# EMPLOYMENT TYPES, WORK EXPERIENCES AND DETERMINANTS OF SMALLHOLDER FARM HOUSEHOLD INCOME IN IKWUANO, ABIA STATE NIGERIA

## BY

**Emerole C O[1], Nwosu A C[2], Onyenweaku C E[2], and Ukoha O O[2]**

**1. Department of Agriculture**
**Abia State University**
**PMB 7010 Umuahia**
**Abia State Nigeria**

**2. Department of Agricultural Economics**
**Michael Okpara University of Agriculture, Umudike**
**PMB 7267 Umuahia**
**Abia State**

## ABSTRACT

Farm household employments and labour devotion were determined along estimates of factors influencing smallholder net farm income in Ikwuano Local Government Area of Abia State, Nigeria. Cross-sectional and longitudinal data were collected from a panel of 96 farm households over a period of 40 weeks. A multi-stage random sampling technique was used in selecting the respondents. Member households in the panel were visited every fortnight (with a proforma) after some cross-sectional information had been collected on their socio-economics using a structured questionnaire. With the proforma every fortnight, information were collected on the same variables of farm income and off-farm income. The data were analyzed using two-stage Least Square (2SLS) regression technique on the income model. Results showed that households received more income in cash and kind from off-farm employments than from farm employments in spite of relatively more years of experience on the farms. The net farm income was positively determined by hectarage of farmland cultivated, farm products produced and consumed (own consumption), and farm products sold in their processed form by the households. Off-farm income was determined by net farm income, asset income and hours worked off-farm. These factors except net farm income were positive determinants of off-farm income. The factors could therefore be used as policy instruments to enhance farm income and empower the smallholder farmers.

## INTRODUCTION

The global decline in the number and size of farms and the number of persons living solely on farms within the last three decades has been established (Okigbo, 1983; Okafor. 1991; Huffman, 1991). In southern part of Nigeria, the average land-man ratio, measured by hectares per man has been falling below the national average of 1.2 hectares (FOS, 1988). It fell from 1.02 hectares per man in 1960 to 0.7 by 1970 (Okigbo, 1983) and further to 0.45 hectares per man by 1991 (Okafor, 1991)The consequences of this have been that many households support their farm income with incomes from other sources. These other sources include wages, salaries, profits, interests on loans, rents, property incomes, and other unclassified (Penson and Lins, 1980; Murphy and Sprey, 1986). For convenience, these farm household incomes can broadly be grouped into farm income and off-farm incomes. Participation in non-farm and off-farm jobs

has been popular among inhabitants of south eastern Nigeria. as such works have contributed additional income to farm families (Chub, 1961; Okafor, 1991).

Total household income which includes income in kind (own product consumption) and income in cash (farm sales, off-farm cash income) and other non-cash incomes (Penson and Lins, 1980; Murphy and Sprey, 1986) is a more comprehensive measure of welfare to rural families. Carriker et. al. (1993) highlighted that the disposable income of a farm household should consist of farm income, wages or salaries from off-farm employments and where available, government transfer payments. The farmers and members of their households improve on their personal incomes by taking additional measures on paid services, repair jobs, petty trading, crafts and other engagements whenever earnings from such compensate them for opportunity costs (foregone leisure and farm labour hours) (Haughton, 1994; Hearn et. al.(1996).

Technically considered, smallholder farmers operate with less efficient farm tools (hoes, cutlasses, baskets, animal traction and axes), cultivate small, pieces of land and rear few numbers of livestock. In most cases, they are economically poor, with some of them, rarely purchasing modern inputs (fertilizers, hybrid crop varieties, and pesticides). Their welfare depends on how well they are able to manage their employments, investment, and income. The desire to seek ways for effective management of these problems prompted this study and sought answers to the following questions: what are the existing types of farm and off-farm employments and incomes earned by members of smallholder farm households? What are the relative work experiences of

the household workforce in these types of employment? What factors determine net farm income in the smallholder farm households? In answering these questions, the study addressed the following specific objectives:

(i)      identify and categorize farm and off-farm employments and incomes of smallholder farmers in Ikwuano Local Government Area of Abia State, Nigeria;

(ii)      determine the relative work experiences of the members of household workforce in the various employment categories; and

(iii)      determine factor(s) which influence farm and off-farm income in smallholder farm households in the study area.

