**EFFICIENCY OF MEDIAN PER CAPITA EXPENDITURE METHOD FOR MEASURING THE LEVELS OF POVERTY IN NIGERIA**

**BY**

**FRANCISCA CHINONYE NWOKE B.Sc. Stat. (NAU), MSc. Stat.(UI)**

**A DISSERTATION IN THE DEPARTMENT OF STATISTICS SUBMITTED TO THE FACULTY OF SCIENCE IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF PHILOSOPHY OF THE UNIVERSITY OF IBADAN.**

**APRIL, 2014**

##### CERTIFICATION

I certify that this work was carried out by **Francisca Chinonye Nwoke** in the Department of Statistics, University of Ibadan, under my supervision.

**............................................ ...................................**

**Supervisor Date**

**Prof. G. N. Amahia**

**B.Sc., M.Sc., Ph.D (Ibadan) Department of Statistics University of Ibadan.**

##### DEDICATION

This research work is dedicated to my all knowing and sufficient God and to my loving family.

##### ABSTRACT

Measurement of levels of poverty is a powerful instrument for focusing the attention of policy makers on the living conditions of the poor. Previous studies on measurement of poverty in Nigeria have adopted two-third of mean per capita expenditure method for defining the poverty line. This has failed to capture the number of poor skewness in household expenditure data. Therefore, this study was designed to access the efficiency of Median Per Capita Expenditure (MPCE) method in measuring poverty in Nigeria.

Expenditure data from the 2006 general household survey from National Bureau of Statistics (NBS), Nigeria were collected. A standard distribution software was used to fit four distributions (log normal, log logistic, gamma and frechet) to per capita expenditure using Maximum Likelihood Estimation (MLE) method. The distributions were ranked using Kolmogorov Smirnov goodness-of-fit statistic. Any distribution with p value < 0.05 was considered good. The MPCE and the corresponding value for two-third mean per capita expenditure were obtained for comparison. Foster-Greer- Thorbecke poverty index was used to determine the proportion of poverty for the states. Differences in the lowest poor and highest poor states were investigated using the Z test. Using two-third mean and MPCE, a bootstrap simulation was performed on the expenditure data to obtain precision estimates for poverty headcount index. This was carried out for the purpose of comparing the two-third mean per capita and the MPCE methods as well as the relative gain in efficiency.

Log logistic distribution with parameter estimates (α=1.0452, β=3169.2) performed best, (p < 0.000014805) in fitting per capita expenditure data. The MPCE was N2,550.00 while the Two-third Mean Per Capita Expenditure (TMPCE) was N3,613.75 per month respectively. The proportion of the poor was 50.1% using MPCE but rose to 61.6% when TMPCE was used. Across states, the proportion of the poor was highest in Katsina state (52.7%) and lowest in Anambra state (42.9%) using MPCE method. However, poverty was highest in Kwara state (73.9%) and lowest in Anambra state (48.3%) using TMPCE method. The difference between the proportions were highly significant (P < 0.003) for MPCE and not significant (P < 0.246) for two-third mean per capita expenditure. The precision estimates were 2.50 x 10-05 and 9.78x10-05 for median and two-third mean per capita methods respectively and the relative gain in efficiency of the median method over two-third of mean method was 25.5%.

Median rather than two-third of mean per capita expenditure was a more efficient method for measuring poverty. Therefore, for improved precision of poverty measurements in Nigeria, median per capita expenditure would be a better approach. **Keywords: Poverty line, Poverty depth, Median per capita expenditure,**

**Household expenditure**

**Word Counts: 422**

##### ACKNOWLEDGEMENT

I give immense thanks, honour and glory to the Almighty God and his only begotten son, Jesus Christ, for their manifold goodness and maximum protection in my life. I give thanks to them also for giving me the mental and physical ability to successfully carry out this research work, for it is only them that could have been with me. Father and my Lord Jesus, you are awesome.

I express my profound gratitude to my supervisor Prof. G.N.Amahia, for his invaluable contributions towards the success of this work, despite his tight schedules. He has always been playing the role of a father to me since I started my Masters programme. I cannot thank him enough for all his contributions. May God almighty continue to bless him and strengthen him

My profound gratitude also goes to Dr Mrs A.U Chukwu for the role she played in the work. She was always there for me.

I also owe gratitude to Dr O.I Oshowole, who despite his tight schedules always gave attentions to me; this research work greatly benefitted from his knowledge and experience. I also use this medium to say that God will continue to bless him for all his contributions.

I also want to thank these people for their contributions in several ways: Dr O.I Shittu, the Head of Department, Statistics, Dr Mrs Adepoju, the departmental Postgraduate coordinator, Dr Yusuf, of Agric Economics Department, and Mr Charles Nwogwugwu. May God continue to bless you all.

I also wish to use this opportunity to express my deep gratitude to the Sub-Dean (Postgraduate) of Faculty of Science, Dr A.A. Bakare, for his patience despite his very busy schedule. May God continue to strengthen him and give him more wisdom to carryon in his duties.

Most of all, my heartfelt gratitude goes to my immediate family, to my husband, who has always been there to encourage and support me both financially and morally, I want to say you are wonderful. To my children, most of the time, I picked them very late from school in the afternoon; I want this opportunity to thank them for their understanding and patience throughout the whole period of the study.

