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Factors Influencing Farmer Output in the International Fund for Agricultural Development Community-Based Project in Abia and Cross River Sates, Nigeria

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Abstract

*This study analysed factors influencing International Fund for Agricultural Development Community-Based Natural Resource Management Programme arable crop farmers' output in Abia and Cross River states, Nigeria. A multistage random sampling procedure was used to select 240 IFAD farmers (120 each for Abia and Cross River states). Data were collected with a structured questionnaire and analysed using descriptive and inferential statistics (multiple regression and Chow's test analyses). Results from the study showed that Abia farmers realized 26 tons/ha, 55 tons/ha and 2.3 tons/ha from cassava, yam minisett and sole maize respectively, while Cross River farmers realised 23 tons/ha (cassava), 51 tons/ha (yam minisett) and 2.2 tons/ha (sole maize). Whereas Abia farmers had an adoption index of 64% each for cassava and yam minisett and 63% for maize, while Cross River had adoption index of 63% each for the three technologies. Chow's test revealed that coefficients of wage rate (14.5***), farm size (3.52***), education (3.29***), capital inputs (4.38***) and extension contact (3.69***) influenced output of arable crop framers in Abia and Cross River states. The study recommends review of Land Use Act of 1990 and increased extension contact in order to boost farmers output.*

Keywords: *Community-based programme, arable crop farming, adoption index, technology utilization*

Introduction

One of the greatest challenges facing the human race has been how to generate adequate food to meet the food security needs of the ever increasing population. According to Food and Agricultural Organization (2014) an estimated 925 million people, about 14% of the world's population are food insecure with 239 million or 26% of these found in the Sub-Saharan Africa. In Nigeria particularly, about 60% of the citizens are undernourished especially in the rural areas where poverty incidence seems to be relatively higher than in the urban centres (Aigbokhan 2008).

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Manyong,Ikpi, Olayemi, Yusuf, Omonona, Okoruwa and Idachaba (2005) observe that constant changes in policies and unsustainable implementation of government programmes have been problems in the Nigerian agricultural sector.

Efforts to implement these programmes through some public extension systems such as Agricultural Development Programmes (ADP's) by effectively transfering improved technologies to farmers have not yielded commensurable result especially in the Niger Delta Regions. These efforts focus on adoption of technologies, neglecting the outcome (farm output) and factors influencing it (International Fund Agricultural Development, 2012; Nigerian Agip Oil Company, 2012). Earlier studies indicate that use of local varieties, farmers farm size, external inputs like inorganic fertilizers, agrochemicals may not be adequate to increase farmers' output (Ekwe, Tokula and Ekwe 2006). In view of this, it became imperative to consider he factors that influence output of IFAD farmers in the study area. In order to complement extension delivery in the country, the Federal Government of Nigeria and World Bank in conjunction with the Niger Delta Development Commission established the Community-Based Natural Resource Management Programme (IFAD/FGN/NDDC/CBNRMP) (CBNRMP, 2002).

One of the programme mandate was to reduce poverty through transfer of agricultural technologies in the areas of crops, livestock, agro forestry (Non Timber Products) and fisheries to benefiting farmers and ensuring adoption of these technologies. In view of the foregoing, this study was designed to analyse factors influencing output of participating farmers who adopted arable crop technologies promoted by the programme in Abia and Cross River State, Nigeria. Specifically, the study described the socio-economic characteristics of farmers in the study areas, determined farmers' output realised from cassava, yam minisett and sole maize, ascertained levels of adoption of arable crop technologies in Abia and Cross River state