## METHODOLOGY

This study was conducted in Ikwuano Local Government Area of Abia State, Nigeria. The entire area measures about 610 square kilometers and is located between Longitudes 7° 24' and 6° 31' East of the Greenwich Meridian and Latitudes 6° 32' and 6° 37' North of the Equator. The Local Government area is typically rural with preponderance of agricultural activities. In addition, Ikwuano Local Government Area lies within 15-25 kilometers area adjacent to Umuahia (Abia State Administrative Capital), an urban centre with opportunities for households on adjoining areas to undertake off-farm employments. The Local Government derived its name "Ikwuano" (meaning four united blood-related communities) from the old four autonomous communities of Ariam, Ibere, Oleko, and Oboro. However, recent administrative restructuring split the area into 17 autonomous communities of Ariam, Ekperi, Usaka, Oloko, Afar, Awom-na Uzie, Osuigwe, Ibere, Oruo, Agbo-Ibere,

Ugwu-Ibere, Abaa-Ukwu, Awom-na-Ebo, Isiama, Ikwueke, Oru and Uro-Igwe. In all, there are fifty-seven large villages with 61,214 inhabitants made up of 32,374 females and 28,840 males (NPC, 1991). Farming in the area is typically rain-fed with farmers in Ibere communities cultivating the banks of over-flown rivers during the dry season.

A three-stage random sampling method was used to collect household-based primary data for this study. Firstly, two communities out of the original four autonomous communities were chosen by random sampling process. The communities chosen were Ibere and Oboro. Secondly, out of 14 villages of Ibere and 18 villages of Oboro, 12 villages made of 6 villages from each community were chosen. The villages selected were Ekebedi, Umudike, Ndoro, Ayama, Mgbaja and Agbomiri from Oboro community; and Ihim, Obuohia, Amuro, Isiala-Ibere, Inyila and Elemaga from Ibere community. Thirdly, eight farm households were chosen from each village following a random process. The list of farm households in each village was provided by the village level Extension Agents (EAs) and this served as the sampling frame for selecting the respondents. A total of 96 farm households formed the sample for this study. This sample constituted a panel from where both cross-sectional and time-series information were collected. The cross-sectional information was collected with a structured questionnaire on the first visit to each household. In all, six data collectors were involved. Thereafter, information on farm and off-farm income was collected every fortnight from the same farm households over a period of 40 weeks, using a designed proforma.

In addressing objective

(i) different farm and off-farm employments to which respondent farmers and members of their households had been involved (at least in the last one year) were listed and classified as either farm production, trading, services, and/or craft. Categorization recognized the number of respondents in relative importance and the amount of income to each type of the household employment. It also involved comparing off-farm with farm activities and average income to the households from them. Means of these variables were computed and displayed in frequency distribution Tables. Objective (ii) was achieved with a tabular display of years and percentage years experience on the jobs. Objective (iii) was achieved with multiple regression of income models. The income model in implicit forms were expressed as follows:

$NFI_i = f(HAF_i, POC_i, OFI_i, PFP_i, NGR_i, YFE_i, AFM_i, PIN_i, e_i)$ - - - eqn 1

$OFI_i = f(HHS_i, GHH_i, EDU_i, NFI_i, OFE_i, ASI_i, HWD_i, ei)$  - - - eqn 2

Where:

$NFI_i$ = Net farm income of the household during the period (₦'000);

$HAF_i$ = Hectarage of farmland cultivated by the household during the period;

$POC_i$ = Own consumption of farm products by household during the period (₦'000);

$OFI_i$ = Off-farm earnings of household members during the period (₦'000);

$PFP_i$ = Household processed farm products sold during the period (N'000);

$NGR_i$ = Net farm Products Gifts received by household during the period

Net Farm income was estimated in line with Loveridge, (1992) with the following identity based on theories of Production and consumption:

NFI = own consumption of farm products + Farm sales + Net farm product gifts received + Labour sales to other farms Farm input purchases.

