased land	04	05	-	03	3.0
Purchase contracts	06	-	01	-	1.8
Moneylenders	11	29	60	85	46.3
Mean interest rate per annum (%)	9.29	9.95	516.84	55.74	147.9

Source: Field Survey, 2002

* Multiple responses taken

arising from their savings. However, a large number of respondents in Oyo and Osun states also obtain credit from moneylenders who they claim charge high interest rates. The average interest rate for southwestern state was 147.9% with Ekiti state recording the least (9.3%) and Osun state the highest (516.8%). High interest rates charged on borrowed fund results in increased investment costs, which invariably translate into reduced income earnings, and low level of savings.

Borrowed Funds by Cooperative Farmers:

The average amount borrowed by cooperative farmers in southwestern Nigeria from the various sources (see Table 7) was about N189,974.00; mode N167,500.00 and a median of N130,000.00 (Table 8).

Cooperative farmers in Ondo state borrowed the highest mean amount of N518,750.00 followed by Ekiti (N140,135.00), Osun (N52,354.00), while Oyo state recorded the least (N48,656.00). Only Osun state recorded some respondents who did not borrow capital and this was ascribed to the unavailability of fund during the period. This suggests that cooperative

farmers in Ondo state have access to a larger capital base and hence are expected to have high volume of investments and savings as indicated by Osuntogun and Adeyemo (1981).

Disbursement and Duration of Receipt of Loanable Funds by Cooperative Farmers: Only 36% of the respondents obtained their loan funds in bulk. More than 3/5th (64%) received the money they borrowed in installments (Table 9). In addition, most of the respondents claimed they obtained credit from cooperative societies and "esusu" to supplement their capital base. This corroborates the claim of Adeyemo (1982).

About 31% of the respondents in all the states claimed that it takes up to six months to receive borrowed capital while 26% claimed that receiving loans after application takes more than 1 year (Table 9). In all, 67% of the cooperative farmers believe that disbursement of borrowed capital takes too long a time (i.e. more than 6 months) and this negatively affects their farm business.

Investments of Cooperative Farmers: The total investment used on farm production activities for all the states was N75,043.00, with a

median of N42,225.00 and a mode of N34,550.00 (Table 10). Respondents in Oyo state had the least (N23,729.00) while Ondo state had the highest (N201,806.00). Total investment made ranged between N1,000.00 and N510,000.00 in southwestern Nigeria. When compared with the average amount borrowed (Table 8), a difference of N114,931.00 was obtained. This shows that only 39.5% of total capital borrowed is expended on the farm business.

This implies that 3/5th of the farmers' borrowed funds are expended on non-farm ventures, thereby suggesting the need for adequate supervision and monitoring of funds for specified production purpose.

Credit Problems Encountered by Respondents: Credit problems encountered by respondents varied from inadequate availability of loan (42%), unavailability of loan at right time

(36%) and high interest rates (30%) in descending order of predominance (Table 11).

Only 7% claimed that they encountered no problems, while 4% do not know how to seek for loans. This shows that if loans are adequately made available, it will enhance the investment and savings of cooperative farmers in the southwestern states of Nigeria.

Income Levels of Cooperative Farmers: In all the states, the ratio of respondents' mean annual income to investments was about 3:1, with Ondo state having the highest of approximately 4:1, and Osun state, the least of 1.5:1 (Table 12). This implies that the higher the amount of capital borrowed, the higher the annual net income earnings from the cooperators' farm business (Tables 8 and 20). It is therefore economically advantageous to borrow investment capital for the farm business. Cooperative farmers in Ondo

Table 8: Amount borrowed (N) by cooperative farmers

Item	States				Mean for all states
	Ekiti	Ondo	Osun	Oyo	
Mean	140,134.62	518,750.00	52,353.96	48,656.25	189,794
Mode	100,000.00	500,000.00	50,000.00	20,000.00	167,500
Median	50,000.00	400,000.00	50,000.00	20,000.00	130,000
Variance	9.6E + 10	5.5E + 11	1.5E + 09	4.1E + 10	
Minimum	4,000	50,000.00	0	4,000	
Maximum	2,000,000	5,000,000.00	200,000.00	2,000,000.00	

Source: Field Survey, 2002

Table 9: Mode of disbursement and duration of receipt of borrowed capital

Item	States				All states
	Ekiti	Ondo	Osun	Oyo	
Mode of disbursement:					
Bulk	18	23	28	70	35 (36%)
Installment	46	77	94	32	62 (64%)
Total	64	100	122	102	97 (100%)
Duration of Receipt of Borrowed Capital (%):					
= 6 months	08	20	37	54	30 (31%)
7 – 11 months	17	58	55	38	42 (43%)
= 1 year	39	22	30	10	25 (26%)

