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## **PROGRESSIVITY OF GOVERNMENT SPENDING ON PRIMARY HEALTH CARE : EVIDENCE FROM RURAL COMMUNITIES OF EDO STATE, NIGERIA.**

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4

### **5 ABSTRACT**

6 This study aimed at analyzing the progressivity of government spending on health  
7 in rural areas of Edo State. The study made use of primary and secondary data. The  
8 primary data were obtained from 360 respondents in rural areas of Edo state through the  
9 use of well structured questionnaire and interview schedule. The relevant data were  
10 analyzed using Kakwani Progressivity Index. The Progressivity analysis reveals that the  
11 concentration indices for BCG, Polio and Measles were negative which implied that the  
12 spending on them was progressive and pro-poor. However, the concentration indices for  
13 prenatal and postnatal health cares were positive, suggesting that the spending on prenatal  
14 and postnatal health cares was not progressive and not pro-poor. The international  
15 supports which vaccination schemes enjoyed may account for the high vaccination rate  
16 and it's pro-poorness in rural area of Edo State. However, vaccination programme  
17 should place more emphasis on Measles vaccination as the current rate of 42% for  
18 Measles is too low to achieve health target in the Millennium Development Goals by  
19 2015. The authorities may make Measles vaccination as condition for getting further  
20 benefit from government in form of Conditional Cash Transfer. Government should  
21 mount a proper education campaign for the populace on the desirability of prenatal and  
22 post natal cares in the rural areas of the State. Building more health centers in rural  
23 communities where prenatal and postnatal health cares can be administered is also  
24 important.

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### **28 1.0 INTRODUCTION**

29

30 Improving the health status of the poor makes a significant contribution to escape  
31 from poverty. Child vaccination, prenatal and postnatal hospital consultations are  
32 preventive measures to reduce infant and maternal mortalities which were reported to be  
33 higher in Nigeria than the average for the low income countries (Okonjo-Iweala and  
34 Osafo-Kwaako, 2007). Accordingly, good health status is recognized as essential for

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35 improving the earning potential of the population, particularly the rural poor farmers  
36 (World Bank, 2001). Sahim Yaqub (1999) has argued that successful poverty reduction is  
37 related to public investment in basic health and education. Therefore, public investment  
38 in rural health care will potentially lead to an increase in the level of productivity and the  
39 income of the rural poor. The health Sector is consequently pivotal to the actualization of  
current national agricultural transformation agenda, rural poverty reduction and globa40 l  
41 policy objectives.

42 In Nigeria inequality is manifestly glaring. Inequality abounds in income  
43 distribution, access to education and health. How to reduce this inequality is the  
44 immediate preoccupation of the present Nigeria government through the National  
45 Economic Emancipation and Development Strategies, Millennium Development Goals  
46 and vision 20-20-20. However, before the government can do this successfully, the  
47 accurate knowledge of distributional impact of current and future government spending is  
48 imperative (Alabi *et al*, 2008).

49 Policies which attempt to identify the poor and target benefits to them can serve  
50 important redistributive and safety net roles in market economy (World Bank, 1990;  
51 Ravallion, 2004). This is because equity issues have always played a significant role in  
52 measuring the success or otherwise of basic health delivery. Reaching the poor through  
53 effective targeting in the distribution of social benefits is a major concern to welfare  
54 economists. Targeting is here defined as a deliberate attempt to shift the benefits of  
55 public expenditures to the poor by means which aim to screen them as the direct  
56 beneficiaries.

57 It is important for us to know whether the probability that children of rural poor  
58 farmers benefit from government spending on health care is larger or smaller for poorer  
59 households than it is for better - off households. This is because the pervasiveness of  
60 poverty in Nigeria has dictated that government policies and programmes be put in place  
61 to reduce its negative impact on the populace especially the rural poor. Experience has  
62 shown that a majority of the rural poor are not well targeted in the distribution of health  
63 care services, accounting for why they are trapped in the poverty dilemma. It cannot be  
64 argued that human capital is required in the transformation of the national economy.

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However, public investment in health is yet to affect level of agricultural production vis65 -  
66 a- vis income of the rural poor. Health is an important determinant of human capital.