TABLE OF CONTENTS

Pages

Title .. .. .. .. .. .. .. .. i

[Certification .. .. .. .. .. .. .. .. ii](#_TOC_250030)

[Dedication .. .. .. .. .. .. .. .. iii](#_TOC_250029)

[Abstract .. .. .. .. .. .. .. .. iv](#_TOC_250028)

[Acknowledgement .. .. .. .. .. .. .. v](#_TOC_250027)

[Table of contents .. .. .. .. .. .. .. vi](#_TOC_250026)

[List of Tables .. .. .. .. .. .. .. .. x](#_TOC_250025)

[List of Figures .. .. .. .. .. .. .. .. . ix](#_TOC_250024)

CHAPTER ONE : INTRODUCTION

* 1. [Background .. .. .. .. .. .. .. . 1](#_TOC_250023)
  2. [Poverty in Nigeria .. .. .. .. .. .. . 2](#_TOC_250022)
  3. [Perspectives of poverty .. .. .. .. .. . 3](#_TOC_250021)
  4. [Causes of poverty .. .. .. .. .. .. 3](#_TOC_250020)
  5. [Objectives of the study .. .. .. .. .. 6](#_TOC_250019)
  6. [Significance and motivation of the study .. .. .. 6](#_TOC_250018)
  7. [Data collection .. .. .. .. .. 8](#_TOC_250017)
  8. [General household Survey .. .. .. .. .. 8](#_TOC_250016)
  9. [Why expenditure as the poverty indicator .. .. .. 8](#_TOC_250015)

CHAPTER TWO: LITERATURE REVIEW

* 1. [Introduction ... ... ... ... 12](#_TOC_250014)
  2. [Concept and meaning of poverty .. .. .. .. 12](#_TOC_250013)
  3. [Measurement of poverty .. .. .. .. .. 17](#_TOC_250012)
  4. [Measures Of Poverty .. .. .. .. .. .. 22](#_TOC_250011)
  5. [Poverty lines .. .. .. .. .. .. .. 25](#_TOC_250010)
  6. [Poverty Line Axioms .. .. .. .. .. 28](#_TOC_250009)
  7. [Basic properties of the poverty line .. .. .. .. 29](#_TOC_250008)
  8. [Consistency of Poverty Line .. .. .. .. .. 32](#_TOC_250007)
  9. [Different Methods of Estimating Poverty Line .. .. 33](#_TOC_250006)
  10. [Theories of Poverty in Contemporary Literature .. .. 34](#_TOC_250005)

**CHAPTER THREE METHODOLOGY**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3.0 Introduction ... ... ... | | | | | | | ... | 45 | |
| 3.1 Distribution Fitting .. .. .. | | | | | | | .. | 45 | |
| 3.2 Gamma Distribution .. .. .. .. | | | | | | | .. | 46 | |
| 3.3 Log logistic distribution .. .. .. .. | | | | | | | .. | 48 | |
| 3.4 Lognormal Distribution .. .. .. | | | | | | | .. | 49 | |
| 3.5 Fréchet distribution .. .. .. .. | | | | | | | … | 53 | |
| 3.6 Goodness of Fit Tests .. .. .. … | | | | | | | .. | 52 | |
| 3.7 Poverty line estimation .. .. .. | | | | | | | .. | 54 | |
| 3.8 Poverty distribution .. … .. .. | | | | | | | .. | 55 | |
| 3.9 | Sampling distribution of difference between two proportions .. | | | | | | | 56 | |
| 3.10 | Bootstrapping .. .. .. .. .. .. | | | | | | | 57 | |
| **CHAPTER FOUR: ANALYSIS AND RESULTS** | | | | | | | | | |
| 4.0 Introduction ... ... ... ... | | | | | | | ... | 60 | |
| 4.1 Distribution fitting .. .. .. … | | | | | | | … | 60 | |
| 4.2 Poverty line estimation .. .. .. | | | | | | | .. | 74 | |
| 4.3 | Difference between proportions.. .. .. .. .. | | | | | | | 76 | |
| 4.4 | Distribution of Poverty (incidence, depth and severity) for Nigeria as well | | | | | | |  | |
| as states and sectors | | .. | .. | .. | .. | .. | .. | .. | 76 |

**CHAPTER 5: FINDINGS AND SUMMARY, LIMITATIONS AND RECOMMENDATIONS**

* 1. [Findings and Summary .. .. .. .. .. .. 83](#_TOC_250004)
  2. [Limitations .. .. .. .. .. .. .. 85](#_TOC_250003)
  3. [Contributions of the Study ... ... ... ... ... 85](#_TOC_250002)
  4. [Recommendations .. .. .. .. .. .. 86](#_TOC_250001)

[REFERENCES .. .. .. .. .. .. 87](#_TOC_250000)

APPENDICES .. .. .. .. .. .. 95

##### LIST OF TABLES

Tables Page

* 1. Fitted distributions and their parameters .. .. .. 62
  2. A-4.2D Goodness of Fit details for all fitted Distributions .. .. 63
  3. Descriptive Statistics for consumption expenditure in Nigeria... 71
  4. Frequency distribution of per capital expenditure ... 72
  5. States with their poverty lines using MPCE and TMPCE .. 75
  6. Distribution of poverty (incidence, depth, and severity) using MPCE and TMPCE for the states.. .. .. .. .. .... 78
  7. Distribution of poverty by urban sector (MPCE).. .. 79
  8. Distribution of poverty by rural sector (MPCE) .. .. 80
  9. Descriptive statistics of bootstrap simulation ((MPCE d TMPCE) 82

##### LIST OF FIGURES

Figures Page

* 1. Probability Density function for Log Logistic Distribution 64
  2. Probability Density Function 66
  3. Frechet 68
  4. Probability Density Funciton for Gamma Distribution 70
  5. Histogram of Per Capita Expenditure 73
  6. Background

##### CHAPTER ONE

INTRODUCTION

Nigeria is supposed to be a rich country given the enormous human and mineral resources available in the country. The country has a very arable land and climatic conditions which is most suitable for agriculture. It is currently the sixth largest exporter of crude and other resources like cocoa, bitumen, tin ore ,to mention but a few. In terms of human population, Nigeria is currently the most populous country in Africa and one of the ten most populous countries in the world (PRB, 2009).

