

## Poverty Alleviation Programme and Pro-poor Growth in Rural Nigeria: Case of Fadama II Project

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**Abstract:** Past government efforts to reduce poverty in Nigeria have not led to appreciable impact due to their supply driven approach. Recently emphasis is now shifting to demand driven approach through Community Driven Development assets (CDD). Fadama II one of the CDD projects invested mainly in agricultural projects to increase the income of the users. This study examined whether Fadama II was a pro-poor project. The data for this study were obtained from secondary source through a survey conducted in twelve World Bank supported Fadama states by International Food Policy Research Institute in 2006/2007 farming year. Only 1,738 matched observations from the 3,750 respondents were used in this study. The data were analysed using propensity score matching and poverty equivalent growth rate. The result shows that Fadama II was pro-poor nationwide, across the three agroecological zones and in eight benefiting states. Contrariwise, although the poor among the non-beneficiaries benefited more than the non-poor but the growth was not for the very poor. The study recommended that there is need to promote this type of Economic Community Driven Development project in the nation. Also there should be prevention of elite capture through proper targeting in the subsequent phase (s) of Fadama or any CDD.

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**Key words:** Pro-poor growth; Fadama II; CDD; Rural Nigeria.

### 1. Introduction

Poverty reduction is at the center of the policy discussion in every national government, international organization and non-political institution (Ricardo, 2005). This poverty reduction is about improving human well being (the life people live, what they can or cannot do) in particular that of the poor people (Kakwani and Pernia, 2000). Poverty reduction can be achieved by income growth and/or by the distribution of income (Kakwani et.al, 2004). Ali and Thorbecke (1998) provide evidence that rural poverty is more responsive to income growth than urban poverty. Urban poverty seems to be more responsive to changes in income distribution. Poverty alleviation strategies could involve increasing the quality and productivity of assets of the poor. It could also include policies targeted at factor and commodity markets, which aim at enhancing the real earning/income of the poor. However, for policies and programmes to be effective in reducing poverty, direct pro-poor policies and programmes (adequate public spending on basic education, health and family planning services, improved access to credit, and the promotion of small and medium enterprises) should be promoted. The Promotion of pro-poor growth requires a strategy that is deliberately biased in favour of the poor thereby enabling them to benefit proportionally more than the rich. Such an outcome would rapidly reduce the incidence of poverty so that those at the bottom end of the distribution curve of consumption would have the

resources to meet their minimum basic needs (Osinubi and Garrfar, 2005).

Globally, emphasis at poverty reduction is now shifting from supply driven (top-down) approach to demand driven (bottom-up) approach through Community Driven Development projects (CDD). In Nigeria many of these CDD projects have been instituted and implemented which include: Community Based Poverty Reduction Programme (CPRP); Local Empowerment and Environmental Management Programme (LEEMP); Community and Social Development Project (CSDP); Community Based Agricultural and Rural Development Project and National Fadama Development Project (NFDP-II and III) or Fadama II and III. The first three programmes invested mainly in social infrastructure while Fadama II and III invested mainly in agricultural assets and is the largest agricultural project in Nigeria. Fadama II one of these CDD projects was assessed in this study. Fadama II was a follow-up on the first phase (1992-1998) and was designed to operate for six years (2004-2010). The main objective was to sustainably increase the incomes of the Fadama users through expansion of farm and non-farm activities with high value added output. The project has five components with the bulk of resources in asset acquisition. It covers eighteen States including the Federal Capital Territory (FCT). Out of the 18 participating states, 12 of them were assisted by the World Bank (Adamawa, Bauchi, Gombe, FCT, Imo, Kaduna, Kebbi, Lagos, Niger, Ogun, Oyo and Taraba) with direct beneficiaries of

about 2.26 million rural families. A primary aim of Fadama II project was to ensure that other less dominant Fadama Users (Fisher folks, Pastoralists) and even marginal Users (hunters, gatherers) were recognized as Fadama Users and that their role in maintaining these lands are acknowledged and respected. Moreover, vulnerable sub – groups such as widows, elderly were targeted to ensure that they are beneficiaries of project – funded activities (NFDO,2007)

Although, several studies have worked on Fadama project in the country (Adeolu and Alimi, 2004; Taiwo and Ayanwale, 2004; Adesoji *et al*, 2006; Farinde *et al*, 2006; Nwachukwu and Onyenweaku 2007; Adeoti *et al*, 2008; Kudi *et.al*, 2008; Babatunde *et.al*, 2008; Nkoya *et.al*, 2007; Oni *et.al*, 2007; Olaniran, 2010; Adeoye, 2010) but they either limit their scope to Local Government Areas or State except Nkoya *et al.*, 2007 that used national survey. Some of these studies have assessed the outcomes of the project using only data from participants which prevented them from getting the counterfactual outcomes- the outcomes of the participant if he had not participated in the project. But this study makes use of both Propensity Score Matching that was employed by Nkoya *et.al* (2007) to address the evaluation problem. Also none has exploited the question of whether the project is pro-poor or anti poor. Answer to this pertinent question would serve as an effective tool for policy maker to determine if the intended beneficiaries benefited most from the project. Arising from the foregoing this study examined Fadama II and Pro-poor growth in Nigeria.