## 67 **1.1 Statement of the problem**

68 **1.2** As policy makers and stakeholders become increasingly concerned about income,  
69 access to health inequalities in society as a whole, it is natural to ask two related  
70 questions. First, to what extent does public spending mitigate or exacerbate these  
71 inequities? Second, how can the existing allocations of public expenditure be  
72 adjusted to improve income and welfare, especially rural health outcomes? We  
73 would like to know, for example, whether the difference in the probability that  
74 children of rural poor farmers receive health care is larger or smaller for poorer  
75 households than it is for better - off households.

76 The pervasiveness of poverty in Nigeria has dictated that government policies and  
77 programmes be put in place to reduce its impact on the rural populace. Experience has  
78 shown that a majority of the rural farmers are not well targeted in the distribution of  
79 health care services accounting for why they are trapped in the poverty dilemma. As the  
80 scourge of poverty goes beyond mere measurement of a household's expenditure or  
81 welfare and given the deteriorating social indicators, which also show dramatic difference  
82 between the poor and non-poor both in health status, and in access to this social service,  
83 Nigeria's ability to realize its vision of becoming one of the twenty largest economies in  
84 the world by the year 2020 is largely dependent on its capacity to transform its population  
85 into highly skilled, healthy and competent citizens capable of competing globally.  
86 Despite the fact that human capital is required in the transformation of the national  
87 economy, public investment in health is yet to affect level of agricultural production vis-  
88 a- vis income of the farmers. How the distribution of public investments in the social  
89 services benefits the rural poor has not been fully documented. Although the preceding  
90 decade has seen a resurgence of interest in the relationship between poverty and public  
91 spending in developing economies; little has been done in the area of progressivity of

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92 public expenditure on primary health care delivery especially in rural areas of Edo State,  
93 Nigeria. What proportion of rural poor benefited from the past government spending on  
94 primary health care can guide the future spending and make it pro-poor (Adhvarryu and  
95 Nyshadham, 2011). Therefore this study intends to provide answers to the following  
96 question:

97 1. Is the public financing of primary health care progressive among rural farming  
98 households in Edo State, Nigeria?

## 99 1.3 Objectives of the study

100 The main objective of the study is the determination of the progressivity of  
101 government spending on primary health care in the rural areas of Edo State, Nigeria. The  
specific objectives include:

**102 Estimation of the benefit incidence of government spending on health (child  
vaccination, prenatal and postnatal consultations in public health institutions) in rural  
areas of Edo State.**

## 103 1.4 Hypothesis Formulated for the Study

104 HA<sub>1</sub>: The distribution of benefit of spending on primary health care is not progressive  
105 and pro poor in the study area.

## 106 1.5 A Review of the Literature

### 107 1.5.1 Literature Review of Progressivity of Government Spending

108 A vast body of literature exists on the incidence of government expenditures. Most  
109 of the studies have used the benefit incidence approach on household data. Findings  
110 demonstrate that public expenditures are either progressive or regressive and the share of  
111 different income groups varies depending on the distribution of the benefits of the public  
112 expenditures across region, caste, religions, gender etc (Hakro and Akram, 2007).  
**According to Van de Walle (1995), the study of distributional outcomes of public spending  
stems from three main sources (1) dissatisfaction with distributional outcomes in the absence of  
intervention. Market failures may leave many households facing acute poverty. This may be the**

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reason for protest and violence in some parts of Nigeria. Information on distributional impacts, particularly the extent to which the poorest strata benefit can help in making those choices. All these sources are inherent in the public system in Nigeria hence, according to Alabi *et al* (2011), there is the need to study distributional outcome of public spending in Nigeria.

The

113 studies which demonstrate progressiveness such as Rasmus *et al* (2001) focus on the  
114 incidence of the public expenditure on education and health. Hyun (2006) by using  
115 household data from Thailand concluded that government subsidies (in-kind transfer  
116 income) benefit the poor and can reduce poverty. With a data set from Ecuador, Younger  
117 (1999) used a combination of benefit and behavioral approaches and found that public  
118 spending improves health and education indicators in developing countries.

