

RESEARCH ARTICLE

ANALYSIS OF DETERMINANTS OF FARM SIZE PRODUCTIVITY AMONG SMALL-HOLDER TOBACCO FARMERS IN NIGERIA USING OYO STATE AS CASE STUDY.

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Abstract

..... This study focused on analysis of determinants of farm size productivity among small-holder tobacco farmers in Oyo state. Specifically, the study examined the socio-economic characteristics of the farmers and the determinants of farm size productivity among small-holder tobacco farmers. 240 tobacco farmers were randomly selected from the study area. Data were collected using a structured questionnaire and interview schedule was employed to elicit information from the respondents. Information sought bordered on the socioeconomic characteristics of the respondents and input used. Data collected was analyzed using log-linear regression model and descriptive statistics. Findings revealed that few (31.97%) of the respondents were between 20 and 29 years of age, majority(67.9%) were part time farmers, majority(69.43%) of the respondents were married, majority (57.3%) of the respondents had an household size between 6 and 10, majority (62.6%) of the respondents use hired as it increases productivity. Findings further revealed that farm size was negative and significant at 1% and productivity of tobacco increases with hired labour which is positively correlated with productivity at 1% level of probability. The coefficient of mode of occupation was positively correlated to productivity at 5%. It signifies that full time farmers are more productive than part time farmers. The study concluded that there is an inverse relationship between farm size and productivity. The study recommended that, youths should be further encouraged to practice agriculture (Tobacco farming) so as to bridge the encroaching generation gap in Agricultural tobacco farming.

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Introduction:-

The development of agriculture is pivotal to the transformation of most developing economies and the citizens' livelihoods. About 70 percent of Africans and nearly 80 percent of the continent's live in rural areas and depends mainly on agriculture for their means of livelihood. The agricultural sector accounts for about 20 percent of Africa's Gross Domestic Product (GDP) according to United Nation Economic Commission for Africa (UNECA) report, (2004), 60 percent of its labour force and 20 percent of the total merchandise exports according to Africa Union-

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New Partnership for Africa's Development (AU-NEPAD) report, (2003). It was reported by UNECA, (2005) that agriculture is the main source of income for 90 percent of rural population in Africa. Increased agriculture productivity is one of the strong options for stimulating economic growth, reducing poverty, and improving food security.

In Nigeria for instance, agriculture is still the backbone of the economy despite her oil revenue. Agriculture contributes over 40% of Nigeria's GDP, employs over 70% of the population, and produces about 80% of the food needs. Aye, (2013). Although, agriculture still accounts for about 88% of non-oil export earnings, its contribution has seriously declined over the decade falling from about 75% of total export earnings in the 1960s to less than 3% currently Oji-Okoro,(2011). Agricultural productivity levels in Nigeria, in terms of land and labour productivity, still lag far behind other developing regions. Revelations from British American Tobacco Nigeria (BATN, 2010) shows that Oyo state, South West Nigeria, widely focus on cultivating tobacco as cash crops are concerned. The establishment of the state-of-the-art factory in Ibadan, has brought improvement to the economic status, the lives of farmers, their dependents and to their communities. Employment opportunities open up through growing tobacco, for tobacco leaf farmers, farm workers and Nigerian graduates. The expertise acquired in tobacco production is applied on follow-up food crop production leading to relatively higher productivity by tobacco farmers. This process has contributed to the Nigerian economy through the payment of taxes to the Nigerian government.

There are many factors that determine how productive the tobacco enterprise is and what it ought to be in Nigeria as a whole and the study area in particular. Nigeria has a total of 92.4 million hectares of land out of which about 57% (52.668 million hectares) is under crop and pasture production. Although the aggregate production from these lands has sustained the population and the economy in the time past, the rapid increase in population and the need to diversify the economy in other non-agricultural sectors, has necessitated much pressure on the resources (Osuji, 2011). In as much as 75 percent of the workforce is engaged in agriculture, productivity is mainly on subsistence level (Osugiri, et al 2012). The farm size had been on the decrease as well as the fallow lengths, which had adversely affected the resource base. Analysis of agricultural productivity in the past was based on scarce labour and abundant land. This study aims at examining some of these factors and determines the extent they have affected agricultural productivity in the study area.