**1.1 Objective of the study:** The main objective of the study is to determine the pro-poorness of Fadama II project in Rural Nigeria. specific objectives are (i) to determine the pro-poorness of Fadama II by gender ; (ii) to determine the pro-poorness of Fadama II across agroecological zones and; (iii) to determine the pro-poorness of Fadama II across the benefiting states

## 2. Methodology

The data for this study were obtained from secondary source through a survey conducted in twelve World Bank supported Fadama states by International Food Policy Research Institute in 2006/2007 farming year. The 12 States lie in three major agroecological zones; the humid forest (Lagos, Ogun and Imo); moist savannah (FCT, Oyo, and Taraba) and dry savannah (Adamawa, Bauchi, Gombe, Kaduna, Kebbi, and Niger) zones. In each of the 12 benefiting states, the project was implemented in 10 selected Local Government Areas (LGAs). The sample design was multi-stage sampling. This involved stratification of the sampling

frame into three strata: (i) Fadama II project participants; (ii) respondents who live in Fadama II project communities but did not participate directly in the project (but who may benefit indirectly); and (iii) respondents who live in communities areas outside the Fadama II local government areas (LGAs) but with socio-economic and biophysical characteristics comparable to the Fadama II project communities and in the same state. In developing the sampling frame for the Fadama II FCA, efforts were made to ensure that all 14 Fadama user groups (FUGs) supported by the project were included in the list. The sampling frame of the household survey also considered the gender of the respondent, ensuring that a quarter of the respondents from each FCA were female (Nkoya *et al*, 2007).

The sampling procedure involved listing the Fadama II LGAs in each state and then randomly picking four Fadama II LGAs. One Fadama community Association (FCA) was randomly selected from each of the 4 LGAs and then 25 households were randomly selected from each FCA, summing up to 3,600 household in all. However, some field teams sampled more than 25 households per FCA, summing up to 3750. A structured survey instrument (questionnaire) was used for the household survey. This survey consisted of baseline data (2005) which were collected using recall information. Because implementation of the project started only a little over a year (September 2005) before the survey was conducted, respondents were expected to remember the baseline data required for two years prior to the survey (i.e., for the crop years October 2004 to September 2005 and October 2005 to September 2006 ). The data collected include socio-economic characteristics, major assets and major components of household income and expenditure (Nkoya *et al*, 2007).

The 3,750 sample collected was matched using Propensity Score Matching (PSM) to get 1,738 respondents that have similar characteristics; the aim of PSM is to find the comparison group from a sample of non- participants that is closest to the sample of program participants for comparison (Nkoya *et.al*, 2007). These 1,738 respondents were used for the analysis in this study. The analytical tool employed to analyse the pro-poorness of Fadama II was Poverty Equivalent Growth Rate (PEGR).

### Measurement of Pro-poor Growth: Poverty Equivalent Growth Rate (PEGR)

Pro-poorness of Fadama II and non Fadama II was determined using PEGR proposed by Kakwani *et al*, 2004. As poverty reduction depends on both growth and the distribution of its benefits among the poor and non- poor, growth alone is a necessary – but not sufficient condition for poverty reduction. This suggests there is no monotonic relation between growth

and poverty reduction. PEGR is a measure of pro-poor growth that captures a direct linkage (or monotonic relation) with poverty reduction, indicating that poverty reduction takes into account not only growth but also how benefits of growth are shared by individuals (poor

the non- poor) in society. However, PEGR is derived from the multiplication of the Pro -Poor Growth Index (PPGI) and the growth rate of mean income.

The PEGR ( $\hat{\gamma}^*$ ) can be written as:

$$\hat{\gamma}^* = (\hat{\gamma} + \hat{\eta}) \hat{\gamma} \quad (1)$$

Where  $\hat{\gamma} = (\partial / \hat{\eta})$ , is the pro-poor index which was developed by Kakwani and Pernia (2000)

$$\hat{\delta} = \left( \ln \left[ \theta(z, \mu_2, L_2(p)) \right] - \ln \left[ \theta(z, \mu_1, L_1(p)) \right] \right) / \hat{\gamma} \quad \text{is the estimate of total poverty elasticity} \quad (2)$$

where,  $\hat{\gamma} = \ln(\mu_2) - \ln(\mu_1)$  an estimate of growth rate of mean income (4)

$$\text{Since } \hat{\delta} = \hat{\eta} + \zeta \quad (5)$$

where  $\hat{\eta}$  is an estimate of the growth elasticity of poverty and  $\zeta$  is an estimate of the inequality effect of poverty reduction.