119 Cross country studies such as Gupta *et al* (2002) used 56 data sets (developing  
120 countries) and showed that the increase in public expenditures on education is associated  
121 with improvement in both access to and enrollment in schools. Other studies that  
122 determine the regressiveness of the incidence of public expenditure such as Norman  
123 (1985) concluded that many government expenditures on education and health benefit  
124 upper income more than the lower income groups. Hamid *et al* (2003) has also shown  
125 evidence of substantial cross-country heterogeneity. The subsidies in education can be  
126 progressive or regressive; normally these subsidies are progressive at the lower levels of  
127 education and regressive at higher levels. Demery and Verghis (1994), using a data set  
128 from Kenya, concluded that primary education spending was strongly progressive in  
129 absolute as well as in relative terms while secondary and university education spending  
130 were regressive in absolute terms, and weakly progressive relative to income.

131 Killick (2002) highlights some important findings in his study. In the majority of  
132 cases, overall public spending in each of the areas of education, health and transfer  
133 payments was found to be progressive, but it was often poorly targeted, most often in  
134 sub-Saharan Africa.

135 Targeting was poorest in transition countries and sub-Saharan Africa, the latter

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fact is consistent with the findings reported by Castro-Leal *et al* (1999), who survey several African countries. How progressive and well-targeted education spending is also depends on the level under consideration.

## 1.5.2 Health and productivity

The devastating effects of poor health on child mortality are clear enough. But do poor health conditions in developing countries also harm the productivity of adults? The answer appears to be yes. Studies show that healthier people earn higher wages. For example, daily wage rates in Cote d'Ivoire have been estimated to be about 19% lower among men whose health status makes them likely to lose a day of work per month because of illness than daily wage rates of healthier men. Careful statistical methods have shown that a large part of the effect of health on raising earning is due to productivity differences: it is not just the reverse causality that higher wages are used in part to purchase better health. A study in Bangladesh found that the higher productivity of healthier workers allows them to get better paying jobs. In another study the elimination of deformity from leprosy was estimated to more than triple earnings of workers in India (Torado and Smith, 2004).

## 1.6 Methodology

### 1.6.1 Area of study

This study was carried out in the rural areas of Edo State, Nigeria. The State is situated between latitude 05° 44'N and 07° 43'N and longitude 06° 04'E and 06° 43'E (Federal Ministry of Aviation, 1996).

### 1.6.2 Sources of and Data Collection Procedure

The data for this study was generated from primary and secondary sources. The primary data was obtained from a cross section of households made up of individuals who were expected to benefit from public spending. That is the poor and non-poor. The secondary data were obtained from relevant journals, government publications and the National Bureau of Statistics (NBS).

Two separate instruments, a questionnaire which asked questions on household health outcomes, out of pocket expenditure on health and government subsidy on healthcare delivery

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and an interview schedule designed to obtain data from the illiterate respondents and government healthcare providers were used in the survey. The structured questionnaire was administered on the beneficiaries of public spending with the sole aim of ensuring that such respondents are treated discreetly.

A multistage sampling technique was used in the selection of the respondents for the study. This was based on the geo-political division of the state. Accordingly, three senatorial districts are discernable, viz: Edo South, Edo Central, and Edo

The first stage was the random selection of two (2) LGAs from each senatorial district to give a total of six (6) LGAs. The second stage was the random selection of three (3) communities from each of the LGAs giving a total of eighteen (18) communities, excluding the LGA headquarters which are assumed to be urban. This is done in order to concentrate research efforts on rural areas which most of the time are neglected in the distribution of social services. Finally, twenty (20) respondents were randomly selected from each community to make a total of three hundred and sixty (360) respondents. A pilot survey was carried out prior to the distribution of the questionnaire to determine the ethical robustness of the instrument.

## 166 1.6.3 Data Analysis Techniques

167 Different analytical methods were employed in this study. They are Benefit  
168 Incidence Analysis and Progressivity Indices.

## 169 1.6.4 Measurement of Benefit Incidence Analysis

170 Benefit incidence analysis is concerned with the share of benefits received by different  
171 groups from a given public expenditure. As such, the only data necessary are (1) a  
172 variable that defines the groups, and (2) an estimate of the benefits that each group  
173 receives. The most common source of these data is a nationally representative household  
174 survey such as a Living Standards Measurement Survey (Grosh and Klassen, 2006) or a  
175 household income and expenditure survey, although summaries of these surveys, as

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176 published by national statistical agencies, might suffice if they are disaggregated  
177 according to the grouping of interest.