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Methodology

This study was conducted in Abia and Cross River States, which are among the states in the Niger Delta Region of Nigeria. There are nine states within the Niger Delta Regions of Nigeria namely Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo and Rivers States. These states are also known as programme areas of the International Fund for Agricultural Development. Abia State is situated in the South-Eastern part of Nigeria.(Oye, 2002). Abia state lies between Longitudes $7^{0}23^{1}$ and $8^{0}2^{1}$East of the Equator and Latitudes $4^{0}47^{1}$ and $6^{0}12^{1}$ North of the Greenwich Meridian. Cross River State lies between Latitude $5^{0}5^{1}$ and $6^{0}40^{1}$ North of the Equator with Longitude $8^{0}10^{1}$ and $8^{0}5^{1}$ East of the Greenwich Meridian. The State is bounded on the North by Benue State, on the South by Akwa Ibom State, on the East by Cameroon Republic and the West by Ebonyi State. Multistage random sampling procedure was used in the research. The sampling frame for the study consists of a list of registered farmer groups across the states, collected from International Fund for Agricultural Development (IFAD). Three (3) Local Government Areas from nineteen LGAs in both states that participated in the programme were randomly selected; (Abia - Umuahia North, Arochukwu and Ugwunagbo) and (Cross River - Yala, Yakurr and Obubra) which gave a total of six (6) local government areas. Two (2) communities each were then selected from the six local government areas: Abia (Umuahia North – Okwoyi and Mbom, Arochukwu -AtaniAbam and ObieneUtutu, Ugwunagbo- EtitiAkanu Ngwa and AsaAmaise); Cross River (Yala – Okpoma and Okuku / Itega Okpudu, Yakurr – Asiga and Ekori, Obubra–Nyamoyong and Apiapum) twelve (12) participating communities. Furthermore, from the selected participating communities, two farmer groups each was selected which gave a total of twenty-four (24) farmer groups. Finally, ten participating farmers each were selected from the selected farmer groups and this gave a sample size of two hundred and forty (240) participating farmers (120 Abia IFAD and 120 Cross River IFAD farmers). Data for the analysis were obtained from a structured questionnaire and analysed with descriptive statistics and inferential (multiple regression analysis and Chow's test). The levels of adoption of selected arable crop technologies were measured using 10 (ten) cassava, twelve (12) yam mini sett and eleven (11) sole

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maize production technologies disseminated to IFAD farmers rated on a 5 - point Likert type adoption scale. The respondents were asked to indicate their adoption stages for the various practices using the five steps (aware, interest, evaluation, trial and adoption model with values of 1,2,3,4 and 5 respectively. A midpoint was obtained thus; 5+4+3+2+1 =15/5 =3.00. The adoption index was derived by dividing the total mean adoption score by 5 - point Likert type scale (Agwu, 2006).

Model Specifications

Multiple regression analysis was used to determine the factors that influence output realised from CBNRMP arable crop technologies by participating IFAD farmers. The four functional forms of regression model viz: linear, semi-log, exponential and Cobb-Douglas were tried. The best fit was chosen as the lead equation based on its conformity with econometric and statistical criteria such as the magnitude of R^2, F-ratio and number of significant variables.

The four functional forms are expressed as follows:

Linear Function

$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + ei$

Semi – log function

$Y = L_nb_0 + b_1L_nx_1 + b_2L_nx_2 + b_3L_nx_3 + b_4L_nx_4 + b_5L_nx_5 + b_6 L_nX_6 + ei$

Exponential function

$LnY = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + ei$

Cobb Douglas Function

$LnY = L_nb_0 + b_1L_nx_1 + b_2L_nx_2 + b_3L_nx_3 + b_4L_nx_4 + b_5L_nx_5 + b_6 L_nX_6 + ei$

Y= output from adopted arable crop technologies (measured in tons/ha from farmers mean yield of cassava, yam minisett and sole maize)

X_1 = wage rate in naira

X_2 = farm size in hectares

X_3 = depreciation of capital inputs (₦)

X_4 = education (years of schooling)

X_5 = household size(numbers)

X_6= extension contact (number of visit)

ei = error term

Data analysis involving chow's test was used to ascertain whether the factors that influence the output from adopted arable crop technologies in the two states not the same.

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The model is specified thus;

$$\text{Chow's } F^* = \frac{\dfrac{\sum e_3^2 - \sum e_2^2 - \sum e_1^2}{K_3 - (K_2 + K_1)}}{\dfrac{\sum e_2^2 + \sum e_1^2}{K_1 + K_2}} \quad \ldots\ldots \ (1)$$

This was computed as:

$$\text{Chow's } F^* = \frac{\dfrac{\sum e_3^2 + \sum e^2_4}{K_3 - K_4}}{\dfrac{\sum e_4^2}{K_4}} \quad \ldots\ldots \ (2)$$

Where,

$K_1 = n_1 - m$

$K_2 = n_2 - m$

$K_3 = n_1 + n_2 - m$

n_1 = Sample size for the first regression

n_2 = Sample size for the second regression

$\sum e_1^2$= Residual sum of squares from the first regression

$\sum e_2^2$= Residual sum of squares from the second regression

$\sum e_3^2$= Residual sum of squares from the pooled regression

$\sum e_4^2$= Residual sum of squares from the dummy variable (States)