Therefore,

$$\hat{\delta} = \frac{1}{2} \left[ \ln(\theta(z, \mu_2, L_1(p))) - \ln(\theta(z, \mu_1, L_1(p))) + \ln(\theta(z, \mu_2, L_2(p))) - \ln(\theta(z, \mu_1, L_2(p))) \right] / \gamma \quad (6)$$

Note that  $\hat{\eta}$  is always negative unless  $\mu_1 = \mu_2$ .

$$\hat{\zeta} = \frac{1}{2} \left[ \ln(\theta(z, \mu_1, L_2(p))) - \ln(\theta(z, \mu_1, L_1(p))) + \ln(\theta(z, \mu_2, L_2(p))) - \ln(\theta(z, \mu_2, L_1(p))) \right] / \hat{\gamma} \quad (7)$$

The equation (1) implies that growth is pro-poor (anti-poor) if  $\hat{\gamma}^*$  is greater (less) than  $\hat{\gamma}$ . The larger the  $\hat{\gamma}^*$  the greater the percentage reduction in poverty between the two periods.

### 3. Results and Discussion

**3.1 Pro-poorness of Fadama II Project by Type and Gender:** Results for the Poverty Equivalent Growth Rates (PEGR) are presented in table 1, 2 and 3. Per capita consumption expenditure was used as the proxy for household annual income. A higher PEGR relative to the actual growth rate indicates that growth was pro-poor. As presented in table 1, the Poverty Equivalent Growth Rate of all Fadama II beneficiaries was higher for all the three FGT measures than the actual growth rate of about 30.9% after one year of project implementation. This is an indication that the poor benefited proportionally much more than the non- poor and that Fadama II is pro-poor. Also the proportional benefit flowing to the very poor was less than that flowing to the poor. The pro-poor growth resulted from the positive effects of both high growth rate and reduction in inequality (see Nkoya et.al, 2007). Poverty Equivalent Growth Rate of all Non- Fadama II beneficiaries was higher only for Poverty incidence than the actual growth rate of about 0.06% and lower for the other two FGT poverty measures after one year of project implementation. This implies that although the poor benefited more than the non-poor but the growth was not for the very poor (core-poor). In addition, Poverty Equivalent Growth Rate of Non- Fadama II beneficiaries outside Fadama LGAs(NFBO) was lower for all the three FGT measures than the actual growth rate of about 4% after one year of project implementation. This implies that the growth here is anti-poor, that is the non-poor benefited more than the poor. But due to spillover effect Poverty Equivalent Growth Rate of Non- Fadama II beneficiaries within Fadama LGA (NFBW) was higher for all the three FGT measures than the actual growth rate of about 8.3% after one year of project implementation meaning that the growth is pro-poor. This pro-poorness could be as a result of NFBW benefited indirectly from some of Fadama II projects, for example, non-beneficiaries used roads, culverts and other public facilities funded by Fadama II. Non-beneficiaries could also benefit from services offered by beneficiaries. For example, beneficiaries who acquired milling machines could offer milling services and employment to non-beneficiaries. Although the growth of non-beneficiaries is pro- poor but not for the very poor while that of the beneficiaries is for the very poor due to it demand driven approach.

The table also showed that although poverty Equivalent Growth Rate of both female and male Fadama II beneficiaries were higher for all the three FGT measures than their actual growth rates of about 43.2% and 27.6%

respectively which indicates pro-poorness of the project in both male and female. But PEGRs of Female were more than that of male which shows greater reduction in female poverty. In contrary, Poverty Equivalent Growth Rate of female and male Non- Fadama II beneficiaries was higher only for Poverty incidence than the actual growth rate of about 5.3% and lower for the other two FGT poverty measures after one year of project implementation. This implies that although the poor benefited more than the non-poor but the growth was not for the very poor (core-poor). In addition, Poverty Equivalent Growth Rates of female and male Non- Fadama II beneficiaries outside Fadama LGAs (NFBW) were lower for all the three FGT measures than the actual growth rate after one year of project implementation. This implies that the growth here is anti-poor, that is the non-poor benefited more than the poor. But due to spillover effect Poverty Equivalent Growth Rate of female Non- Fadama II beneficiaries within Fadama LGA (NFBW) is higher than that of their male counterparts