178

## 79 **1.6.5a Measurement of progressivity**

180 The Suits Index, developed by Daniel Suits in the 1970s, calculates a single  
181 number that measures progressivity. The approach basically compares the cumulative  
182 share of income received by taxpayers, ordered from lowest to highest, to their  
183 cumulative share of taxes paid. For a progressive (regressive) tax, the share of taxes paid  
184 will tend to be less (more) than the share of income as we move up the income spectrum.  
185 The Suits Index is a number ranging between  $-1$  and  $+1$ . A negative Suits Index means  
186 that the tax is regressive while a positive index indicates a progressive tax (with a value  
187 of zero for a proportional tax). A theoretical tax where the richest person pays all the tax  
188 has a Suits index of  $1$ , and a tax where the poorest person pays everything has a Suits  
189 index of  $-1$ . The Suits Index can be used to compare the degree of progressivity of  
190 different tax types as well as determine whether a tax becomes more or less progressive  
191 over time.

192 If the distribution of benefits is progressive in absolute terms, the Suits index is  
193 negative. Conversely, if the distribution of benefits is regressive in absolute terms, then  
194 the Suits index is positive. On the other hand, if the Suits index is algebraically smaller  
195 than the Gini coefficient, then the distribution of benefits is said to be progressive relative  
196 to the distribution of income. The absolute progressivity compares the distribution of  
197 benefit (concentration curve of benefit) with regard to line of perfect equality (PE), while  
198 relative progressivity compares the distribution of benefit (concentration curve of benefit)  
199 with regard to Lorenz curve of income. So we can have absolute and relative regressivity.  
200 Similar to the Gini Coefficient, the Suits index is calculated by comparing the  
201 area under the Lorenz curve to the area under a proportional line. While a Gini coefficient  
202 of zero means that all persons receive the same income or benefit as a per capita value, a  
203 Suits index of zero means that each person pays the same tax as a percentage of income  
204 (Suits, 1977).

205

## 206 1.6.5b Measurement of Progressivity Index

207 Kakwani (1977) defined progressivity in terms of the elasticity of tax function  $T$   
 208 ( $x$ ) with respect to income ( $x$ ). It is derived from the principle of Lorenz curve. Let  $L_x(P)$   
 209 be Lorenz curve ( a graph depicting the variance of the size distribution of income from  
 210 perfect equality) for prepayment income. Let  $L_c(P)$  be the payment concentration curve  
 211 obtained by plotting the cumulative percentage of the population ranked according to pre212  
 payment income on x-axis, and the cumulative percentage of education payments on the  
 213 vertical axis. For a proportional education payment system, then the  $L_x(P)$  curve and  $L_c$   
 214 ( $P$ ) curve must coincide. Progressivity is then measured by departure of  $L_c(P)$  from  $L_x$   
 215 ( $P$ ). Thus, the Kakwani index of progressivity of education payment on prepayment is:

$$K = \frac{L_c(P) - L_x(P)}{L_x(P)} \quad \text{or} \quad K = \frac{L_c(P) - L_x(P)}{L_x(P)} \quad dp_{c \times c \times} ( ) ( )^2 ( ) ( )$$

1  
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216 ☐ ☐ ☐ ☐ ☐

217 For a progressive education payment system  $K$  is positive. For a proportional  
 218 system  $K$  is zero and for a regressive system  $K$  is negative.  $K$  has limits between  $-2.0$  and  
 219  $1.0$ . It is  $-2.0$  when all pre-payment income is concentrated in the hand of one individual  
 220 while the payment burden falls on somebody else. It is  $1.0$  when pre-payment income is  
 221 shared equally while the payment burden falls on someone else. It should be noted that  
 222 the Kakwani Index of Progressivity could also be zero if the Concentration and Lorenz  
 223 curves were to cross; the negative and positive differences between them cancel. Give n  
 224 this, it is important to use Kakwani Index of Progressivity, or any summary measure of  
 225 progressivity, as a supplement to, and not a replacement of, the more general graphical  
 226 analysis (O'Donnelle *et al*, 2007).