Own Consumption was computed by estimating the value of agricultural production (Yield (kg) multiplied by average kilogram price during the period), and subtracting from that figure the value of net agricultural sales. Net farm product gifts received was estimated as the difference between the value of farm products received as gifts and the value of gifts to outsiders by the households during the period. The labour sales were the revenue earned by household members working in other people's farms during the period. The two incomes, OFI and NFI were simultaneously earned in the households. The above model specifications showed simultaneous equation bias as the net farm income and off-farm income are both dependent and independent variables. Subjecting the equations to identification showed that the model was over identified. The model was therefore analyzed following two-Stage Least Square (2SLS) regression technique (Olayemi and Olayide, 1981).

## RESULTS AND DISCUSSION
### Age Structure Of Farm Households:
The age structure of a farm household is the recognition of proportion of members constituting the dependants (infants, very old, tender children), and economic workforce (work age children, adults). These are shown in Table 1. Age children, adults). These are shown in

Table 1. Distribution Of Smallholder Farm Household Members By Age
in Ikwuano Local Government Area of Abia State, 2003.

| Age (Years) | Category | Number of Members | Percentage of Household Members (%) |
|---|---|---|---|
| 0 – 3 | Infants | 130 | 14.8 |
| 4 – 6 | Children (tender) | 157 | 17.9 |
| 7 – 17 | Children (work age) | 425 | 48.4 |
| 18 – 64 | Adults | 439 | 50.0 |
| 65 – Above | Very old | 30 | 3.4 |
| | Total | 878 | 100.0 |

Mean Household Age = 16.0 years; Mean Household size = 5.1

Table 1. showed that the dependant members of the farm households (infants, tender children and the very old) constituted 36.1 percent of the household size. The involvement of children of work age in income generating activities have been emphasized (Ayobolu, 1997, Ijere, 1998).

The household economic workforce (work age children and adults active as farm and off-farm work force) accounted for 63.9 percent of the household size. This proportion, which was reasonably high was engaged in income generating activities in the households. The work age children, many of whom were in primary and secondary schools (7 and 17 years of age), provided their share of farm and off-farm labour after normal school hours, on weekends, and during vacation period. The average farm household age in Ikwuano area was 16.0 years and the mean size of households was 5.1 persons with a range of 2.20 persons in the distribution.

## Employment Types, Household Income And Work Experience

Members in the smallholder farm households in Ikwuano area were engaged fully or partly in farm works and on non-farm jobs. They shared their time between these jobs and their leisure. Table 2.0 showed the distribution of these households, their mean incomes by the types of employment. The overall household income skewed such that more income (N21.17m) were realized from off-farm employments than from farm employments (N12.21m). The off-farm income categorized were; N10.68m from trading; N9.46m from services; and N1.04m from crafts. Mixed farming (crop and livestock production) gave the highest mean farm income of N166,646.8. Households engaged in transportation business (commercial operators of motor-cycles, buses, taxis and wheelbarrow operators) received the highest mean household income of N640,228.9. The least mean household income of N34,592.1 was earned by working in other people's farm (farm labour sales).Traditional medicine which is a special skill was practiced by two of the farm households who earned N253,675.6 on the average during the period. Retail trading on food stuffs and engagement in civil/public services gave average off-farm incomes of N224,405.3 and N221,643.5 respectively. The use of rural based/forest resources to produce works of crafts (baskets, brooms, and ropes) gave the least off-farm and the least household income of N31,318.0 on the average. These crafts were income generating engagements dominated by children within the school age as part of their hobbies, with school and farm activities taking up much of their times. These rural employments and the income to the households are shown in proportions in Table 3