Results and Discussion

Socio-economic Characteristics Respondents

The result indicates that 56.7% and 64.1% of Abia and Cross River IFAD farmers were males respectively (Table 1). This suggests that males dominate more than females in arable crop production in the study area.The famers had mean ages of 45.4 years (Abia IFAD famers) and 42.5 years (Cross River IFAD farmers) with mean household sizes of 6 persons and mean farm size of 3.7 hectares and 2.9 hectares for Abia and Cross River IFAD framers respectively.Household size has proved to be a source of cheap farm labour for farmers, thereby reducing costs incurred in farming operations. This implies that farmers in Abia cultivated on medium scale farms. The relatively lower farm size of Cross River farmers may be attributed to the sea locked nature of the area. The reason may be as a result of rural – urban migration which has made farm land households to relinquish their farms to other farmers in the study area. This resultant effect is increase in land area under holdings of IFAD farmers. This result contradicts. Ajani and Igbokwe (2012) that majority of farmers in Nigeria are small scale farmers that cultivate between 0.8 and 1.3 hectares of land. The mean age of the respondents is in line with the findings of Ogbonna, Onwubuya and Akinnagbe (2014) which showed that the mean age of Green River Project farmers fell within the obtained ages. More of Abia IFAD farmers (50.9%) acquired secondary education as against Cross River IFAD farmers that attained primary education (41.7%). Education is thought to enhance farmers'

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ability to explore access and adopt technologies (Nwaobiala, 2014). Also majority (94.6%) of Abia and Cross River (85.9%)IFAD farmers were visited by extension once in a week, implying that extension contacts in the study areas were adequate. To date, technology dissemination is vested on extension to transfer improved technologies to targeted farmers thereby increasing farmers farm output (Edeoghon and Idele (2012).

Table 1: Distribution of Socio-economic characteristics of IFAD arable crop farmers in Abia and Cross River States, Nigeria

Variables	Abia Arable Crop IFAD farmers (n= 120)	Cross River Arable Crop IFAD farmers (n= 120)
Gender (%)	56.7 (males)	64. 1(males)
Age (years)	45.4	42.5
Household Size (numbers)	6	6
Farm Size (hectares)	3.7	2.9
Extension contact (%)	Once in a week (94.6%)	Once in a week (85.9%)

Source: *Field Survey, 2013*

Farm Output of IFAD Abia and Cross River Arable Crop Farmers

Table 2 shows the mean farm output realised from cassava, yam minisett and sole maize among arable crop farmers in Abia and Cross River states. The result revealed that Abia IFAD farmers produced 26 tons, 55tons and 51tons per hectare of cassava, yam minisett and 2.3 tons/ha of maize respectively, while their counterparts had 26 tons/ha (cassava), 55 tons/ha (yam minisett) and 2.2 tons/ha maize respectively. National Root Crops Research Institute (2012) reports that a hectare of cassava and yam mini sett using proper production technologies in farmers managed farms produced between 18-30 tons of cassava roots and mini tubers (35-40 tons) respectively. This is similar to the findings of Okelola, Mbah, Ume, Olowajo, Usanga, Anozie and Bello (2014) in a similar study of maize farmers in Ebonyi state, Nigeria.

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Table 2: Distribution of farmers according mean arable crop farm output in Abia and Cross River states, Nigeria

Arable Crops	Tons/ha	Tons/ha
Cassava	26	23
Yam minisett	55	51
Sole maize	2.3	2.2

Source: *Field Survey, 2013*

Levels of Adoption of Arable Crop Technologies among Community-Based Farmers in Abia and Cross River States

Table 3 shows mean adoption scores and adoption indices of arable crop technologies by IFAD farmers in Abia and Cross River states. The technologies include;

Cassava Production Technologies

The result shows that cassava production technologies had mean adoption scores of 3.2 for Abia and 3.1 for Cross River IFADfarmers with an adoption index of 0.64 and 0.63 respectively. Agbarevo and Obinne (2008) opined that improvement in the yield of cassava is vigorously pursued through the development of improved varieties by National Root Crops Research Institute, Umudike and International Institute for Tropical Agriculture (IITA), Ibadan, as well as agricultural extension outfits such as the Agricultural Development Programmes (ADPs). Adoption of cassava technologies by farmers is enhanced by high yielding (Ejechi, 2015) and value addition attributes the crop possesses (Okoroafor and Nwaobiala, 2014; Nwaobiala, 2015)