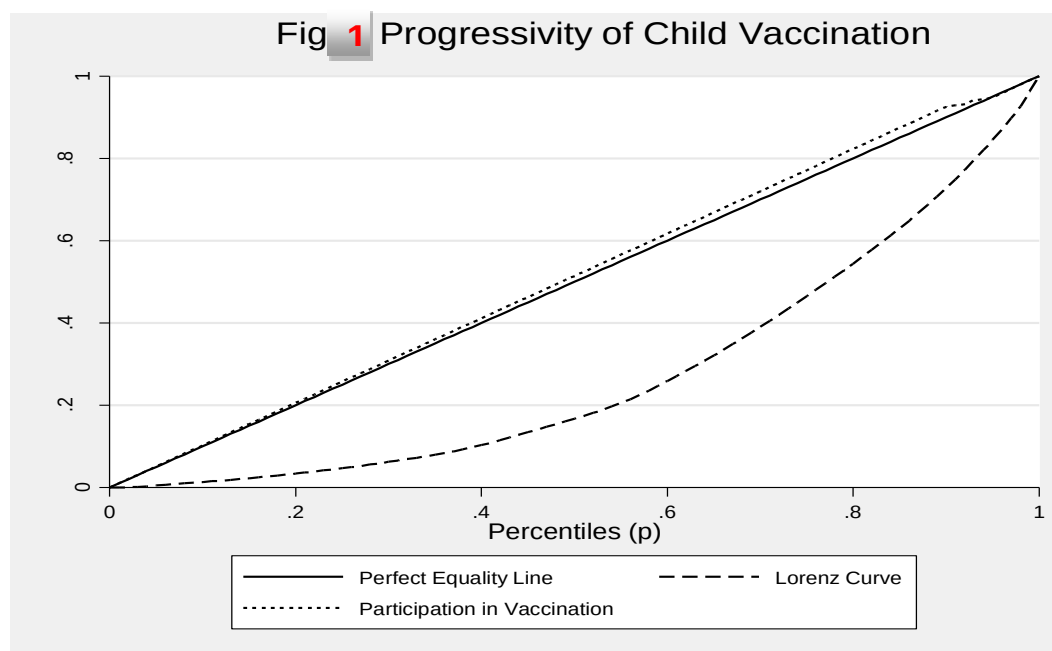
## 227 1.7 Results and discussion

228 **Fig.1** shows that the concentration curve of vaccination lies above the Lorenz  
 229 curve and above the line of Perfect equality (diagonal line). This implies that  
 230 distribution of benefit of government spending on vaccination is more evenly  
 231 distributed than income; it is progressive and pro-poor in rural areas of Edo State. The  
 232 progressivity of vaccination against BCG, Polio and Measles follow the same pattern

233 witnessed in the case of general vaccination. They are progressive and well targeted the  
 234 poor, hence pro-poor as indicated in Fig 2, 3 and 4. The reasons for this have been  
 235 attributed to the fact that the vaccination is free of charge. The international support  
 236 from UNICEF, which makes it possible for the vaccinators to reach the remote areas of  
 237 the state, is another important factor in getting the children from the poor segment of  
 238 the society vaccinated. This finding is in agreement with the study of Rasmus *et al*  
 239 (2001). They reported that child vaccination is progressive in Mozambique, with  
 240 concentration curves that are close to the 45-degree line.