Incidentally, despite these enormous material and human resources in Nigeria, one issue that keeps recurring is the increasing poverty levels. It is disheartening to note that in recent times, poverty has become pervasive in Nigeria. For instance, at the commencement of the present century, it was estimated that about seven out of every ten Nigerians lived below the poverty line (Obadan, 2003; NPC, 2004). Poverty has continued to devastate Nigeria and the country is currently rated as one of the poorest in the world (UNDP, 2005, 2006 and 2009; World Bank, 2009). Poverty levels tend to vary among regions of almost every country of the world of which Nigeria is not an exception. Besides, successful policy making in Nigeria requires a good information base. For instance an understanding of poverty, the best measures and estimation method is a prerequisite for fine geographical targeting of interventions aimed at improving welfare levels.

This study aims at accessing the efficiency of Median per capita expenditure in measuring poverty in Nigeria as well as deriving estimates of poverty line at the national, state and sector levels, since there is need for statistics of a domain of study, small enough to be able to target the right groups

* 1. Poverty in Nigeria

The poor in Nigeria consider poverty as a multidimensional phenomenon that goes beyond simply the lack of income or consumption. In the Voice of the Poor study (1999), the poor defined poverty in terms of want or being in need, lack of good things, suffering backwardness, the inability to afford basic things, dependence at adulthood, and lack of freedom. They identified poor governance as a cause of poverty and feel at the vagaries of the natural environment.

There has been little reliable information on the incidence and depth of poverty in the country. Between 1982 and 1996, several National Consumer Surveys were conducted and poverty profiles were constructed. In 1996, it was estimated that about 66% of the population was poor, an increase of 20 per cent point from 1992.

The National Bureau of Statistics (NBS,2010) recently released the poverty incidence figures for 2010 and forecast for 2011 for Nigeria. The figures suggest that the incidence of poverty in Nigeria worsened between 2004 and 2010. The report indicates that the number of Nigerians living below poverty line rose from 68.7m to

112.5m (63.7% rise in poverty incidence) during the period while the population rose from 139.2m to 158.6m (13.9% rise in population) over the same period. Earlier figures on unemployment in Nigeria corroborated this situation as the number of unemployed members of the labour force continued to grow from 12.3% in 2006 to 23.9% in 2011. However, during the same period, Nigeria economy grew strongly at an average annual growth rate in excess of 6.6%, making the country the 5th fastest growing economy in the World in 2010 at 7.87% real growth rate.

In 2003, the UNDP Human Development Index ranked Nigeria 157th out of 175 countries. Infant and child mortality rate were high, especially among people living in the Northern regions, rural areas, and poor households. As reported by the UNDP (2010), between 1980 and 1996, the percentage of the core poor rose from 6.2 percent to 29.3 percent, and declined to 22.0 percent in 2004. According to Omotola (2008), about 70% of the population now lives in abject poverty.

* 1. Perspectives of poverty

It can be seen from the above that poverty has three perspectives namely:

**Income/expenditure Perspective**: A person is poor if and only if her income/expenditure level is below the defined poverty line. Often, the cut-off poverty line is defined in terms of having enough income/expenditure for a specified amount of food.

**Basic needs perspective**: Poverty is deprivation of material requirements for minimally acceptable fulfilment of human needs, including food, basic health and education, and essential services like employment and participation that have to be provided to prevent people from falling into poverty.

**Capability perspective:** Poverty represents the absence of some basic capabilities to function, a person lacking the capability to achieve some minimally acceptable levels of functioning.

* 1. Causes of poverty

There are several factors that contribute to poverty, in other words, there is no one cause or determinant of poverty. The factors include low or negative economic growth, inappropriate macroeconomic policies, deficiencies in the labour market resulting in limited job growth, low productivity and low wages in the informal sector, and a lag in human resources development. There are also other factors that have contributed to poverty and are structural causes or determinants. They include: increase in crime and violence, environmental degradation, retrenchment of workers, a fall in the real value of safety nets, and changes in family structures.

**Low Economic Growth:** Economic growth reduces poverty. In developing countries such as Nigeria, growth that is employment generating and with export base is desirable in other to achieve growth that is poverty reducing with equity, but since 1980s, growth rates have been low or negative due to adverse changes in several country‟s terms of trade, changes in global demand for exports and changes in global interest rates on developing countries external debts. All these on the other hand are responsible for the increase in poverty level in various countries of the world. Extensive evidence links the importance of economic growth to poverty reduction

(World Bank, 1990). Growth can reduce poverty through rising employment, increased labour productivity and higher real wages it generates.

**Macro economic shocks and policy failure:** As many economies in the world faced macroeconomic disequilibrium, mostly in the balance of payments due to expansive aggregate demand policies, terms-of-trade shocks, and natural disasters, it became necessary to undertake major policy reform. In the process, such economies became vulnerable to poverty. Macro economic shocks and policy failure accounts for poverty largely because they constrain the poor from using their greatest asset “labour”. Also monetary policies that adversely affect cost and access to credit by the poor, fiscal policies which results in retrenchment, lay-off and factor substitution: exchange rate policy which raises the domestic cost of production in an import dependent production system will affect the poor negatively. But an exchange rate policy that boosts export particularly those in which the poor are predominantly engaged like agriculture will help reduce poverty. The urban poor as a result of policy failure are vulnerable to job losses resulting from job-cut-backs in the public sectors or from the decline of industries adversely affected by shift in relative prices. Devaluation produces both negative and positive effects on equity and poverty incidence. On the negative side, higher production, costs of input, especially in input dependant economy, usually result in declining capital utilization rate in manufacturing and lay- off and retrenchment in the private sector, all worsening poverty.

**Labour market deficiencies:** The poor‟s most abundant resources are the labour. In most countries of the world, the majority of the poor households participate in the labour market in one way and another, and thus poverty is a problem of low wages, low labour returns to rural self employment activities, underemployment, and in some cases, protracted unemployment. These problems are affected in different ways, by deficiencies in labour market. Also relatively high labour cost in the formal sector lead to over expansion of a low productivity informal sector, thus putting downward pressure on wages in the formal sector where many of the poor work, and limited opportunities for unskilled youths to acquire job training and skills can perpetuate a cycle of poverty.