**Table 1: Poverty Equivalent Growth Rate of Respondents by Type and Gender**

Type of respondent/ Agroecological zones	Actual growth rate	Poverty Equivalent Growth Rate		
		P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>
<b>FB</b>	0.3089	0.6527	0.5580	0.4921
<b>Female</b>	0.4319	0.8452	0.7927	0.6474
<b>Male</b>	0.2764	0.5757	0.4802	0.4362
<b>ANFB</b>	0.0622	0.0638	0.0341	0.0241
<b>Female</b>	0.0527	0.0633	0.0166	0.0080
<b>Male</b>	0.0659	0.0687	0.0424	0.0312
<b>NFBW</b>	0.0827	0.1575	0.1139	0.0947
<b>Female</b>	0.1157	0.2259	0.1224	0.0724
<b>Male</b>	0.0869	0.1234	0.0925	0.1037
<b>NFBO</b>	0.0447	0.0000	-0.0276	-0.0419
<b>Female</b>	0.0395	-0.0497	-0.0341	-0.0455
<b>Male</b>	0.0469	0.0065	-0.0242	-0.0402

**3.2 Poverty Equivalent Growth Rate of Respondents across Agroecological Zones:** Across the three agroecological zones PEGRs of Fadama Beneficiaries are higher in all the three FGT measures than the actual growth rate, meaning that the poor benefited more than the non-poor. Also the PEGRs decreased across the FGT measures meaning that the proportional benefit flowing to the very poor was much less than that flowing to the poor: the magnitude of PEGRs becomes smaller because the poverty measure is more sensitive to the well being of the poorest person. In the same vein, PEGRs of ANFB and NFBW are only higher at HF zone in all the three FGT measures than the actual growth rate except at MS of NFBW where Poverty incidence was higher than the actual growth rate this could be due to spillover effect of Fadama II project on the growth of NFBW. Also PEGRs of NFBO are lower in all the three FGT measures than the actual growth rate which implies that the growth across the three agroecological zones is anti-poor. This is an indication that Fadama II was a poverty reduction project and it cut across all the three agroecological zones (Table 2).

**Table 2: Poverty Equivalent Growth Rate of Respondents by Type and Agroecological Zones**

Type of respondent/ Agroecological zones	Actual growth rate	Poverty Equivalent Growth Rate		
		P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>
<b>FB</b>	0.3089	0.6527	0.5580	0.4921
<b>HF</b>	0.2595	0.9472	0.8296	0.5999
<b>MS</b>	0.3059	0.5991	0.3581	0.3280
<b>DS</b>	0.3858	0.4629	0.4633	0.4317
<b>ANFB</b>	0.0622	0.0638	0.0341	0.0241
<b>HF</b>	0.0337	0.1125	0.1159	0.1253
<b>MS</b>	0.0546	0.0363	-0.0210	-0.0374

<b>DS</b>	0.0967	0.0524	0.0061	-0.0209
<b>NFBW</b>	0.0826	0.1575	0.1139	0.0947
<b>HF</b>	0.0452	0.3317	0.2555	0.2248
<b>MS</b>	0.0805	0.1612	0.0004	-0.0302
<b>DS</b>	0.1327	0.1021	0.0645	0.0793
<b>NFBO</b>	0.0396	0.0000	-0.0276	-0.0419
<b>HF</b>	0.0244	0.0098	-0.0014	-0.0046
<b>MS</b>	0.0294	-0.0067	-0.0377	-0.0445
<b>DS</b>	0.0675	0.0253	-0.0434	-0.0736

**3.3 Poverty Equivalent Growth Rate of Respondents across Fadama II Benefiting States:** Out of the twelve states only two states (Bauchi and Kaduna states) have PEGRs that were lower in all the three FGT measures than the actual growth rate after one year of project implementation among Fadama beneficiaries. Although there was income growth in these two states as well as decline in income inequality but the growth was still not for the poor. This is an indication that in the remaining states growth is pro-poor except in Adamawa and Gombe states where the PEGR (FGT-poverty incidence measure) were the same as their actual growth rate meaning that poor and non-poor benefited equally. Contrariwise among Non-Beneficiaries, although in eight states PEGRs (FGT-poverty incidence measure) were greater than their actual growth rate but less in other two FGT measures. This still justifies the result obtained under the nation, that though their growth was pro-poor but not for the very poor (Table 3).