**Table 2  Distribution Of Farm Household And Their Income Earnings**
**By Types of Employment In Ikwuano Local Government Area**
**of Abia State, July 2002 – April 2003**

| Type of Household Employment | Number (Percentage household Involved) | Total Income Earned (₦) | Mean Income Earned (₦) |
|---|---|---|---|
| (a) Farm Employments: | | | |
| Food Crop Production | 14(14.6) | 905,954.8 | 64,711.1 |
| Food and Cash Crop Production | 18(18.8) | 637,737.3 | 35,429.9 |
| Crop and Livestock Production | 64(66.0) | 10,665,392.0 | 166,646.8 |
| Sub-total (a) | 96 | 12,209,084.1 | 127,178 |
| (b) Off-Farm Employments: | | | |
| (i) Trading: | | | |
| Foodstuff retailing | 26(27.1) | 5,834,538.4 | 224,405.3 |
| Akara balls and cooked food retailing | 10(9.4) | 613,049.3 | 61,304.9 |
| Firewood/Forest product sales | 27(28.1) | 2,283,080.3 | 84,558.5 |
| Toiletries/Sale of Provisions | 11(11.5) | 1,944,846.1 | 176,804.2 |
| Sub-total | 64 | 10,675,514.1 | 166,804.9 |
| (ii) Services: | | | |
| Labour sales to other farms | 11(11.5) | 380,513.4 | 34,592.1 |
| Carpentry/bricklaying | 10(10.4) | 803,306.0 | 80,330.6 |
| Bicycle repairing/shoe cobbling | 5(5.2) | 401,653.0 | 80,330.6 |
| Traditional medicine | 2(2.1) | 507,351.1 | 253,675.6 |
| Civil/Public Service | 13(13.5) | 2,881,365.0 | 221,643.5 |
| Transportation | 7(7.3) | 4,481,602.0 | 640,228.9 |
| Sub-total | 48 | 9,455,790.5 | 196,995.6 |
| (iii) Craft: | | | |
| Baskets/ropes/broom making | 27(28.1) | 845,585.3 | 31,318.0 |
| Photography | 2(2.1) | 190,256.7 | 95,128.4 |
| Sub-total | 29 | 1,035,842.0 | 39,718.7 |
| Sub-total (b) | 141 | 21,167,146.6 | 150,121.6 |
| Total | | 33,376,230.7 | 347,669.1 |

Note 1: The mean household income = ₦347,669.1; The mean Farm income
= ₦127,178.0; The mean off-farm income = ₦220,491.1; In
parentheses are percentage household response (row percentages).

2: Mean income is the ratio of total income from each source of income
to the number of households involved.

## Table 3. Summary of Average Household Income From Rural Employments in Ikwuano LGA of Abia State, Nigeria July 2002 – April 2003.

| Employment | Average Household income (₦) | Percentage Income (%) |
|---|---|---|
| Farm Employment | 127,178.0 | 36.6 |
| Rural based trading | 111,203.3 | 32.0 |
| Service employments | 98,497.8 | 28.3 |
| Crafts | 10,790.0 | 3.1 |
| Total | 347,669.1 | 100.0 |

Table 3. revealed that farm production yielded 36.6 percent of the average household income of smallholder farmers in Ikwuano Local Government Area. The off-farm incomes cumulatively accounted for 63.4 percent of the average household income to this category of farmers. The breakdown showed that rural based trading gave 32.0 percent of the average household income with services