**Employment and Underemployment:** Employment is the key determinant of poverty. Gainful employment is important for individual to earn income and escape income poverty. While generally, in countries of the world, the non poor suffer from transitional or involuntary unemployment, the poor are faced with problems of structural unemployment due to lack of skills or extremely low educational levels, medical problems, geographical isolation which affects some of the rural poor in general and the urban poor due to marginalisation of persons living in high crime neighbourhood and in some countries, discrimination based on race, tribe and other attributes.

Underemployment occurs largely in the informal sectors and results in low incomes for an important segment of labour force particularly in the rural areas.

**Human resource development:** This is the key for human capital development and capability to escape from poverty. Continued investment in human capital with improvement in efficiency is necessary to sustain reduction in poverty changes in the labour market. It can boost the living standard of households by expanding opportunities, raising productivity, attracting capital investment and increasing earning power.

**Health and diseases:** Good health is basic to human welfare and a fundamental objective of social and economic development. Poor health shackles human capital, reduces returns to learning, impedes entrepreneurial activities and holds back growth and economic development. Disease causes poverty and vice versa.

* 1. Objectives of the study

1. To fit distributions to per capita expenditure to know the best fit for Nigeria.
2. To compute the poverty line using both the two-third of mean and median per capita expenditure.
3. To determine the distribution of the poor by the states and sector in Nigeria.
4. To perform a bootstrap simulation on the expenditure data to obtain precision estimates for poverty headcount index.
   1. Significance and motivation of the study

Because poverty reduction is an important development concern, designing effective targeting indicators require in-depth knowledge of the determinants of poverty and characteristics of the poor. But most studies have adopted a rather arbitrary and variable method of defining the poverty line on the basis of which poverty is profiled for Nigeria. For example, Aigbokhan (1991, 1997 and 2000a), Canagarajah et al. (1997, 2001), Ogwumike and Aromolaran, (2001) and Federal Office of Statistics (FOS, 1997) all adopted ratios (one-third and two-thirds) of mean income/expenditure as a basis for defining the poverty line. The limitation of this approach in tracking welfare need not be overemphasized. The method fails to reflect underlying distribution of household expenditure data. It is established that Income/expenditure data are generally skewed; rendering two-third and one third of mean per capita expenditure a poor statistic. The limitations of the use of highly arbitrary poverty lines have led to the adoption of consumption based methods in the construction of poverty lines.

Ogwumike, (1987 and 1991) used the basic needs approach in constructing a robust poverty line and in examining the nature and extent of poverty among Nigerians. But the application of the term “basic needs” is highly problematic in the sense that there is no consensus on the specific consumption goods and the proportion of such goods that constitute basic needs. Basic needs vary from one society to another, therefore this poses problem in the approach.

Aigbokhan, (2000b) used food-energy intake (FEI) approach to analyze poverty in Nigeria. The FEI method has been shown to possess some limitations, however,

Notably, Ravallion and Bidani (1994) and Ravallion and Sen (1996) demonstrated that the method suffers the inconsistency problem. It is argued that when the aim of setting a poverty line is to inform policy, whether or not a given standard of living constitutes poverty should not depend on the subgroup to which the person belongs. So, consistency requires that the poverty lines used should imply the same command over basic needs within the domain of the poverty profile (Ravallion and Bidani, 1994). Specifically, it has been argued that where food is relatively cheap, people will consume more, and poverty lines will be higher where the prices of food are higher. The authors showed that higher food prices in urban areas, together with the lower calorie requirements of most urban jobs, imply that urban calorie intake is lower than that of rural areas. At the same level of per capita expenditure, urban consumers tend to consume fewer calories than rural consumers do. As a result, the same nutritional standard requires a higher level of per capita expenditure in the urban areas. When applied to Indonesia and Bangladesh, Ravallion and Bidani (1994) and Ravallion and Sen (1996), respectively, found the FEI method to result in a much higher poverty line in urban areas, and higher level of poverty in urban areas, contrary to the general observation that poverty is more pronounced in rural areas, where both real income and real consumption are noted to be lower.

Omonona (2001) addressed the issue of household consumption by using adult equivalent scale but the study did not cater for economies of scale in household consumption. The study also only covered a single state in Nigeria.

This study is motivated by the recognition of the fore going research gaps. The study at present contributes majorly in this area of determination of the poverty line by proposition of an approach that is distribution based.

Therefore the poverty line in this study will be defined as the median of per capita expenditure. This is because expenditure data are generally skewed; therefore the mean does not enjoy an advantage as the best measure of location. Here the Median becomes a better measure of location since it is not affected by extreme values.

Also since eradication of poverty by the year 2015 is one of the eight Millennium Development goals, there is need to employ the right approach in tracking welfare in Nigeria so as to aid policy makers in targeting and mapping of poverty in other to meet the goal.

* 1. Data collection

The data used in the research work were the expenditure data from the 2006 general household survey, which was conducted by the National Bureau of Statistics, Nigeria.

* 1. General household Survey

General household survey was implemented as a National Integrated Survey of Household module. Six replicates were studied per state while three were studied FCT. With a fixed-take of 10 households systematically selected per enumeration areas, 600 households thus were selected for interview per state and 300 for FCT, Abuja. Hence, nationally, a total of 21,900 households drawn from the 2,190 enumeration areas were selected for interview for the General Household Survey. The selected enumeration areas and households cut across the rural and urban sectors.

* 1. Why expenditure as the poverty indicator

Most recent studies on poverty in Nigeria have rightly recognized the need to focus on expenditure rather than income as a better indicator of welfare. A measure of current consumer spending is generally preferred to income as a measure of current living standards for the following reasons. First, current consumption is often taken to be a better indicator than current income because instantaneous utility depends directly on consumption, not on income per se. Second, current consumption may also be a good indicator of Long-term average well-being, as it will reveal information about incomes at other dates, in the past and future. This is because incomes (including those of the poor) often vary over time in fairly predictable ways-particularly in agrarian economies such as Nigeria.