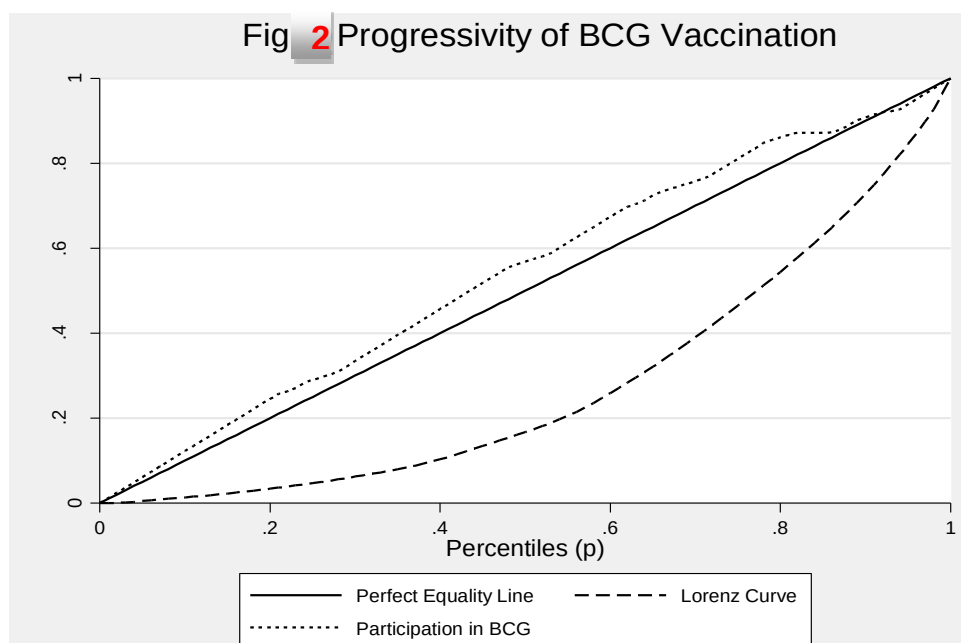
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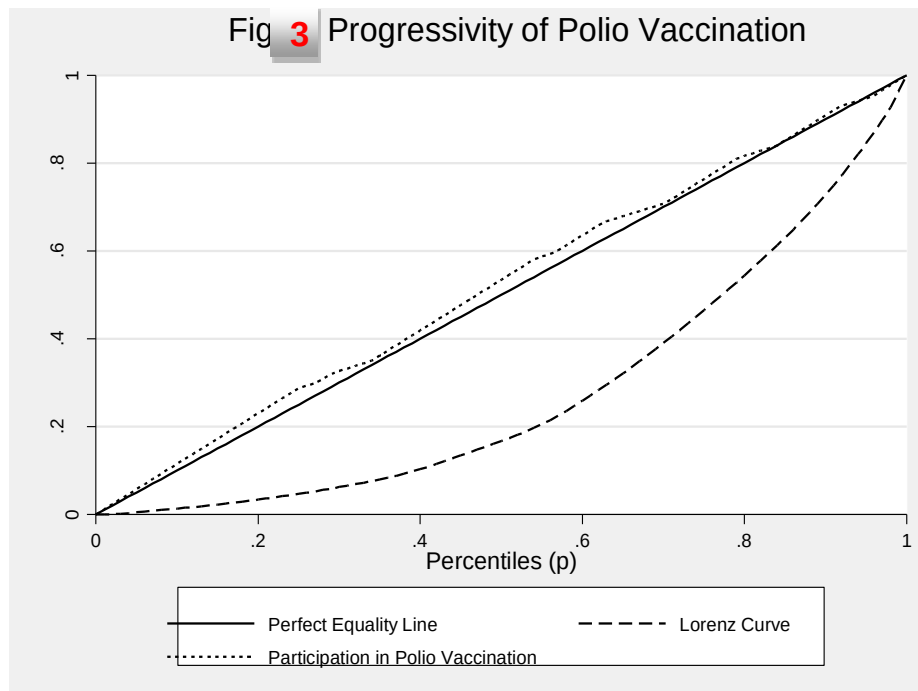


243 Source: Field survey, 2013.

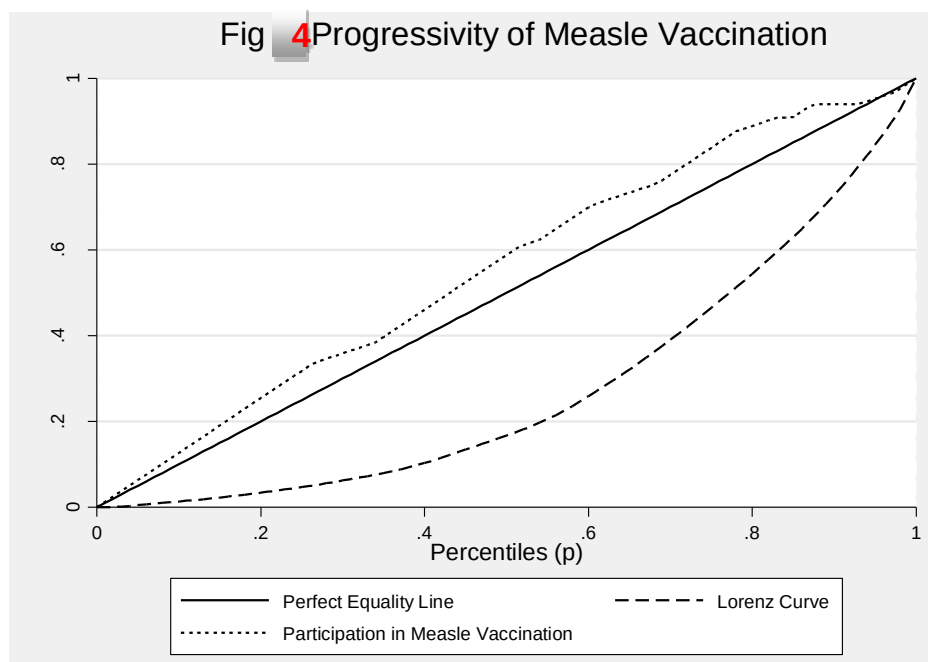
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246 Source: Field survey, 2013.