Adoption of Yam Minisett Production Technologies

The result shows that yam minisett production technologies mean adoption scores for Abia($\overline{X}$=3.2) and Cross River IFAD($\overline{X}$=3.1)farmers with an adoption index of 0.64 and 0.63 respectively. This result is in tandem with the findings of Kadurumba and Ekwe, (2014) that yam minisett technology is a viable means of seed yam production. It is however in contrast with Okoro (2008), that yam minisett technology has been modified and made more elastic to enhance farmers' adoption, yet the adoption rate is still below 40% due partly to poor extension services to the rural areas and also to the size of the minisett. By adopting the minisett improved

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technology 5-10% of yam harvested will be required to produce seed yam compared to 30-50% normally used, thus leaving most of the harvest to be used for food in achieving food security in the rural communities (Okoro, 2008; Ikeorgu, Ekwe and Anyaeche,2007).

Adoption of Maize Production Technologies

The mean adoption scores of Abia and Cross River IFAD farmers on maize production technologies were 3.1 each, with an adoption index of 0.63. (table 3) The reason for adopting seed treatment and foliar application may be to prevent stem borer infestation on their farms which is occasioned by late planting. However farmers were of the view that late planting of maize seeds accrues profit by planting in two seasons. Ferasan D, a fungicide has proved to be very effective in the control and prevention of fungal infection.Farmers were taught to apply a pinch of Furadan 3 G into the funnel of the leaf to effectively control the pest against stem borer (Mani, Usman and Ado 2009).

Table 3: Adoption of selected arable crop technologies among IFAD farmers in Abia and Cross River states, Nigeria

Arable Crop Technology Packages	Mean Adoption Scores forAbia IFAD Farmers			Mean Adoption Scoresfor Abia Cross River IFAD Farmers		
	Cassava	Yam minisett	Sole maize	Cassava	Yam minisett	Sole maize
Site Selection	3.5	3.2	3.4	3.4	3.0	3.3
Land Preparation	3.2	3.1	3.2	3.1	3.1	3.2
Seed Selection	3.1	3.3	3.3	3.4	3.3	3.2
Cutting of Ware Yam into 25g- 35g setts	--	3.2	--	--	3.2	---
Seed Treatment/disease control	--	3.4	3.1	--	3.2	3.0
Planting Dates	2.9	3.0	3.1	2.8	3.0	3.0
Spacing	3.0	3.2	3.0	3.1	3.2	3.1
Weed Control	3.2	3.3	3.2	3.2	3.1	3.0
Fertilizer Application	3.1	3.1	3.1	3.1	3.1	3.1
Staking	---	3.2	---	---	3.2	---
Harvesting Techniques	3.2	3.1	3.0	3.0	3.2	3.1
Storage Techniques	3.2	3.0	3.1	3.0	3.1	3.0
Processing Technologies	3.1	--	3.1	2.8	--	3.1
Grand Mean	**3.2**	**3.2**	**3.1**	**3.1**	**3.1**	**3.1**
Adoption Index	**0.64**	**0.64**	**0.63**	**0.63**	**0.63**	**0.63**

Source: *Field Survey, 2013*

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Relationship Between Socio-Economic Factors and Output of IFAD Arable Crop Farmers in Abia State, Nigeria