Alderman and Paxson (1992), Deaton (1992), income as a measure of living standard is often questioned on the ground of incorrect rendition by the respondents. On balance, consumption expenditure is preferred to income as a measure of living standard. It is generally believed that survey respondents are more willing to reveal their consumption behavior than they are willing to reveal their income. For example, in a compilation of household surveys from 88 developing countries, which was originally constructed for establishing world poverty counts, 36 of the surveys use income as their welfare measure and 52 use expenditures (Ravallion, 2001). Growing use of household consumption expenditure as the welfare indicator for poverty

measurement reflects both conceptual and practical reasons. Conceptually, consumption expenditure is a better measure of both current and long-term welfare. Practically, income is considerably more difficult to measure.

In principle, the best measures of a household‟s long-term economic resources are either wealth or permanent income, which is the yield on wealth. Important components of wealth, such as the present value of expected labor earnings, are unobservable. While current income is observable, it has a transitory component, which obscures any ranking of households based on permanent income. However, consumers have some idea about their permanent income, and so are unlikely to make lasting adjustments to their spending if they believe that the changes in their income are transitory. Consequently, consumption is a function of permanent but not of current income. This reliance of consumption on permanent income also means that consumption levels are less variable over time than are income levels. In other words, because the transitory component of consumption is small, current consumption is a good measure of permanent consumption, which in turn is proportional to permanent income.

The choice of consumption rather than income indicators can affect the temporal trends in poverty rates. Because of transitory income fluctuations, income-poor households include those who have suffered temporary reductions in their incomes, while their consumption level may stay close to its long-run average (depending on the options for consumption smoothing). Such households have high ratios of consumption expenditures to income (Deaton, 1997). Thus, if the poverty line remains fixed in real terms while the society enjoys an increase in average income, the ratio of consumption to income at the poverty line will grow over time because the poverty line is cutting at a lower and lower point in the cross-sectional income distribution. Therefore, the poor will increasingly be those with high permanent incomes who happened to suffer transitory shocks to their income during the reporting period. Because the measured consumption expenditure of this group is high relative to their income, a wedge is driven between the time-path of income-based and consumption- based poverty measures (Jorgenson, 1998).

In addition to affecting the trend in poverty, transitory income fluctuations also affect the precision of the cross-sectional poverty profile. The high transitory component in measured income means that a poverty profile based on income is less likely to identify the characteristics of the long-term poor. Instead, it will mix together households with low permanent incomes and those with temporary reductions in income. For example, Slesnick found that the U.S. poverty profile shows surprisingly high homeownership rates and low food budget shares when income is used to define the poor. This goes against the expectation that the poor have few assets and devote most of their budgets to necessities like food (Slesnick, 1993).

Another drawback of income approach is that some monetary attributes cannot be purchased because markets do not exist, for example with some public goods. It is also clear that in many settings, particularly in developing countries, markets operate very imperfectly as in the case of formal rural credit markets from which many small farmers are sealed off because of inadequate collaterals. The use of income to pinpoint poverty presuppose that a market exist for all attributes and that prices reflect the utility weights of all households within a specified setting assigned to those attributes. Therefore income as the sole indicator of wellbeing is limited, if not inappropriate as it typically does not /or cannot incorporate and reflect such key dimensions of poverty as life expectancy, literacy, the provision of public goods and even at the limit, freedom and security. The state of wellbeing is strongly correlated with the quality of life but less so with income.

Another drawback of income approach to capture poverty is that even if it were possible to specify the minimum threshold of each and all basic needs and put a price tag on them and aggregate across minimum threshold to derive to monetary poverty line, there is no guarantee that individuals with incomes at or even above poverty line would actually allocate their incomes so as to purchase minimum basic needs bundle. In terms of practicalities, at least three factors make household income more difficult to measure than household consumption expenditures. These difficulties are likely to impair the accuracy of the income data gathered and are especially apparent in developing and transition countries. First, survey questions on income typically require a longer reference period than is needed for questions on expenditures because income estimates for periods less than a year will be affected by seasonal variation,

especially for agricultural households. While there may be seasonal and other short- term temporal patterns in consumption expenditures, they will normally be less marked if households have access to consumption-smoothing devices such as savings, credit, storage, and exchange networks. The longer reference period needed for measuring income introduces greater problems of recall error.

Second, household income is hard to construct for self-employed households and those working in the informal sector because of the difficulty in separating out business costs and revenue. Frequently, arbitrary assumptions are needed to measure the income streams from assets such as agricultural livestock, and there can be difficulties in valuing the receipt of in-kind payments and self-produced items. These problems are less severe, although not absent, when household consumption is measured. Moreover, in developing and transition economies, the sources of household income are more diverse than the categories of household consumption so it is harder to design and implement questions for all of these sources.

Third, questions about consumption are usually viewed as less sensitive than questions about income especially if respondents are concerned that the information will be used for tax collecting purposes or where illegal or barely legal activities provide a substantial portion of household income.

The use of expenditure to indicate the standard of living has also been endorsed by Peter Travers and Sue Richardson, who argued in relation to measuring poverty that when measuring the resource available to an individual, it is preferable to quantify expenditure rather than income. Expenditure generates the flow of services from which material wellbeing is derived. Income, in contrast provides the capacity to purchase things. Generally, income is valued not for its own sake but for the ability it provides of to buy goods and services. It is thus more satisfactory to measure directly the level of goods and services bought (Travers and Richardson, 1993)

##### CHAPTER TWO

LITERATURE REVIEW

* 1. Introduction

In this chapter, works and findings of other researchers and authors related to poverty, its concept, measurement and poverty line was reviewed.

