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Progressivity of Government Spending on Primary Health Care Evidence from Rural Communities of Edo State, Nigeria

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Author's contribution

The sole author designed, analyzed and interpreted and prepared the manuscript.

Case Study

ABSTRACT

This study aimed at analyzing the progressivity of government spending on health in rural areas of Edo State. The study made use of primary and secondary data. The primary data were obtained from 360 respondents in rural areas of Edo state through the use of well structured questionnaire and interview schedule. The relevant data were analyzed using Kakwani Progressivity Index. The Progressivity analysis reveals that the concentration indices for BCG, Polio an d Measles were negative which implied that the spending on them was progressive and pro-poor. However, the concentration indices for prenatal and postnatal health cares were positive, suggesting that the spending on prenatal and postnatal health cares was not progressive and not pro-poor. The international supports which vaccination schemes enjoyed may account for the high vaccination rate __ DQG LW¶V SUR-poorness in rural area of Edo State. However, vaccination programme should place more emphasis on Measles vaccination as the current rate of 42% for Measles is too low to achieve health target in the Millennium Development Goals by 2015. The authorities may make Measles vaccination as condition for getting further benefit from government in form of Conditional Cash Transfer. Government should mount a proper education campaign for the populace on the desirability of prenatal and post natal cares in the rural areas of the State.

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Building more health centers in rural communities where prenatal and postnatal health cares can be administered is also important.

1. INTRODUCTION

Improving the health status of the poor makes a significant contribution to escape from poverty. Child vaccination, prenatal and postnatal hospital consultations are preventive measures to reduce infant and maternal mortalities which were reported to be higher in Nigeria than the average for the low income countries [1]. Accordingly, good health status is recognized as essential for improving the earning potential of the population, particularly the rural poor farmers. [2] has argued that successful poverty reduction is related to public investment in basic health and education. Therefore, public investment in rural health care will potentially lead to an increase in the level of productivity and the income of the rural poor. The health Sector is consequently pivotal to the actualization of current national agricultural transformation agenda, rural poverty reduction and global policy objectives.

In Nigeria inequality is manifestly glaring. Inequality abounds in income distribution, access to education and health. How to reduce this inequality is the immediate preoccupation of the present Nigeria government through the National Economic Emancipation and Development Strategies, Millennium Development Goals and vision 20-20-20. However, before the government can do this successfully, the accurate knowledge of distributional impact of current and future government spending is imperative [3].

Policies which attempt to identify the poor and target benefits to them can serve important redistributive and safety net roles in market economy [4,5]. This is because equity issues have always played a significant role in measuring the success or otherwise of basic health delivery. Reaching the poor through effective targeting in the distribution of social benefits is a major concern to welfare economists. Targeting is here defined as a deliberate attempt to shift the benefits of public expenditures to the poor by means which aim to screen them as the direct beneficiaries.

It is important for us to know whether the probability that children of rural poor farmers benefit from government spending on health care is larger or smaller for poorer households than it is for better - off households. This is because the pervasiveness of poverty in Nigeria has dictated that government policies and programmes be put in place to reduce its negative impact on the populace especially the rural poor. Experience has shown that a majority of the rural poor are not well targeted in the distribution of health care services, accounting for why they are trapped in the poverty dilemma. It cannot be argued that human capital is required in the transformation of the national economy. However, public investment in health is yet to affect level of agricultural production vis- a- vis income of the rural poor. Health is an important determinant of human capital.

1.1 Statement of the Problem

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

The pervasiveness of poverty in Nigeria has dictated that government policies and programmes be put in place to reduce its impact on the rural populace. Experience has shown that a majority of the rural farmers are not well targeted in the distribution of health care services accounting for why they are trapped in the poverty dilemma. As the scourge of poverty goes beyond PHUH PHDVXUHPHQW RI D KRXVHKROG¶V H[SHQGLWXUH RU welfare and given the deteriorating social indicators, which also show dramatic difference between the poor and non-poor both in health status, and in access to this social service, __ 1LJHULD¶V DELOLty to realize its vision of becoming one of the twenty largest economies in the world by the year 2020 is largely dependent on its capacity to