**Table 3: Poverty Equivalent Growth Rate of Respondents by Type and State**

<i>State</i>	<i>Type of respondent</i>	<i>Actual growth rate</i>	<i>Poverty Equivalent Growth Rate</i>		
			<i>P0</i>	<i>P1</i>	<i>P2</i>
<b>Lagos</b>	FB	0.2442	0.8028	0.6984	0.6283
	ANFB	0.0182	0.0792	0.2239	0.1808
	NFBW	0.0272	0.4082	0.4417	0.2863
	NFBO	0.0095	0.0094	-0.0101	-0.0290
<b>Ogun</b>	FB	0.3055	0.4350	0.3789	0.3614
	ANFB	0.0825	0.1649	0.0784	0.0623
	NFBW	0.1054	0.2108	0.0956	0.0691
	NFBO	0.0366	0.1279	0.0654	0.0580
<b>Imo</b>	FB	0.2503	0.5007	0.3882	0.3738
	ANFB	0.0277	0.0345	0.0040	0.0106
	NFBW	0.0378	0.0378	0.0349	0.0162
	NFBO	0.0204	0.0204	-0.0287	0.0065
<b>Adamawa</b>	FB	0.3625	0.3625	0.3585	0.3556
	ANFB	0.1193	0.7258	0.0273	0.0061
	NFBW	0.1302	0.5206	0.1223	0.1107
	NFBO	0.1072	0.0000	-0.0277	-0.0396
<b>FCT</b>	FB	0.3225	0.7525	0.3806	0.3440
	ANFB	0.0447	0.0000	0.0083	-0.0020
	NFBW	0.1584	0.0000	0.0190	0.0064
	NFBO	0.0397	0.0000	-0.0060	-0.0116
<b>OYO</b>	FB	0.1467	0.2935	0.2317	0.2151
	ANFB	0.0185	-0.0738	-0.0965	-0.0851
	NFBW	0.0236	0.0229	0.0204	0.0148
	NFBO	0.0137	-0.0824	-0.1755	-0.1538
<b>Taraba</b>	FB	0.4137	0.6068	0.4341	0.4155
	ANFB	0.0846	0.1410	-0.0371	-0.0682
	NFBW	0.1421	0.1640	-0.1061	-0.1138
	NFBO	0.0395	0.1578	0.0223	-0.0013

<b>Bauchi</b>	FB	0.3747	0.1873	0.1960	0.1527
	ANFB	0.0857	0.2570	0.0841	0.0417
	NFBW	0.1333	0.2666	0.1019	0.1002
	NFBO	0.0425	0.2500	0.0708	0.0140
<b>Gombe</b>	FB	0.3519	0.3519	0.4247	0.3820
	ANFB	0.0590	0.0737	0.0733	0.0257
	NFBW	0.0589	-0.0294	0.0347	0.0364
	NFBO	0.0591	0.1773	0.1454	0.0061
<b>Kaduna</b>	FB	0.2948	0.2275	0.2709	0.2584
	ANFB	0.0603	0.0603	0.0028	0.0181
	NFBW	0.0679	0.1359	0.1129	0.1077
	NFBO	0.0573	0.0000	-0.0591	-0.0323
<b>Kebbi</b>	FB	0.4461	0.5204	0.5101	0.4800
	ANFB	0.1464	-0.0650	-0.1430	-0.1542
	NFBW	0.1993	0.1992	0.1171	0.0814
	NFBO	0.1077	-0.3232	-0.2790	-0.2957
<b>Niger</b>	FB	0.4279	0.6418	0.4151	0.3989
	ANFB	0.1066	0.1598	0.0312	0.0140
	NFBW	0.2385	0.1914	0.0940	0.0486
	NFBO	0.0562	0.0562	0.0100	0.0053

### Conclusion and policy Implications

This study examines whether Fadama II was a pro-poor project. Based on the empirical evidence emanating from this study, the poor among the beneficiaries benefited proportionally much more than the non-poor and that Fadama II is pro-poor nationwide, across the three agroecological zones and in eight states. Also the proportional benefit flowing to the very poor was much less than that flowing to the poor. Contrariwise, although the poor among the Non-beneficiaries benefited more than the non-poor but the growth was not for the very poor (core-poor). Due to spillover effect of Fadama II project, Non-Fadama II beneficiaries within Fadama LGA (NFBW) benefited from the project and the growth was pro-poor.

Based on the findings of this study and conclusion drawn, the following are recommended: The study reveals that Fadama II was pro-poor in the nation generally, across the three agroecological zones and in eight states out of the twelve benefiting states which suggest elite capture in the remaining four states. There should be prevention of elite capture through proper targeting in the subsequent phase (s) of Fadama or any community driven development project (CDD). Also there is need to promote this type of Economic Community Driven Development project in the nation.

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