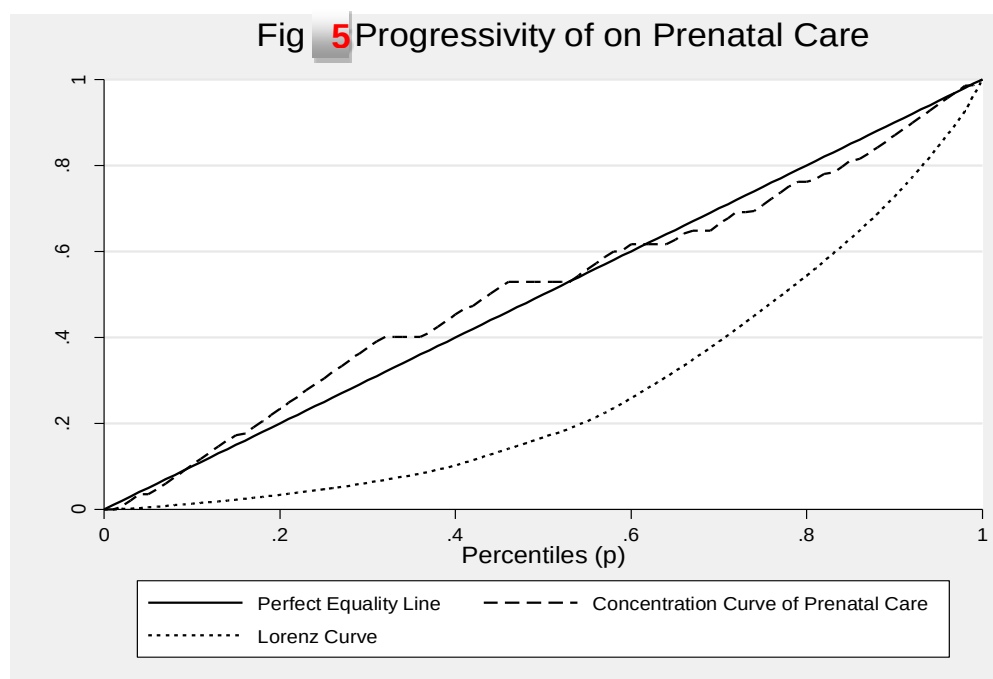
247 Source: Field survey, 248 , 2013.



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250 Source: Field survey, 2013

251 **Fig 5** shows the progressivity of spending on prenatal care in the study area. With  
252 the concentration curve of participation in prenatal health care lying above the Lorenz  
253 curve implying that the distribution of the benefit of public spending on prenatal care is  
254 more evenly distributed than the income in rural areas of Edo state. However, since the  
255 concentration curve of participation in prenatal health care crosses the line of perfect  
256 equality, the final decision about the progressivity of prenatal health can be taken by  
257 considering the concentration index of participation in this service. Generally speaking,  
258 the higher the concentration index, the more concentrated the benefit and the higher the  
259 resulting inequality. Hence, the most regressive benefit scheme would be associated with  
260 the highest concentration index (Kamgnia, 2008).