transform its population into highly skilled, healthy and competent citizens capable of competing globally. Despite the fact that human capital is required in the transformation of the national economy, public investment in health is yet to affect level of agricultural production vis- a- vis income of the farmers. How the distribution of public investments in the social services benefits the rural poor has not been fully documented. Although the preceding decade has seen a resurgence of interest in the relationship between poverty and public spending in developing economies; little has been done in the area of progressivity of public expenditure on primary health care delivery especially in rural areas of Edo State, Nigeria. What proportion of rural poor benefited from the past government spending on primary health care can guide the future spending and make it pro-poor [6]. Therefore this study intends to provide answers to the following question:

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

1.2 Objectives of the Study

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

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.

1.3 Hypothesis Formulated for the Study

HA_1: The distribution of benefit of spending on primary health care is not progressive and pro poor in the study area.

2. A REVIEW OF THE LITERATURE

2.1 Literature Review of Progressivity of Government Spending

A vast body of literature exists on the incidence of government expenditures. Most of the studies have used the benefit incidence approach on household data. Findings demonstrate that public expenditures are either progressive or regressive

and the share of different income groups varies depending on the distribution of the benefits of the public expenditures across region, caste, religions, gender etc [7]. According to [8], 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 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 [9], there is the need to study distributional outcome of public spending in Nigeria. The studies which demonstrate progressiveness such as [10] focus on the incidence of the public expenditure on education and health. [11] by using household data from Thailand concluded that government subsidies (in-kind transfer income) benefit the poor and can reduce poverty. With a data set from Ecuador, [12] used a combination of benefit and behavioral approaches and found that public spending improves health and education indicators in developing countries.

Cross country studies such as [13] used 56 data sets (developing countries) and showed that the increase in public expenditures on education is associated with improvement in both access to and enrollment in schools. Other studies that determine the regressiveness of the incidence of public expenditure such as [14] concluded that many government expenditures on education and health benefit upper income more than the lower income groups. [15] has also shown evidence of substantial cross-country heterogeneity. The subsidies in education can be progressive or regressive; normally these subsidies are progressive at the lower levels of education and regressive at higher levels. [16], using a data set from Kenya, concluded that primary education spending was strongly progressive in absolute as well as in relative terms while secondary and university education spending were regressive in absolute terms, and weakly progressive relative to income.

Killick [17] highlights some important findings in his study. In the majority of cases, overall public spending in each of the areas of education, health and transfer payments was found to be progressive, but it was often poorly targeted, most often in sub-Saharan Africa.

Targeting was poorest in transition countries and sub-Saharan Africa, the latter fact is consistent with the findings reported by [18], who survey several African countries. How progressive and well-targeted education spending is also depends on the level under consideration.

2.2 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 [19].

3. METHODOLOGY

3.1 Area of Study

This study was carried out in the rural areas of Edo State, Nigeria.

The State is situated between latitude 05º44'N and 07º43'N and longitude 06º04'E and 06º43'E [20].

3.2 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 on primary health care services. That is the rural poor and non-poor in Edo State. The secondary data were obtained from relevant journals, Edo State 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 and an interview schedule were 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 multi stage 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.

3.3 Data Analysis Techniques

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

3.4 Measurement of Benefit Incidence Analysis

Benefit incidence analysis is concerned with the share of benefits received by different groups from a given public expenditure. As such, the only data necessary are (1) a variable that defines the groups, and (2) an estimate of the benefits that each group receives. The most common source of these data is a nationally representative household survey such as a Living Standards Measurement Survey [21] or a household income and expenditure survey, although summaries of these surveys, as published by national statistical agencies, might

suffice if they are disaggregated according to the grouping of interest.

3.5 Measurement of Progressivity

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

If the distribution of benefits is progressive in absolute terms, the Suits index is negative. Conversely, if the distribution of benefits is regressive in absolute terms, then the Suits index is positive. On the other hand, if the Suits index is algebraically smaller than the Gini coefficient, then the distribution of benefits is said to be progressive relative to the distribution of income. The absolute progressivity compares the distribution of benefit (concentration curve of benefit) with regard to line of perfect equality (PE), while relative progressivity compares the distribution of benefit (concentration curve of benefit) with regard to Lorenz curve of income. So we can have absolute and relative regressivity.