**Table 4. Per Household Distribution of Work Experience In Farms and Off-farm**

**Employments By Members of 96 Smallholder Farm Households In Ikwuano, Nigeria 2003.**

| Household Labour | Years in Farm employment [Percentage] | Years in off-farm Employment [Percentage] | Total [Percentage] |
|---|---|---|---|
| Household heads: | | | |
| Male | 15.69 [85.6] | 2.65 [14.4] | 18.33 [100.0] |
| Female | 3.45 [78.8] | 0.93 [21.2] | 4.38 [100.0] |
| Other adults: | | | |
| Male | 1.67 [27.1] | 4.48 [72.9] | 6.15 [100.0] |
| Female | 3.40 [74.9] | 1.14 [25.10 | 4.53 [100.0] |
| Children: | | | |
| Male | 0.57 [37.4] | 0.96 [62.6] | 1.53 [100.0] |
| Female | 0.65 [42.5] | 0.88 [57.5] | 1.52 [100.0] |
| Total | 25.43 | 11.04 | 36.44 |

Figures in Parentheses are row percentages.

Table 4 showed that much (85.6%) of the years of work experiences of the male heads of the households and (78.8%) of the years of female heads of households were in their farms with only 14.4% and 21.2% experience respectively gained in off-farm engagements. The other adult members of the farm households had the males gaining greater part (72.9%) of their employment experiences in off-farm engagements as against 27.1% experience gained in farm works. The reverse was the case with other female adults who in each household had 74.9% experience gained in the farms as against 25.1% experience gained in the off-farm employments per household.

**Table 5. Two-Stage Least Square Estimates of Net farm and Off-farm Incomes of Smallholder Farm Households in Ikwuano, Nigeria 2003**

| Explanatory variables | Dependent Variables | |
|---|---|---|
| | Net Farm Income [NFI (+ +)] Coefficients and t-ratios | Off-farm Income (OFI + +)] Coefficient and t-ratios |
| Constant | -6.436(-0.754) | |
| Farm size (HAF) | 5.059(8.061)*** | |
| Own Consumption (POC) | 1.132(2.4338)** | |
| Off-farm Income [OFI(+)] | -0.358(-1.235) | |
| Processed Farm Product (PFP) | 2.004(2.553)** | |
| Net Gift Received (NGR) | -1.130(-0.548) | |
| Farming Experience (YFE) | 6.950(1.644) | |
| Members Active in Farming (AFM) | 1.347(1.867) | |
| Purchased inputs (PIN) | 0.203(0.136) | |
| Household Size (HHS) | | 0.390(0.516) |
| Gender of Household Head (GHH) | | 6.308(0.876) |
| Educational Attainment (EDU) | | 0.543(0.434) |
| Net-Farm Income [NFI (+)] | | -0.063(-2.743)** |
| Off-Farm Experience (OFE) | | 1.447(0.441) |
| Asset Income (ASI) | | 0.606(6.134)*** |
| Hours Worked Off-farm (HWO) | | 0.324(5.024)*** |
| R-Square | 0.645 | 0.633 |
| Re-square Adjusted | 0.606 | 0.591 |
| F-Ratio | 20.614 | 28.722 |

Source: Equations (1) and (2); (+) Estimates from reduced form equations;
** Significant at 5.0 percent (++) Two-stage Least Square estimates
*** Significant at 1.0 percent; Figures in parentheses are t-ratios

Similarly, male children in the farm households had greater experience (62.6%) in off-farm jobs than 37.4% experience on the farm.

The female children in each household equally had greater proportion of experience (57.5%) in off-farm employment as against 42.5% experience per household gained in farm works. This showed that the children spent greater proportion of the work years in off-farm employments such as trading (hawking) and crafts in Ikwuano. The large number of years of experience of other adult members and children of age in off-farm employments suggests that the cohabiting members have supplemented income from the farms with income from non-farm employments.

## Determinants of Net Farm and Off-Farm Incomes of Smallholder Households

Estimates of factors that determined net farm income and off-farm income from the two-stage Least Square analysis are shown in Table 5. This single equation method analyzed 64.5 percent variation and 63.3 percent variation of net farm and off-farm incomes explained by their variables, respectively.