Objectives of the Study:-

The objectives of this study are to:

- 1. ascertain the social economic characteristics of tobacco farmers in Oyo State; and
- 2. to analyze the determinants of farm size productivity in the study area.

Methodology:-

The study was carried out in 4 local Government(Saki West, Saki East, Oyo East,Orelope) in Oyo State. A Purposive sampling technique was used in selecting 240 Tobacco Farmers. These selected local government were the dominant producer of tobacco according to Nigeria Bureau of Statistics(NBS 2017). 60 farmers were further randomly selected from each local government to make 240 farmers. The data of socio-demographic and demographic characteristics (age, education, religion, marital status, income, occupation, farming experience, land ownership, family labour, hired labour and number of children) were collected using a structured questionnaire and was analyzed using descriptive statistics and the four functional forms of Regression model namely linear, exponential, Cobb- Douglas and log linear. The lead equation was selected based on certain econometric criteria.

Analytical Procedures

The four functional regression models- linear, Cobb-Douglas, Exponential and semi-log were the econometric models specified for explaining productivity in tobacco production.

| Linear FS/L=b0+b1 X1 + b2 X2+ b3 X3+b9 X9+e | 1) |
|-------------------------------------------------------------------|-----|
| Cobb-Douglas: $LnFS/L = b0+b1lnX1+lnX2+b3lnX3+b4ln X4+b9 x9+e(2)$ |) |
| Exponential: $LnFS/L = b0+b1X1+b2 X2+b3X3+b4X4+b9X9+e(3)$ | 3) |
| Log-Linear: FS/L=b0+b1lnX1+B2lnX2+b3lnX3+b4lnX4+b9lnX9+e | (4) |

Where FS=Farm size in ha. L=Labour input for all activities (in man days); In=Natural logarithm; X1=Age in years; X2=Household size; X3= Gender (Dummy variable: 1= male,

0=female); X4=Occupational status (Dummy variable: 1=full time farmer, 0=part time farmer);

X5=farm size in ha; X6=fertilizer use in kg; X7=Hired labour in man days; X8= family labour in man days; X9=land ownership (Dummy variable:1= market based,0=Non-market based)

Farm size (Hectares)= farm size productivity ha/man days.....(5) Labour (Man days)

Socio-Economic and Demographic Characteristics

Table 1 shows the socio-economic and demographic characteristics of the respondents which include; age, level of education, religion, gender, marital status, household size, average monthly income, occupation, farming experience, quantity of fertilizer used, land ownership, family labour, hired labour. Few (31.97%) of the respondents were between 20 and 29 years of age, few of the respondents (43.5%) had primary education, majority of the respondents (53.6%) were Christians, majority (78.56%) of the respondents were male, majority (69.43%) were married, majority (57.3%) had an household size of 6 to 10, majority (58.7%) earned an average monthly income between $\aleph(0.000 \text{ and } \aleph(0.000, \text{ majority } (67.9\%))$ of the respondents were part time farmers, majority (50.5%) had a farming experience between 6 and 10 years, majority (66.5%) owned there land on market based basis, majority (62.6%) of the respondents make use of 1 to 5 members of their family for labour while few (36.6%) hire between 1 to 5 labourers.

| Socio-economic Variable | Frequency % | Mean Score |
|---------------------------------------------------------|-------------|------------|
| Age | | |
| 1-20 years | 4(1.68) | 35.09 |
| 21 to 29 years | 77(31.97) | |
| 30 to 39 years | 75(31.29) | |
| 40 to 49 years | 71(29.62) | |
| 50 to 59 years | 13(5.44) | |
| Highest Level of Education | | |
| No Formal Education | 41(16.9) | |
| Primary Education | 104(43.5) | |
| Secondary Education | 72(30.2) | |
| Post-Secondary Education | 23(9.4) | |
| Religion | | |
| Christianity | 129(53.6) | |
| Islam | 109(45.4) | |
| Traditional | 2(1.0) | |
| Gender | | |
| Male | 189(78.56) | |
| Female | 51(21.44) | |
| Marital Status | | |
| Single | 69(28.57) | |
| Married | 166(69.43) | |
| Divorced | 5(2.0) | |
| Household Size | | |
| 1-5 | 60(25.2) | |
| 6-10 | 138(57.3) | |
| 10-15 | 42(17.5) | |
| Average Monthly Income on Tobacco Sales(N) | | |
| 6,000 to 10,999 | 140(58.7) | 12,416 |
| 11,000 to 15,999 | 38(15.8) | |
| 16,000 to 20,999 | 36(14.8) | |
| 21,000 to 25,999 | 26(10.7) | |
| Occupation | | |
| Full Time Farmer | 77(32.1) | |
| Part Time Farmer | 163(67.9) | |