Similar to the Gini Coefficient, the Suits index is calculated by comparing the area under the Lorenz curve to the area under a proportional line. While a Gini coefficient of zero means that all persons receive the same income or benefit as a per capita value, a Suits index of zero means that each person pays the same tax as a percentage of income [22].

3.6 Measurement of Progressivity Index

Kakwani [23] defined progressivity in terms of the elasticity of tax function T (x) with respect to income (x). It is derived from the principle of Lorenz curve. Let Lx (P) be Lorenz curve (a graph depicting the variance of the size distribution of income from perfect equality) for prepayment income. Let Lc (P) be the payment concentration curve obtained by plotting the cumulative percentage of the population ranked according to pre-payment income on x-axis, and the cumulative percentage of education payments on the vertical axis. For a proportional education payment system, then the Lx (P) curve and Lc (P) curve must coincide. Progressivity is then measured by departure of Lc (P) from Lx (P). Thus, the Kakwani index of progressivity of education payment on prepayment is:

$$K = L_c(P) - L_x(P) \ orK = 2 \int_0^1 L_c(P) - L_x(P)dp$$

For a progressive education payment system K is positive. For a proportional system K is zero and for a regressive system K is negative. K has limits between –2.0 and 1.0. It is –2.0 when all pre-payment income is concentrated in the hand of one individual while the payment burden falls on somebody else. It is 1.0 when pre-payment income is shared equally while the payment burden falls on someone else. It should be noted that the Kakwani Index of Progressivity could also be zero if the Concentration and Lorenz curves were to cross; the negative and positive differences between them cancel. Given this, it is important to use Kakwani Index of Progressivity, or any summary measure of progressivity, as a supplement to, and not a replacement of, the more general graphical analysis [24].

4. RESULTS AND DISCUSSION

Fig. 1 shows that the concentration curve of vaccination lies above the Lorenz curve and above the line of Perfect equality (diagonal line). This implies that distribution of benefit of government spending on vaccination is more evenly distributed than income; it is progressive and pro-poor in rural areas of Edo State. The progressivity of vaccination against BCG, Polio and Measles follow the same pattern witnessed in the case of general vaccination. They are progressive and well targeted the poor, hence pro-poor as indicated in Figs. 2, 3 and 4. The reasons for this have been attributed to the fact that the vaccination is free of charge. The international support from UNICEF, which makes it possible for the vaccinators to reach the remote areas of the state, is another important factor in

getting the children from the poor segment of the society vaccinated. This finding is in agreement with the study of [10]. They reported that child vaccination is progressive in Mozambique, with concentration curves that are close to the 45-degree line.

Fig. 5 shows the progressivity of spending on prenatal care in the study area. With the concentration curve of particiaption in prenatal health care lying above the Lorenz curve implying that the distribution of the benefit of public spending on prenatal care is more evenly distrubted than the income in rural areas of Edo state. However, since the concentration curve of particiaption in prenatal health care crosses the line of perfect equality, the final decision about the progressivity of prenatal health can be taken by considering the concentration index of particiaption in this service. Generally speaking, the higher the concentration index, the more concentrated the benefit and the higher the resulting inequality. Hence, the most regressive benefit scheme would be associated with the highest concentration index [25].