* 1. Concept and Meaning of Poverty

To date there is no single definition of poverty. The concept of poverty is defined according to individuals‟ perception looking at different circumstances. According to Ajakaiye (1998) a review of the massive literature on poverty shows that a standard concept of poverty remains elusive because of its multidimensional nature as well as its dynamic properties. It is viewed metaphorically as elephant and complex to define as Aboyade (1975) noted that, poverty, like an elephant, is more easily recognized than defined. Current trends have focus on the perception of the poor himself, consequently, poverty is perceived by poor Africans to include alienation from the community, food insecurity, crowded homes, and usage of unsafe and inefficient forms of energy, lack of jobs that are adequately paid and/or secure, and fragmentation of the family.

A view of the poor is that expressed by a poor man in Kenya in 1997 as reported by Narayan, *et al.* (2000) thus: “Don‟t ask me what poverty is because you have met it outside my house. Look at the house and count the number of holes. Look at my utensils and the clothes that I am wearing. Look at everything and write what you see. What you see is poverty”.

Blackwood and Lynch (1994) identified the poor using the criteria of the levels of consumption and expenditure.

Further, Sen (1983), relates poverty to entitlements which are taken to be the various bundles of goods and services over which one has command, taking into cognisance the means by which such goods are required and availability of the needed goods.

Basically, there are two approaches to definition of poverty; Absolute poverty and relative poverty. Absolute poverty refers to a lack of the needs for physical subsistence, what Seebohm Rowntree called the minimum necessity for the maintenance of physical health and physical efficiency. Relative poverty extends the concept of poverty to consider individuals as social beings, who have psychological needs to participate in a society and share in its custom and norms.

The 1995 UN World Summit on Social Development defined absolute poverty as a condition characterised by severe deprivation of basic human needs including food, safe drinking water, sanitation facilities, health, shelter, education, and information. It depends not only on income but also on access to social services. There have always been differences of views on what poverty means in conceptual terms, and even greater differences on how to measure it. These differences span a broad spectrum of normative and ideological positions and raise a number of technical issues surrounding the statistical measurement of poverty. Some of the eminent social scientists have been trying to define poverty for more than 200 years.

Bank (2000) defines absolute poverty as “a condition of life degraded by diseases, deprivation, and squalor.” On the other hand, the essence of poverty, in relative term, is „inequality‟. This implies that poverty can also be described as relative deprivation

Bradshaw (2006) and Rocha (1998), however, noted that the persistence of chronic deprivation of basic needs nowadays makes absolute poverty the obvious priority in terms of definition, measurement, and political action from the international point of view.

According to Ajakaiye and Adeyeye (2002), poverty can broadly be conceptualised in four ways; these are as a result of lack of access to basic needs/goods, result of lack of or impaired access to productive resources, an outcome of insufficient use of common resources, and as a result of exclusive mechanism. Poverty as a lack of basic needs

/goods is essentially economic and consumption-oriented. It explains poverty in material terms and specifically employs consumption-based categories to explain the extent and depth of poverty and to establish who is and who is not poor. Thus the poor are conceived as those individuals or households in a particular society, incapable of

purchasing specific basic goods and services. Indeed in his study of how government in ten countries set minimum income standard, Professor John Veit Wilson identified no fewer than seven different ways of conceptualising poverty.

The UN World summit, definition of overall poverty was broader, it says that poverty has various manifestations, including lack of income and productive resources to ensure sustainable livelihoods, hunger and malnutrition, ill health, limited or lack of access to education and other basic services, increased morbidity and mortality from illness, homelessness and inadequate housing, unsafe environment and social discrimination and exclusion. It is also characterised by a lack of participation in decision making and in civil, social and cultural life. It occurs in all countries, as mass poverty in many developing countries, pockets of poverty amid wealth in developed countries, loss of livelihood as a result of economic recession, sudden poverty as a result of disaster or conflict, the poverty of low wage workers, and the utter destitution of people who fall outside family support systems, institutions and safety nets World Bank,(2000).

Poverty is a multifaceted concept which manifests itself in different forms depending on the nature and extent of human deprivation. In absolute terms, poverty suggests insufficient or the total lack of basic necessities like food, housing, and medical cares. It embraces the inadequacy of education and environmental services, consumer goods, recreational opportunities, neighbourhood amenities and transport facilities. In relative terms, people are poverty stricken when their incomes fall radically below the community average. This implies that such people cannot have what the large society regard as the minimum necessity for a decent living. In precision terms, the poor can be defined as follows:

* Individuals and households lacking access to basic services, political contacts and other forms of support.
* Households whose nutritional needs are not met adequately,
* Ethnic minorities who are marginalized, deprived and persecuted economically, socially, morally, and politically, and
* Individuals and households below the poverty line whose incomes are insufficient to provide for their basic needs. World Bank, (2001)

Atkinson and Bourguignon (1999) regard poverty as inadequate command over economic resources but viewed it as an immediate concern, the ultimate concern being in terms of capabilities. The absolute set of capabilities translates into a set of goods requirement, which is relative to a particular society and its standard of living. This leads them to formulate a concept in line with the world Bank Development Reports (1990, pg 26), that a poverty line can be thought of as comprising two elements: the expenditure necessary to buy a minimum level of nutrition and other basic necessities and a further amount that varies from country to country reflecting the cost of participating in the everyday life of the society.

Dreze and Sen (1990); Kannan, (1995) Poverty status is therefore dependent on the inadequate physical functioning, such as hunger, lack of shelter, and lack of warmth and inadequate social functioning such as alienation, shame and lack of self respect. Capabilities are therefore associated with such elements as the standard of living and the broader aspects of the ability to be socially and economically useful. The interaction of entitlement and capabilities largely determine what people do and what they are.

Ogwumike, (2001) a poor person can be defined as one whom, given the ownership he actually has, the exchange entitlement set, does not contain any feasible bundle satisfying the required minimal standard of living.

William Beveridge, (1942) argued that an important thing to note is that the commodity bundle is with reference to minimal standard of living. This could vary from society to society. For instance what is a minimal standard if living in a developed country will be essentially different from that of a developing country. Hence, the starting point is the establishment of this minimal standard of living on the basis of which individual or households could be assessed. In considering the minimum income needed by persons of working age for subsistence during interruption of earnings, it is sufficient to take into account food, clothing, fuel, light and household sundries and rent, though some margins must be allowed for inefficiency in spending.