Table 4 shows the determinants of farmers' output from adopted programme technologies by participating farmers in Abia State. The Cobb-Douglas functional form was chosen as the lead equation based on a high R^2 value and agreement of the variables with a *priori expectation*. The R^2 value of 0.7775 implies 77.75% variability in output was explained by the independent factors. The F-value (75.46) was highly significant at 1% level of probability indicating a regression of best fit. The coefficient for wage rate (16.36) was positively signed and highly significant at 1% level of probability. This implies that increase in wage rate will bring about an increase in output of yam. This is in disagreement with a *priori expectation*, probably because labour may work in shifts thus resulting in high cost of output. This result however agrees with the research findings of Igwe, Chinatu and Ememandu (2009) which revealed a positive relationship between wage rate and output of farmers in Enugu state, Nigeria. The coefficient for farm size (2.17) was positive and significant at 5% level of probability. This implies that an increase in farm size will lead to increase in output of the farmers in Abia State. This result is in agreement with a *priori expectation*. Nwachukwu, Umezuruike and Effiong(2009) and Ezeh (2006) in their studies concluded that farm size is a strong determinant of farm output. The coefficient of capital input(-1.11) was negative and significant at 10% level of probability. This implies that an increase in capital inputs used in production will result in a decrease in the output of the farmers. This is in tandem with a *priori expectation*. As documented by Udoh and Etim (2007), farming in general has to use available inputs as efficiently as possible to achieve optimum production. Inefficiency of resource use can seriously jeopardize and hamper food production, availability and security. Okelola, Mbah, Ume, Olowajo, Usanga, Anozie and Bello (2014) obtained a similar result on determinants of maize output in Afikpo south LGA of Ebonyi state, Nigeria. The coefficient for extension contact (3.31) was positive and highly significant at 1% level of probability. The numbers of extension contacts likely to be received by farmers help in providing more valuable information about technologies which translates to increased output (Tokula, Ekwe and Ikeorgu(2009).

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Table 4: Regression estimates of the determinants of output from adopted programme technologies by IFAD arable crop farmers in Abia State, Nigeria

Variables	Linear	Exponential	Cobb-Douglas+	Semi-log
Intercept	10398	12.81584	5.45985	-5914202
	(0.39)	(68.61***)	(7.45***)	(-6.27***)
Wage rate	4.2946	0.000460	0.71524	5.83635
	(11.98***)	(12.45***)	(16.36***)	(10.37***)
Farm size	13.3388	0.08216	0.11536	141686
	(1.67*)	(0.98)	(2.17**)	(2.07**)
Capital inputs	-170.457	-0.00024551	-0.9049	-39701
	(-044)	(-0.60)	(-1.11*)	(-0.38)
Education	7270.343	0.00872	0.08506	21759
	(0.77)	(0.88)	(0.94)	(0.19)
Household size	17283	-0.00421	0.08506	169038
	(1.02*)	(-0.24)	(0.81)	(1.54*)
Extension Contact	24.2119	23.3213	39.543	28.097
	(3.10***)	(3.02***)	(3.31***)	(3.01***)
R^2	0.6707	0.6709	0.7775	0.6074
F-value	4604***	46.08***	75.46***	33.4***

Source: *Field Survey Data, 2013*
Variables in parentheses are t-values+ = lead equation **P**≤ 10, ** P≤ 0.5 and ***P P≤ 0.1

Relationship between Socio-Economic Factors and Output of IFAD Arable Crop Farmers in Cross River State, Nigeria

Table 5 shows the determinants of output from adopted programme technologies by participating farmers in Cross River State. Among the four functional forms fitted in the equation, the Cobb-Douglas functional form was chosen as the lead equation based on a high R^2 value, number of significant variables and agreement with a *priori expectation*. The R^2 value of 0.6377 indicating 63.77% variability in output is explained by the independent variables. The F-value (30.98) was highly significant at 1% level of probability indicating goodness of fit of the regression model. The coefficients for wage rate (-2.63) and depreciation on capital inputs (2.63) were negative and significant at 5% levels of probability. This implies that any increase in wage rate will lead to a decrease in output and 1% increase in the cost of capital items will also lead to a decrease in output. This is in agreement with a *priori expectation*, because any increase in the cost of these inputs will lead to a corresponding decrease in output of the farmers. The coefficient for farm size (9.32) and extension contact (3.78) was positive and highly significant at 1% level of

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probability. This implies that any increase in farm size and extension contact will lead to increase in output of farmers in the study area. This is in agreement with a *priori expectation,* since increase in farm size and extension contact will result in a corresponding increase in output from adopted recommended arable production technologies.