Fig. 6 conveys the progressivity of spending on postnatal service. Here, the concentration curve is above the Lorenz curve but lie below the line of perfect equality. Spending on postnatal care in the study area is not progressive due to poor targeting and behavioural tendencies. Unlike prenatal where the expectant mother is nervorse due to uncertainty of the outcome of the pregnancy, nursing mothers seldom give a thougtht or attach much importance to postnatal care. Majority of the illitrates or uneducated respondents explained that once they are delivered of their babies they can take care of such babies without recourse to consulting experts in gynaecology and paediatrics. This may account for reason for high maternal mortality in Nigeria. [26] has shown that access to maternal and infant health programmes was positively correlated with a decrease in under-five mortality in a cross section of developing countries. [27] have indicated that the location effect (rural/urban) is also significant factor in explaining regressivity of the public spending on prenatal and postnatal consultations in Nigeria.
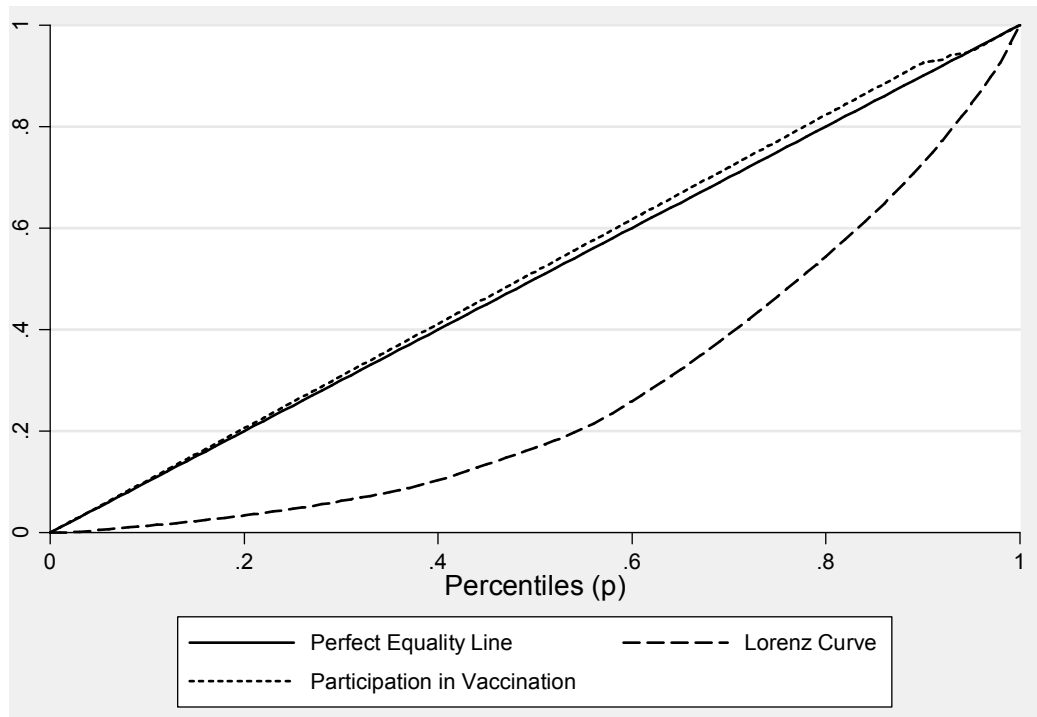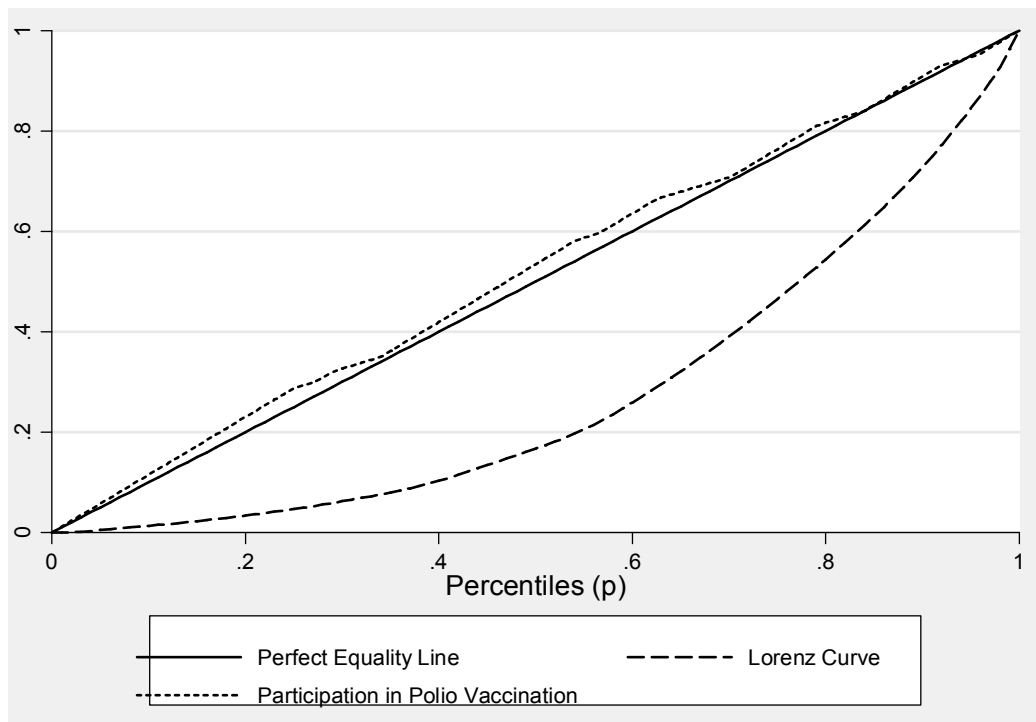