Amartya Sen, (1992) Poverty is the failure of basic capabilities to reach certain minimally acceptable levels. The functioning‟s relevant to this can vary from such elementary physical ones as being well nourished, being adequately clothed, and sheltered, avoiding preventable morbidity, e.t.c. to more complex social achievements such as taking part in the life of the community, being able to appear in the public without shame, and so on. Individuals, families and groups in the population can be said to be in poverty when they lack the resources to obtain the type of diet, participate in the activities and have the living conditions and amenities which are customary, or at least widely encouraged or approved in the societies which they belong (Peter Townsend,1979).

Ravallion and Bidemi (1994) refers to poverty as lack of command over basic consumption needs, that is a situation of inadequate level of consumption‟ given rise to insufficient food, clothing and shelter.

Aluko N.L (1951), Sen (1987) defined poverty as lack of capabilities such as being able to participate with dignity in social endeavours.

Gore (2002) explains the concept of all-pervasive poverty. According to him, poverty is all-pervasive, where the majority of the population live at or below income levels sufficient to meet their basic needs, and the available resources, even when equally distributed, are barely sufficient to meet the basic needs of the population. He reiterates further that pervasive poverty leads to environmental degradation. This is because people eat into the environmental capital stock to survive. This, in turn, undermines the productivity of key assets on which the livelihood depends. It should also be noted that where extreme poverty is all-pervasive, state capacities are necessarily weak.

An Australian, Ronald Henderson (1975), said that in as much as poverty is defined by reference to a minimum acceptable standard of living, it is a relative concept. It requires a value judgement that must reflect the productivity of the economy and community attitudes. The task of determining a minimum standard of living is difficult given the variety of lifestyles and values in the society, and the range of matters such as food, shelter, clothing, health and education that must be considered.

* 1. Measurement of Poverty

In other to distinguish the poor from the non poor, it is necessary to measure the prevalence of poverty. The literature on the measurement of poverty, particularly consumption or income based poverty, owes Sen (1976) a great deal. Before, poverty issues were treated under the concept of income inequality. The measurement of poverty since then focused on the development of properties that satisfy certain ethical criteria, and on that basis, to derive an index that can capture the notion of poverty. This approach made good use of the well-known concept of social welfare functions, which are in turn functions of the indirect utility functions of individual households. In the literature, this method is better known as the welfarist approach to the measurement of poverty.

The need to measure poverty can be justified by Ravallion (1998), who argued that “a credible measure of poverty can be a powerful instrument for focussing the attention of policy makers on the living condition of the poor”. Poverty data can inform policies intended to reduce poverty.

NBS (2012), in 2004, Nigeria‟s relative poverty measurement stood at 54.4%, but increased to 69% (or 112,518,507 Nigerians) in 2010. The North-West and North- East geo-political zones recorded the highest poverty rates in the country with 77.7% and 76.3% respectively in 2010, while the South-West geo-political zone recorded the lowest at 59.1%. Among States, Sokoto had the highest poverty rate at 86.4% while Niger had the lowest at 43.6% in the year under review.

Oni Omobowale A. and Adepoju Temitayo A (2011) used the Nigerian Core welfare Indices survey questionnaires of 2006 to provide data relevant to capability well being dimensions. The dimensions include housing, health, nutrition, education, asset ownership/economic, information flow and security. The first part of the study involve developing indices of well being using the fuzzy set in order to generate a composite well being index by the elementary indicators of the well being dimensions. The second part of the study used a logistic regression to explore the variability in achieving the composite well being index value by a set of Conversion factors.

Oyekale (2011) in his study examined the impact of government programs on the multidimensional poverty of rural Nigeria by using the 2006 Core Welfare Indicator Survey (CWIQ) data. Fuzzy set approach was used to compute the multidimensional poverty index of rural Nigeria. Tobit regression was used to examine the impact of poverty alleviation programs on multidimensional poverty index of rural Nigeria. The results show that the multidimensional poverty index for rural Nigeria is 0.3796. It is also reflected that some development programs had negative impact on multidimensional poverty index of rural Nigeria. Household head in the South South region were multidimensionally poor than those in other regions. The government should intensify efforts on programs that had positive impact on multidimensional poverty index of rural Nigeria. Also, it should be ensured that government programs get to the targeted people

Oshowole (2011) using the NLSS 2004 data, modelled the incidence of poverty in Nigeria. He determined the probability distribution of the selected FGT indices using possible analytical and numerical approaches. He also assessed statistical properties of conventional indicators.

Pudji Ismartini et al (2011) proposed to develop a hierarchical model for estimating household expenditure in an attempt to measure the effect of regional diversity by taking into account district characteristics and household attributes using a Bayesian approach. Due to the variation of household expenditure data which was captured by the three parameters of Log-Normal (LN3) distribution, the model was developed based on LN3 distribution. Data used in this study was household expenditure data in Central Java, Indonesia. Since, data were unbalanced and hierarchical models using a classical approach work well for balanced data, thus the estimation process was done by using Bayesian method with MCMC and Gibbs sampling. The hierarchical Bayesian model based on LN3 distribution could be implemented to explain the variation of household expenditure using district characteristics and household attributes. The model shows that districts characteristics which include demographic and economic conditions of districts and the availability of public facilities which are strongly associated with a dimension of human development index, i.e., economic, education and health, do affect to household expenditure through its household attributes.

World Bank, (2008) In terms of the human development index, Nigeria is ranked 158th of the 159 countries surveyed in 2005 (CIA, 2009). Using selected world development indicators, the life expectancy at birth in 2006 for male and female in Nigeria was 46 and 47 years, respectively. Between 2000 and 2007, 27.2 percent of children under five were malnourished. This is alarming compared to 3.7 per cent between the same periods in Brazil, another emerging economy. Worse still, the mortality rate for children under five years old is given as 191 per 1,000 births in 2006. This situation is very ridiculous compared to the figures of 69 per 1,000 births in South Africa, 108 per 1,000 births in Togo, 120 per 1,000 births in Ghana, and 149 per 1,000 births in Cameroon .This implies that there is a generalized high level of poverty in the country.