Source: Field Survey, 2002

() Figures in parentheses are average percentages of respondents for all states

Table 10: Investments (N) of cooperative farmers per annum

Amount (N)	States				Average for all states
	Ekiti	Ondo	Osun	Oyo	
Mean	37605.95	201805.90	37031.33	23729.03	75043
Mode	3200	100,000	25000	10000	34550
Median	14400	110500.00	30000	14000	42225
Variance	7.3E + 09	4.1E + 10	8.4E + 08	8.9E + 08	7.2E + 08
Minimum	1000	5300	1500	2000	1000
Maximum	510000	800,000	130000	200000	510000

Source: Field Survey, 2002

state had the highest mean income followed by Ekiti, Osun and Oyo states respectively in decreasing order of mean annual income levels (Table 12).

This suggests that if borrowed capital is readily and adequately made available, cooperative farmers will be able to increase their mean annual income from farm work, and thereby provide opportunity for increased savings (see Adeyemo and Akala, 1992).

Cooperative Loan Supervision: About 23% of the respondents in southwestern Nigeria claimed to be supervised during the period in which the loan capital was utilized (Table 13). Ekiti state recorded the highest percentage of

respondents, while Osun state recorded the least.

When this is viewed in line with the ratio of mean annual income to investments, it reveals that most cooperative farmers are able to manage borrowed capital well without strict monitoring. This can be linked to their level of literacy and the membership of most (81%) of them in different cooperative societies such as credit, Esusu and farmers' union (see Table 7). It further suggests that if properly monitored/supervised, the cooperative farmers can earn higher mean annual incomes. About 70% of the respondents agreed that the loan obtained for farm business has improved/increased their agricultural productivity (Table 13).

Table 11: Credit problems of cooperative farmers

Item	States				Average for all states
	Ekiti	Ondo	Osun	Oyo	
Loan not available at right time	32	67	20	27	37 (38%)
High interest rate	09	56	12	37	29 (30%)
Inadequate loan	12	46	58	48	41 (42%)
Nobody to give loan	-	-	03	24	7 (7%)
Don't know how to go about it	07	01	01	06	4 (4%)
No problems	07	09	05	05	7 (7%)
Cannot produce collateral for loan	05	07	06	34	13 (13%)

Source: Field Survey, 2002

*Multiple responses taken

() Figures in parentheses are average percentages of respondents for all states

Table 12: Annual Income earnings (N) of cooperative farmers

Amount (N)	States				Average for all states
	Ekiti	Ondo	Osun	Oyo	
Mean	79720.62	801956.54	57084.55	51147.37	247477
Mode	50000	00	50000	30000	32500
Median	50000	300000	40000	30000	105000
Variance	8.851E+09	5.901E+12	2.698E+09	6.770E+09	6.055E+09
Minimum	00	00	200	8000	2050
Maximum	500000	12000000	250000	550000	3325000
Ratio of Income to investments	2.12:1	3.97:1	1.54:1	2.16:1	3.30:1

Source: Field Survey, 2002

Table 13: Supervision of cooperative loan

Item	States				Average for all states
	Ekiti	Ondo	Osun	Oyo	
Yes	24	15	12	35	22
No	40	85	110	67	75
Total	64	100	122	102	97
% Supervised	37.5	15.0	9.8	34.3	22.7
Loan improved farm productivity (%)	61.0	73.0	79.0	68.0	70.3

Source: Field Survey, 2002

Savings Pattern of Cooperative Farmers: Majority (56%) of the respondents saved their money in banks and cooperative societies, while only 18% save at home (Table 14).

Average annual savings in southwestern Nigeria was N31,572.00 with Ondo state having the largest (N40,788.00) while Oyo state recorded the least (N22,980.00) (Table 14). The average savings/month was found to be proportional to the mean annual incomes from farm production operations. As the annual income increases, the average amount of savings/month in each state and in all the states also increases (see Tables 12 and 14). Adeyemo and Akala (1992) supported this view.