Fig. 1. Progressivity of child vaccination
Source: Field survey, 2013
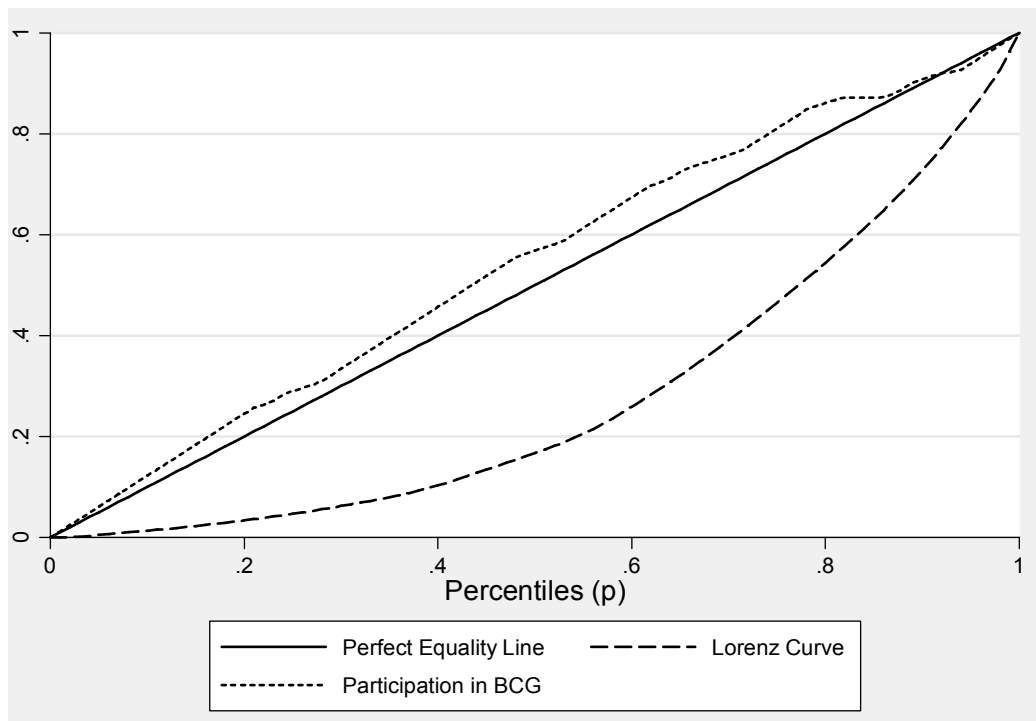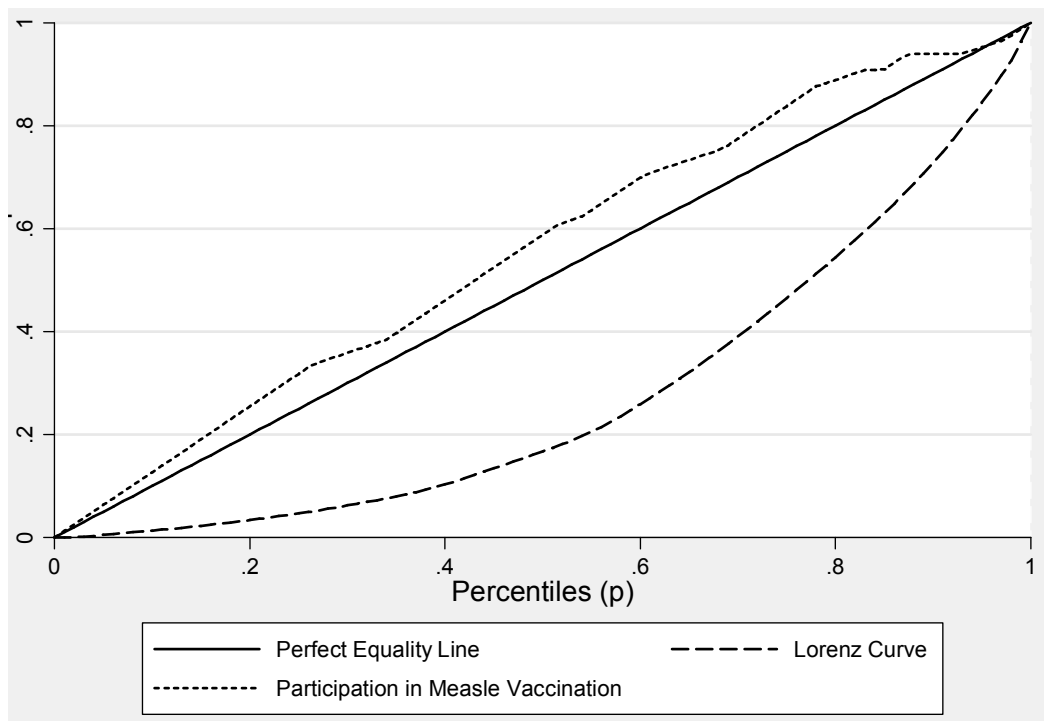
Fig. 2. Progressivity of BCG vaccination
Source: Field survey, 2013
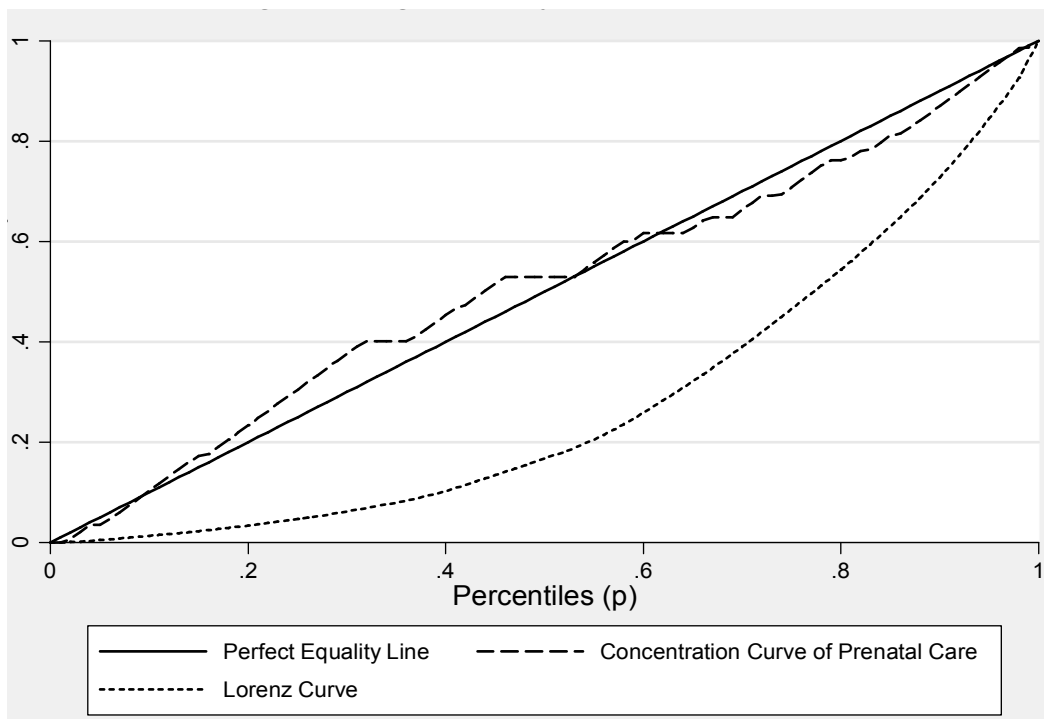