Table 1:-Socio-Economic and demographic Characteristics of the Respondents (N=240)

| Farming Experience | | |
|----------------------------|-----------|--|
| 1-5 years | 52(21.5) | |
| 6-10 years | 121(50.5) | |
| 11-15 years | 67(28.0) | |
| Farm Size (Ha) | | |
| ≤ 2.0 | 146(60.8) | |
| 2.1 – 5.99 | 94(39.2) | |
| 6.0 & Above | 0(0) | |
| Quanity of Fertilizer Used | | |
| 50-100kg/ha | 146(60.8) | |
| 101-150kg/ha | 94(39.2) | |
| Land Ownership | | |
| Market Based | 160(66.5) | |
| Non Market Based | 80(33.5) | |
| HiredLabour | | |
| 1-5 Labourers | 150(62.6) | |
| 6-10 Labourers | 62(25.9) | |
| 11-15 Labourers | 28(11.5) | |
| FamilyLabour | | |
| 1-5 Labourers | 88(36.6) | |
| 6-10 Labourers | 73(30.5) | |
| 11-15 Labourers | 79(32.9) | |
| | | |

Source: Field Survey, 2018

Econometrics Analysis

The result showed in table 2 is the results of the econometric analysis for tobacco production in the study area. Findings revealed that the productivity of tobacco increases with hired labour which is positively correlated with productivity at 1% level of probability. This finding supports the work of Anyaegbunamet al. (2008). The study revealed that hired labour tends to be more productive than family labour because of the remuneration /wage involved. Most often hired labour may be under supervision by the farmer to make for efficient labour input and usage in the field. The coefficients of farm size and age are significant and negative at 1% and 5% respectively. This could imply that productivity at 5%. This may imply that full time farmers are more productive than part time farmers. Productivity significantly increases with the use of fertilizer at 10%. This is in line with the apriori expectation that use of fertilizer increases output in the work of (Anyaegbunamet al., 2006)

Table 2:-Summary of Regression Analysis on Determinants of Farm Size Productivity in Tobacco Production.

| Determinant | Linear Coefficients | Exponential | Cobb-Douglas | Log-Linear |
|----------------|---------------------|-----------------|--------------|--------------|
| Variables | | Coefficients | Coefficients | Coefficients |
| Constant | 102.7764 | 4.5381 | 131.758 | 537.1551 |
| | (4.38)*** | $(48.78)^{***}$ | (-78.25) | (-10.07)*** |
| X ₁ | 1.2676 | 0.0018 | 46.4877 | 23.9179 |
| | (2.98)*** | (3.59) | (141.53)*** | (-2.30)** |
| X ₂ | 0.2953 | 0.0054 | -0.0391 | 5.6811 |
| | (0.23) | (-0.53) | (-0.45) | (2.07) |
| X ₃ | -3.5751 | 0.0252 | 0.5369 | -1.5571 |
| | (-0.59) | (0.26) | (5.16)*** | (-0.4) |
| X ₄ | 9.1126 | 0.0325 | 0.4822 | 8.4531 |
| | (1.16) | (0.98) | (3.69)*** | (2.04)** |
| X ₅ | -116.1969 | 0.0359 | -0.3553 | -149.3846 |
| | (-13.38) | (-23.97)**** | (-2.18)** | (-29.91) |
| X ₆ | -9.9550 | 0.0299 | -0.0343 | 6.7153 |
| | (-1.38) | (-0.16) | (-0.28) | $(1.73)^{*}$ |