Results of Regression Analysis

Determinants of Savings Pattern Among Cooperative Farmers: Based on the R^2 , F value, t-tests and 'a priori' expectation of the variables (Pindyck and Rubinfeld, 1998), the linear function

was chosen as lead equation for three states namely Ekiti, Ondo and Osun respectively, while the Cobb-Douglas function was selected for Oyo state and all the states combined. Results of the linear multiple regression analysis showed that variations exist in the factors influencing the saving patterns of cooperative farmers in the study area (Table 15).

Respondents' age significantly influenced farmers' saving patterns in Ekiti state; Age, family size, and loan repayment in Osun state; while none of the included variables significantly affect saving patterns in Ondo state. These factors therefore have to be considered when designing/formulating any savings mobilization scheme for cooperative farmers in these areas. The recorded R^2 show that the independent variables included in the model explain 73%, 76% and 58% respectively of the variability in respondents' savings for Ekiti, Ondo and Osun states, while the F value for Osun state was significant at the 1% level of probability.

Table 14: Savings/annum (N) and savings location of cooperative farmers

Savings/annum (N)	States				Average for all states (N)
	Ekiti	Ondo	Osun	Oyo	
Mean	37800	40788	24720	22980	31572
Mode	12000	60000	12000	12000	24000
Median	12000	24000	12000	12000	15000
Minimum	00	100	00	1800	00
Maximum	480000	240000	120000	360000	300000
Savings Location*:					
Bank	32	90	47	52	55 (56%)
Home	15	7	11	35	17 (18%)
Cooperative societies	28	25	74	51	45 (46%)

Source: Field Survey, 2002

*Multiple responses

Table 15: Regression results of the determinants of savings pattern among cooperative farmers in southwestern Nigeria

Independent Variables	Savings (Y_i)				
	Ekiti ⁺	Ondo ⁺	Osun ⁺	Oyo ⁺⁺	All States ⁺⁺
Interest rate (X_1)	189.33	528.57	-0.004	-0.069	-0.243
Income (X_2)	0.005	-0.004	0.001	0.809*	-0.228**
Age (X_3)	413.72**	485.41	55.00*	1.527*	0.955
Farming Experience (X_4)	-89.98	-533.46	-0.527	-0.353**	-0.269
Family Size (X_5)	-973.86	-172.88	-84.784***	-0.194	-0.337
Education (X_6)	772.14	-2045.71	-61.676	0.020	-0.025
Loan Repayment (X_7)	475.34	70.09	741.632*	-0.094	0.689***
Amount borrowed (X_8)	-0.008	-0.0004	0.006	-0.088	0.158***
Constant	-16323.1***	-7570.06	-3346.05*	-4.419**	5.793**
R^2	73%	76%	58%	49%	14%
F	1.355	1.168	5.598*	7.172*	1.503
N	64	100	122	102	97

Source: Field Survey, 2002

⁺, ⁺⁺ Linear and Cobb Douglas function selected as lead equation

*, **, *** Significant at 1%, 5% and 10% respectively

Table 16: Regression results of factors influencing cooperative farmers investment pattern in southwestern Nigeria

Independent Variables	Investment (Y_2)				
	Ekiti ⁺	Ondo ⁺	Osun ⁺	Oyo ⁺⁺	All States ⁺⁺
Interest rate (X_1)	431.241	1735.435	-0.307	-0.165	-0.176
Income (X_2)	0.219*	0.339	0.108**	0.819*	-0.076
Age (X_3)	-1252.37**	-3642.344	393.582	-0.246	0.228
Farming Experience (X_4)	1590.69**	3935.074	-162.086	0.098	-0.084
Family Size (X_5)	4023.955	45933.681**	-134.576	0.049	-0.113
Education (X_6)	1824.841	27389.225	-1623.221	-0.119	0.091
Loan Repayment (X_7)	-6469.849	58665.952	30839.042*	0.452***	-0.011
Amount borrowed (X_8)	0.102**	0.458*	0.565*	0.005	0.674*
Constant	-436.462	-520996	-89060.00*	1.988	3.538
R ²	98%	93%	80%	60%	45%
F	32.52	8.361*	18.241*	11.955*	7.727*
N	64	100	122	102	97