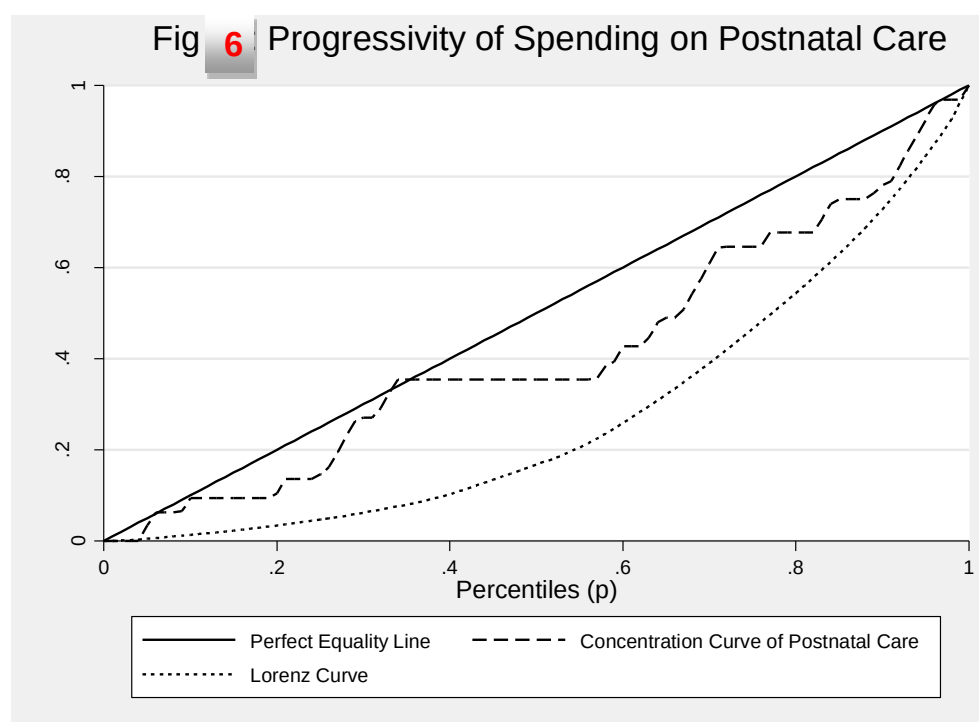
262 263 Source: Field survey, 2013.

264 Fig.6 conveys the progressivity of spending on postnatal service. Here, the  
 265 concentration curve is above the Lorenz curve but lie below the line of perfect equality.  
 266 Spending on postnatal care in the study area is not progressive due to poor targeting and  
 267 behavioural tendencies. Unlike prenatal where the expectant mother is nervous due to  
 268 uncertainty of the outcome of the pregnancy, nursing mothers seldom give a thought or  
 269 attach much importance to postnatal care. Majority of the illiterates or uneducated  
 270 respondents explained that once they are delivered of their babies they can take care of  
 271 such babies without recourse to consulting experts in gynaecology and paediatrics. This  
 272 may account for reason for high maternal mortality in Nigeria. McGuire (2006) has  
 273 shown that access to maternal and infant health programmes was positively correlated  
 274 with a decrease in under-five mortality in a cross section of developing countries. Alabi  
 275 *et al* (2011) have indicated that the location effect (rural/urban) is also significant factor  
 276 in explaining regressivity of the public spending on prenatal and postnatal consultations  
 277 in Nigeria. They revealed that 55 percent and 54 percent of public spending on prenatal  
 278 and postnatal care went to urban areas, while the remaining 45 percent and 46 percent of

279 spending in these areas of public health were respectively spent in rural areas. This is  
 280 because the centres where prenatal and postnatal care is being administered were  
 281 concentrated in urban areas. Ogunbekun (1992) indicated that most health facilities in  
 282 Nigeria are located in urban areas. Ojo (1990) also showed that there are inequalities in  
 283 the distribution of health care resources in Nigeria, which may affect the distribution of  
 284 demand for health care..

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Source: Field survey, 288 , 2013.

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## 293 1.8 Conclusion

294 The study has shown that the concentration indices for BCG, Polio and Measles  
 295 are negative, which confirmed that the spending on vaccination was progressive and pro296  
 poor. In other words, government spending on child vaccination is proportionately shared

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297 among the poor, middle income group and the rich in the study area. In addition, the  
298 concentration indices for prenatal and postnatal healthcares are positive, which means  
299 that the spending on prenatal and postnatal healthcares is not progressive and not pro300  
poor. The incidence of government spending on pre natal and post natal consultation as  
301 revealed by the study suggests that spending on pre natal and post natal consultations in  
302 the study area does not benefit the rural poor

## 303 **Recommendations**

304 □ Government should mount a proper education campaign for the rural populace on  
305 the desirability of prenatal and post natal care in the rural areas of the State.

306 Building more rural health centers where prenatal and postnatal health care can be  
307 administered is also important.

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