The Table showed that three out of nine investigated regressors were significant (P ≤ 0.05) in determining net farm income of the smallholder farm households in Ikwuano. These factors and their second stage (coefficients) were hectarage of land cultivated (5.059), farm products produced and consumed (POC) (1.132), and Farm products sold in their processed form (PFP) (2.004). These have implications on income elasticities. Each of the households which increased her cultivated land by one hectare increased her net farm income by N50,059.00, increased own consumption by ₦11,032.00 and products sold in processed forms to a value of ₦20,004.00. These were positive influences and suggested that larger hectarages of farmland properly cultivated gave larger output, and hence larger income, with processing responsible for much of the increases.

Table 5 further showed that two factors (asset income (0.606), and hours worked off-farm (0.324) were highly significant (P = 0.01) and determined off-farm income earned by the farm households. Both factors positively influenced their income from off-farm sources. The revelation meant that households who owned more income yielding assets (rentable arable lands, commercially operated Buses, Wheel barrows and motor cycles) and/or worked more hours in off-farm farm employments earned bigger income from off-farm source(s).

This confirmed the findings of Winters *et al.* (2003), Hearn *et al.* (1996), Sumner (1982), and Okafor (1991) that farm households who owned income yielding assets earned additional income as off-farm earnings. Net farm income, (-0.063); was the third factor (Table 5.) which significantly (P ⌐ 0.05) influenced the amount of off-farm income earned by the smallholder farm households in Ikwuano, Abia State. Net farm income however, had A negative influence on off-farm earnings of the farm households. This was plausible, for as the farm households earned more income from their farms, they worked for less amount of income from off-farm Sources.

## Policy Implications and Recommendations

The findings presented in this study have a number of implications for Abia State and the Nigerian Government policy towards smallholder farmer improvement. As the results and discussion indicate that the net farm income of the smallholder farmers were positively determined by the hectarage of land cultivated, own consumption, and farm products sold in their processed form, they connote immense implications for changes in rural farm structures and occupational pursuits in Nigeria. With declining farm land-man ratio, less experienced farmers are likely to get unsustainable income from their farms and therefore are likely to diversify their source(s) of income for meaningful existence. Collectively, the volume of locally produced food crops, cash crops and livestock will remain on the decline. The

amount of foreign exchange spent on food imports will rise (Reardon *et al.*, 1992), as more of the needed foods will be imported to supplement the local production. Smallholder farmers who cannot improve on their income through diversified employments or plural income activities no doubt will remain poor and toil without commensurate farm income.

Many of the smallholder farm households had workforce readily available for gainful employment. Recognized that they were not solely dependent on agricultural production for much of their income, they are advised to judiciously allocate their resources, including the labour to the Production of those crops and livestock which fetch relatively higher income. This is necessary because earning of higher income from agricultural activities meant less involvement in off-farm activities. More so, as the smallholder farmer has remained the centre-piece of Nigerian agriculture (Olayemi, 1995, and Dalhatu, 1991), policies fashioned to improve agricultural production through income must direct farmers to allocate resources only to farm enterprises that give higher yield in their areas and equally fetch higher prices in the local and foreign markets. The policies must recognize the production characteristics of the small farmers which entail household use of farm inputs, poor size distribution of holdings, low crop output and mixed enterprise productions. Higher yielding and disease resistant crops and livestock therefore must be made available to this category of farmers at prices which they can afford. In addition, small-scale processing and product preserving techniques should be demonstrated and bequeathed to them by relevant institutions, groups and individuals. This will enable them to present for sale higher quality products which will fetch higher prices and hence higher income that will help keep them focused in producing more food and fibre for the nation with the excesses exported. There is urgent need to make farming more attractive than is presently the case in Nigeria.

# REFERENCES

Ayobolu, S. (1997). Caught In the Poverty Trap: A profile of Nigerian child. UNICEF Progress Report of Nigerian Children. African Book Builders Limited Ibadan, Nigeria.