Fig. 3. Progressivity of polio vaccination
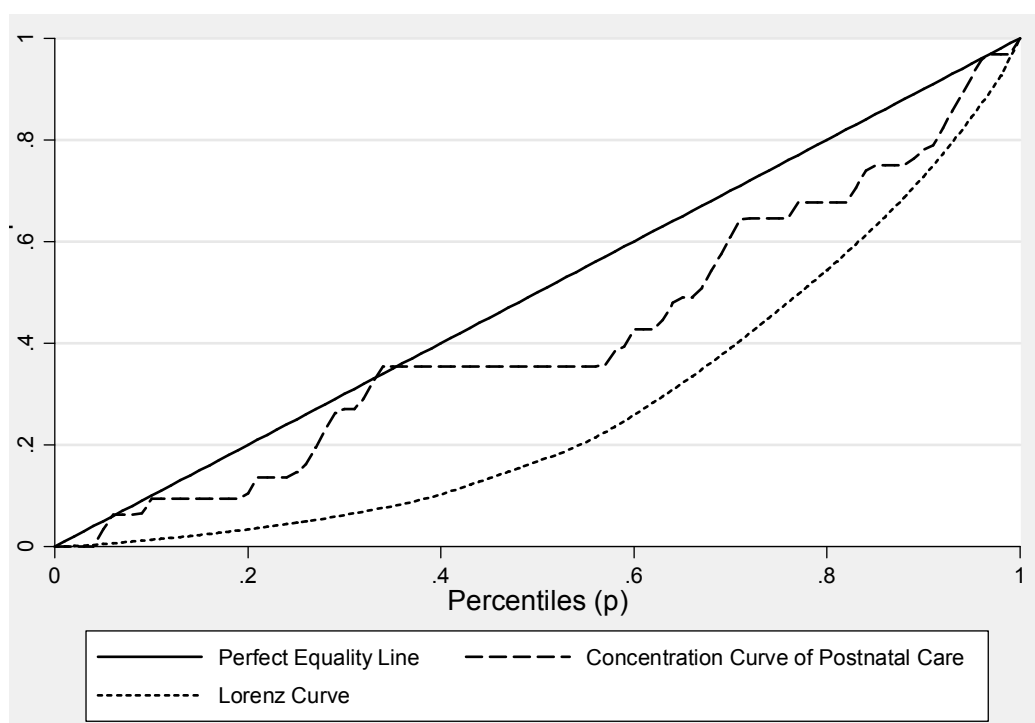*Source: Field survey, 2013*