Source: Field Survey, 2002

⁺, ⁺⁺ Linear and Cobb Douglas function selected as lead equation

*, **, *** Significant at 1%, 5% and 10% respectively

Age, and loan repayment positively influenced savings pattern in Ekiti and Osun states, while family size recorded a negative influence. This shows that the farmers increase their savings, as they grow old. Though this negates the life cycle hypothesis of savings, which claims that a person would be expected to save up to a point and then start dissaving as he grows old, the results obtained shows that most farmers in the study area are not too old and therefore tend to save to cater for their household. Additionally, the longer the loan repayment time, the higher the savings made by the farmers. This shows that if farmers are given adequate time (say two years) to extend the use of borrowed funds, their level of savings will increase. The negative sign on family size reveal that consumption pressure mounts with increased dependants on farmers' income, and this is capable of reducing their level of savings. In Oyo state, income, age and farming experience significantly influenced respondents' savings pattern. While age and income positively influenced savings, farmers farming experience recorded a negative influence. However, as farming experience increases, farmers are expected to be more efficient in their farm operations, and to earn more income, increase their savings, as well as the willingness to save. The negative value on farming experience can be ascribed to the credit problems (see Table 11), faced by farmers in the study area.

In all the states, income, loan repayment and amount borrowed for the farm business were the

significant variables that influenced savings pattern (see Aluko, 1972; Kessler and Strauss-Kalm, 1984; Ayanwale and Bamire, 2000). Thus, these factors have to be considered in designing strategies aimed at improving the savings pattern of cooperative farmers in southwestern Nigeria.

Pattern of Investment Among Cooperative Farmers: The investment pattern of cooperative farmers are influenced by income, age, farming experience and amount of borrowed fund in Ekiti state; family size and amount borrowed in Ondo state; income, loan repayment and amount borrowed in Osun state; and income and loan repayment in Oyo state as in table 16.

Income, farming experience, family size, loan repayment, and amount of fund borrowed positively influence farmers investment pattern, while only age (in Ekiti state) had a negative influence. This is in line with 'a priori' expectation in that as farmers grow old, there is the tendency to reduce farm investments as their ability to cope with various farm operations diminishes. In all the states however, only the amount borrowed for cooperative farm business was significant. This implies that adequate provision of loanable funds to the farmers will enhance their investments, and this will invariably increase their income and savings level, as corroborated by Openiyi (1982).

ACKNOWLEDGEMENT

The authors wish to express their sincere appreciation to the Obafemi Awolowo University

Research Committee for the financial assistance given to carry out the research.

REFERENCES

- Adeyemo, R. 1982. "Strategies for improving agricultural credit in Nigeria." *Savings and Development Journal*, VI (1): 85-96.
- Adeyemo, R. and O. Akala. 1992. "Cooperative fishermen in the riverine area of Nigeria." *International Journal of Environmental Management*, 36: 27-34.
- Adeyemo, R. 1994. "A comparative study of cooperative and non-cooperative farmers in the use of resources in Nigeria." *Journal of Rural Development and Administration*. XXVI(1): 52-62.
- Aluko, S. 1972. "Determinants of saving income ratio." *Staff Seminar, Faculty of Social Sciences, Obafemi Awolowo University, Ile-Ife*, Pp 9-15.
- Ayanwale, A.B. and A. S. Bamire. 2000. "Rural income, savings and investment behaviour among farmers in Osun state of Nigeria." *The Indian Journal of Economics*, LXXXI(320): 49-60.
- Kessler, D. and Strauss-Kalm. 1984. *Domestic Savings and Foreign Capital Flows*. Savings for Development, UN publication, E.84.II.A.I. Pp 136.
- Olayide S.O., J. A. Eweka and V. E. Bello-Osagie. 1980. *Nigerian Small Farmers: Problems and Prospects in Integrated Rural Development*. Ibadan: Centre for Agricultural Rural and Development CARD, University of Ibadan, Nigeria. Pp 134-146.
- Openiyi, F.O. 1982. *Saving Investment Behaviour of Farm Household in Ikale and Ilaje/Ese-Odo LGA of Ondo State, Nigeria*. Unpublished B. Agric. Project Report. Pp 11, 35.
- Onyenwaku C.E. and C. M. Ozoh. 1992. "Savings mobilization among rural households in Anambra state of Nigeria." *Quarterly Journal of International Agriculture*, 31(3): 301-309.
- Osuntogun, A. and R. Adeyemo. 1981. "Mobilization of rural savings and credit extension by pre cooperative organizations in Southwest Nigeria." *Savings and Development Journal*, 4: 247-261.
- Pindyck, R.S. and D. L. Rubinfeld. 1998. *Econometric Models and Economic Forecasts*. 4th Edition. New York: Irwin McGraw-Hill.
- United Nations. 1981. "Report of the international symposium on the mobilization of personal savings in developing countries. Kinston, Jamaica." *Savings for Development, UN Publications*, No. E81.II.A6. Pp 7-14.