Table 5: Regression estimates of the determinants of output from adopted programme technologies by IFAD arable crop farmers in Cross River state, Nigeria

Variables	Linear	Exponential	Cobb-Douglas+	Semi-log
Intercept	196617	12.21189	15.31611	965721
	(6.22***)	(10.35***)	(21.75***)	(4.9***)
Wage rate	1.6566	0.0000042	-0.14026	-31117
	(3.56***)	(2.49**)	(-2.63**)	(-2.12**)
Farm size	-28994	0.10943	0.66517	17231
	(-0.42)	(0.42)	(9.32***)	(18.79***)
Capital inputs	-17.8673	-0.0004597	-0.08683	-28566
	(-1.51*)	(-1.04*)	(-2.63**)	(-3.15***)
Education	-776.4128	-0.04720	0.0436	4715.946
	(-0.42)	(-0.68)	(0.07)	(0.26)
Household size	535.2657	-0.00393	-0.06934	-2040.353
	(0.13)	(0.35)	(-0.19)	(-0.13)
Extension Contact	431.3380	23.1695	531.8451	215.7542
	(2.56**)	(1.75*)	(3.78***)	(1.61*)
R^2	0.3824	0.3351	0.6377	0.6291
F-value	14.11***	11.49***	30.98***	29.86***

Source: *Field Survey Data, 2013*
Variables in parentheses are t-values+ = lead equation≤ 10, ** P≤ 0.5 and ***P P≤ 0.1

Relationship Between Factors Influencing Output of IFAD Arable Crop Farmers in Abia and Cross River States, Nigeria

Table 6 shows the determinants of output of farmers from adopted technologies of the programme in Abia and Cross River States. The exponential functional form was chosen as the lead equation based on a high R^2 value, number of significant variables and agreement with *a priori* expectations. The R^2 value of 0.7613 indicates 76.13% variability in output explained by the independent variables. The F-value (129.06) was highly significant at 1% indicating a regression of best fit. The coefficients of wage rate (14.5) and farm size (3.52), education (3.29), capital inputs (4.38)and extension contact (3.69) were positive and highly significant at 1% level of probability. This implies that increase in these variables will lead to an increase in output. This is in agreement with a *priori expectation* probably because specialized

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and highly skilled labour is very costly to hire, but production and productivity is sufficient to cover cost. Mbanasor and Obioha (2003) asserted that capital inputs used in any cropping system have a resultant influence on the output of the enterprise. Education has proved to be a means of expanding knowledge, thereby exposing the farmer to the strategies to adopting order to increase output (Mukhwana, Nyongesa and Ogemah, 2005).The coefficient of capital inputs which depreciated was negatively related to output. This implies that any 1.0% increase in the cost of capital inputs or items will bring about a decrease in output. This is also in agreement with a *priori expectation*.

Table 6: Chow's test of the relationship of factors influencing outputofIFAD arable crop farmers in Abia and Cross River States, Nigeria (Pooled)

Variables	Linear	Exponential+	Cobb-Douglas	Semi-log
Intercept	-12065	12.16461	8.28881	345684
	(0.15)	(100.01***)	(12.16***)	(5.42***)
Wage rate	4.5001	0.00000580	0.52241	386680
	(16.53***)	(14.51***)	(11.72***)	(9.27***)
Farm size	82966	0.18873	0.28162***	127053**
	(1.63*)	(3.52***)	(5.18)	(2.50)
Capital inputs	-91.15755	-0.0002386	-0.04214	-85407
	(-2.47**)	(4.38***)	(-5.53***)	(-2.17**)
Education	11970	0.02226	0.11718	61576
	(2.60**)	(3.29***)	(1.50*)	(0.84)
Household Size	8710.49	0.0457	0.10848	132394
	(1.07)	(0.38)	(1.48*)	(1.93*)
Extension Contact	21.4559	54.8651	2.17658	11.4536
	(1.53*)	(3.63***)	(2.43**)	(1.04)
R^2	0.7385	0.7613	0.7216	0.5962
F-value	131.58***	129.62***	120.62***	59.64***

Source: *Field Survey Data, 2013*
Variables in parentheses are t-values+ = lead equation≤ 10, ** P≤ 0.5 and ***P P≤ 0.1

Conclusion and Recommendations

Wage rate, farm size, capital inputs, education and extension contact influenced farmers' output from adopted arable crop technologies promoted by the programme.
Subsidy on farm inputs such as improved seeds, cuttings and agrochemicals used in arable crop production in the study area is advocated. This will help reduce costs incurred by farmers during production. Since farm size influences the output of beneficiary farmers, there is need to review Nigerian Land Use Act of 1990 to facilitate easy access to landless peasantry farmers for increased arable crop

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production. Prompt payment of counterpart funds by different levels of government will help sustains the programme.

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