Fig. 4. Progressivity of measle vaccination
Source: Field survey, 2013

Fig. 5. Progressivity of on prenatal care
Source: Field survey, 2013

Fig. 6. Progressivity of spending on postnatal care
Source: Field survey, 2013

They revealed that 55 percent and 54 percent of public spending on prenatal and postnatal care went to urban areas, while the remaining 45 percent and 46 percent of spending in these areas of public health were respectively spent in rural areas. This is because the centres where prenatal and postnatal care is being administered were concentrated in urban areas. [28] indicated that most health facilities in Nigeria are located in urban areas. [29] also showed that there are inequalities in the distribution of health care resources in Nigeria, which may affect the distribution of demand for health care.

5. CONCLUSION

The study has shown that the concentration indices for BCG, Polio and Measles are negative, which confirmed that the spending on vaccination was progressive and pro-poor. In other words, government spending on child vaccination is proportionately shared among the poor, middle income group and the rich in the study area. In addition, the concentration indices for prenatal and postnatal healthcares are positive, which means that the spending on prenatal and postnatal healthcares is not progressive and not

pro-poor. The incidence of government spending on pre natal and post natal consultation as revealed by the study suggests that spending on pre natal and post natal consultations in the study area does not benefit the rural poor.

6. RECOMMENDATIONS

Government should mount a proper education campaign for the rural populace on the desirability of prenatal and post natal care in the rural areas of the State. Building more rural health centers where prenatal and postnatal health care can be administered is also important.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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