Chub, L. T. (1961). Ibo land Tenure (2nd ed.), Ibadan University Press, Ibadan.

Carriker, G. L., Lngemeier, M. R., Schroeder, T. C. and Featherstone, A. M. (1993). Propensity To Consume Farm Family Disposable Income From Separate Sources. American Journal of Agricultural Economics 76: 739 - 744.

Dalhatu, M. B. (1991). Chairman's Statement. Nigerian Agricultural and Cooperative Bank Limited Annual Report and Accounts.

FOS, (1988). Rural Economic Survey of Nigeria. Federal Office of Statistics, Lagos. No. p. 128.

Haughton, J. (1994). Tackling Rural Poverty: An Assessment of Alternative Strategies For Mixed Farming Areas in Peninsular Malaysia. The Developing Economies, 32 (3): 256 - 278.

Hearn, D. H., McNamara, K. T., and Gunter, L. (1996). Local Economic Structure and Off-farm Labour Earnings of Farm Operators and Spouses. Journal of Agricultural Economics, 47(1): 28 - 36.

Huffman, W. E. (1991). Agricultural Household Models; Survey and Critique, In Hallberg, M. C., Findeis, I. L., and Lass, D. A. (eds.). Multiple job holding Among Farm Families, Iowa State University Press, Iowa 79- 111,.

Ijere, M. O. (1988). Rural Youth As a Factor For Agricultural Transformation In Nigeria. Key Note Address at 1988 Oct. 13 World Food Day Seminar, Abuja.

Loveridge, S. (1992). Sources of Agricultural Household Revenue, Exports, and Their Impact on Rural Food Availability. Agricultural Statistics Division. No. p.24, Ministry of Agriculture and Livestock, Republic of Rwanda.

Murphy, J. and Sprey, L. H. (1986). Introduction To Farm Surveys. International Institute For Land Reclamation and Improvement, ILRI, Netherlands.

NPC, (1991). National Census Results. National Population Commission, Abuja Nigeria.

Okafor, F. C. (1991). Population Pressure, Agricultural Change and Environmental Consequences in South Eastern Nigeria. Project on African Agriculture of the joint Committee on African Studies. Social
Science Research Council/American Council of Learned Societies. Third Avenue, New York. No. p. 26.

Okigbo, P. (1993). Planning the Nigerian Economy For Less Dependence on oil. Nigerian Institute of Social and Economic Research. Distinguished Lecture Series No. 3. NISER, Ibadan. No. p. 19.

Olayemi, J. K. and Olayide, S. O. (1981). Elements of Applied Econometrics. Centre for Agriculture and Rural Development (CARD). University of Ibadan, No. p. 293.

Olayemi, J. K. (1995). Agricultural Policies For Sustainable Development: Nigeria's Experience. In Ikpi, A. E. and Olayemi, J. K. (eds.). Sustainable Agriculture and Economic Development in Nigeria. Proceedings of a Workshop on Nigeria's Agricultural Research, Policy Planning and Plan Implementation Experience and Relevance to Development. Winrock International Institute For Agricultural Development, USA, 41 60.

Penson, J. B. and Lins, D. A. (1980). Agricultural Finance: an Introduction to Micro and macro concepts. Prentice-Hall, Inc., Eaglewood Cliffs, N. J. USA. No. p. 546.

Reardon, T. C., Delgado, I. and Matlon, P. (1992). Determinants of Effects of Income Diversification Amongst Farm Households in Burkina Faso journal of Dev.. Studies, 28(1): 254 - 296.

Sumner, D. A. (1982). The Off-farm Labour Supply of Farmers. American Journal of Agricultural Economics 499- 509.

Winters, P., Davis, B., and Corral, L. (2002). Assets, Activities and Income Generation in Rural Mexico: Factoring in Social and Public Capital. Agricultural Economics. The Journal of International Association of Agricultural Economists. Elsevier 27(2) 97 - 196.