| X ₇ | 0.8938 | 0.0004 | 0.1253 | 122.0003 |
|----------------|----------------|------------|-----------|-----------------|
| | $(8.50)^{***}$ | (18.09)*** | (0.59) | $(18.17)^{***}$ |
| X ₈ | -0.02542 | 0.00015 | -0.0346 | -2.1393 |
| | (-0.07) | (-1.58) | (-0.28) | (-0.51) |
| X ₉ | 0.5922 | 0.0332 | -0.2757 | 1.2708 |
| | (0.07) | (0.43) | (-2/03)** | (0.29) |
| \mathbf{R}^2 | 0.62 | 0.84 | 0.70 | 0.89 |
| F | 30.47 | 95.00 | 99.70 | 152.32 |

Source: Regression Analysis of Survey, 2018

Figures in parenthesis represents (t-ratios). ***= Significant at 1%, **=significant at 5%,*=significant at10%. X1=Age in years; X2=Household size; X3= Gender(Dummy variable: 1= male, 0=female); X4=Occupational status (Dummy variable:1=full time farmer,0=part time farmer); X5=farm size in ha; X6=fertilizer use in kg; X7=Hired labour in man days; X8= family labour in man days; X9=land ownership(Dummy variable: 1= market based,0=Non-market based)

Conclusion:-

From the findings of this study, it was concluded that given the inverse relationship of farm size and productivity all factors related to farm size productivity such as hired labour, age, mode of operation and fertilize call for positive polices aimed at land reforms towards redistribution of land to make more land available to peasant and landless farmers in order to increase productivity and efficiency.

Recommendation:-

The study recommends that youths should be further encouraged to practice agriculture (Tobacco farming) so as to bridge the encroaching generation gap in Agricultural tobacco farming.

References:-

- 1. Africa Union- New Partnership for Africa's Development (AU-NEPAD, 2003). "New Partnership for Africa's Development Annual Report"
- Anyaegbunam, H.N., Ogbnna, M.C., Asumugha, G.N. (2006). Determinants of adoption of cassava technology by small scale farmers in Abia State, Nigeria. Proceedings of the40th annual conference of the Agricultural society of Nigeria held at NRCRI Umudike 16th – 20th October, 776-780.
- Anyaegbunam, H.N., Okoye, B.C., Asumugha, G.N., Ogbonna, M.C., Madu, T.U., Nwakor, N., Ejechi, M.E. (2008). Labour productivity among small holder cassava farmers in south east agro ecological zone, Nigeria. African Journal of Agricultural Research, 5(21), 2882-2885. Available online at http /www academic journals.org/AJAR.
- 4. Aye, G. (2013). Efficiency and policy analysis in Agriculture: Methods and Applications. Saarbrucken: Lambert.British American Tobacco Nigeria Website (2010)http://www.batnigeria.com/group/sites/bat_7ykm7r.nsf/vwPagesWebLive/DO7YKMW?opendocument Page last updated: 30/06/2010 18:31:15 GMT Nigeria Bureau of Statistics (NBS 2017)
- 5. Oji-Okoro, I. (2011). Analysis of the contribution of Agricultural sector in the Nigeria Economic development. World review business research, 191-200.
- Osugiri, I.I., Albert I.U., Onyaguocha S.U.O., Onyemanu C.S., and Ben-Chendo G.N (2012). Population dynamics, labour and small holder farmers productivity in Southeast Nigeria. Journal of Economics and Sustainable Development, 3(12)
- Osuji, E.E. (2011). Land Use Patterns and Effects on Agricultural Productivity in Ikeduru Local Government Area, Imo State. Unpublished M.Sc. Thesis, Department of Agricultural Economics, FUTO, Owerri, Nigeria.
- 8. United Nations Economic Commission for Africa (UNECA, 2004). "Unlocking Africa's Trade Potential".
- 9. United Nations Economic Commission for Africa (UNECA, 2005)."Meeting the Challenges of Unemployment and Poverty in Africa".