Fisher and Weber (2005) used the panel study of income dynamics to develop measure of asset poverty for urban and rural areas. They find that residents of urban are more likely to be poor in terms of net worth, but that rural residents are more likely to be poor in terms of liquid assets. Rural people tend to have non liquid assets such as homes that they may not be able to convert to cash in times of economic hardship. Urban people on the other hand, do not appear to be able to accumulate non liquid assets but may be better able to withstand short term economic disruptions.

Jollife (2004) finds that if official poverty threshold is adjusted for spatial cost of living differences, all three measures of poverty are worse in urban areas over the 1990s.

Ulimwengu and Kraybill (2004) use the National Longitudinal Survey of Youth (NLSY1979) data to develop a measure of real economic well being (a “living standard “defined as income divided by a cost of living adjusted poverty threshold) for households who were in poverty at least once during the survey period. They find that controlling for household demographics and local economic context, the expected living standard of the poor is higher.

Nwaobi (2003) asserts that Nigeria presents a paradox. The country is rich, but the people are poor. As noted by Omotola (2008), Nigeria is richly endowed and the country‟s wealth potentials manifest in the forms of natural, geographical, and

socioeconomic factors. With this condition, Nigeria should rank among the richest countries of the world that should have no business with extreme poverty. However, Okpe and Abu (2009) perspicaciously remark that Nigeria has witnessed a monumental increase in the level of poverty. According to them, the poverty level stood at 74.2 percent in the year 2000.

Cushing and Zheng, (2000) and Jollife, (2003) used a distribution sensitive Foster, Greer and Thorbecke poverty index to examine urban and rural differences in poverty incidence, depth and severity. Both find in conclusion that rural poverty is higher and that the rural poverty is not supported if one uses distribution sensitive measures. Jollife for example, finds that while the standard measures of poverty incidence is higher in rural areas during the 1990s; neither the poverty gap/depth of poverty nor severity of poverty is consistently higher in the rural areas. Moreover, the average poverty gap (shortfall of income relative to the poverty threshold) is smaller in rural areas and the rural poor are less likely to live in extreme poverty.

Aigbokhan, (2000), using data from National household income survey, found that poverty tends to be lower in the southern zones than in the northern zones. Even so, poverty incidence is not uniform within the zones. In the south, poverty was more in Akwa ibom, Delta, and Edo states and in the North, in Bauchi, Jigawa and Yobe states. The depth of poverty generally increased over study periods, but the trend was not uniform over geopolitical zones.

Rocha (1998) purports that defining the relevant and operational poverty concepts and choosing the adequate measurement procedures is the result of a sensible and informed analysis of social reality. Rocha (1998) states further that measuring poverty is a matter of identifying the essential causes of poverty in a given society. Is it widespread and affects the majority of the population or is it locally concentrated? Which are its roots? Is it a traditional syndrome or does it result from economic and technological changes? What are its main features? And who are the poor in terms of some essential characteristics? This overall information on poverty syndrome is the key element for adopting concepts and measurement instruments that seem the most appropriate to a specific context in terms of social reality and data gathering possibilities. Poverty needs to be measured to;

* Allow one to assess the effects of projects or crises or government policies on poverty.
* Permit one to compare poverty indices over time.
* Enable one to make comparisons with other countries.
* Target the poor with a view to improving their positions.
* Improve on social spending by both governmental and non governmental organizations and;
* To monitor poverty policies.

Echebiri (1997) carried out a study on the structure of rural income inequality and poverty in the South eastern Nigeria. In his study, household data were collected from sixteen villages in Abia, Anambra, Enugu and Imo States for the period of November 1984 and December 1985. A total of one hundred and fifty five (155) households were surveyed. Households were categorized into bottom, medium and top income groups to capture differences in income levels. The analyses showed that household‟s income is best estimated using monthly expenditure and repeated cost-route visit techniques. Income was generally low in study areas and the distribution was not particularly skewed.

World Bank (1996) shows that incidence of poverty in Nigeria increased from 28.1% in 1980 to 46.3% in 1985. It was noted that in 1992, 34.7 million people were extremely poor. The poverty problem grew so worse in the 1990s that in 1996, about 65.6% of the population was concluded to be poor. These scenarios vividly portray Nigeria as one of the poorest countries in the world and target programs for poverty alleviation seem not to be making significant impacts Nigeria‟s economy is characterized by a large rural, agriculture-based traditional sector that encompasses about two-third of the population living in poverty, and by a smaller, urban, capital – intensive sector that has benefited from exploitation of the country‟s resources and from the provision of services that successive governments have provided. As in many African economies, the rural traditional, mostly private agricultural sector is characterised by small scale, poor farmers, and by informal traders. The formal capital-intensive sector has a few multinational firms, a multitude of small local industries, and a myriad of government parastatals operating in most areas of

economic activities. The formal, urban, capital-intensive sector jobs are better paying and more secure, but scarce. The duality arose in large measure from domestic policies that steered most investment-physical, human and technological-into a few already capital-intensive sector of the economy. The benefits of government and foreign investment have only reached relative narrow strata of the population, while the majority of the people have not benefited from higher productivity or increased real wages (World Bank, 1996a).

(World Bank, 1995b), Basta, (1997); Bradley et al (1992) says that it is thought that urban population exhibits more variation in poverty morbidity and nutritional status compared to rural populations.

According to Odafalo, (1981), Nigeria‟s pattern of development incentive regimes have tended to favour the urban, modern sectors to the detriment of the rural , traditional sectors consistently, worsening the domestic terms of trade of the latter. Moreover, economic and social policies, have clearly accented poverty bin some regions more than others. The southern and middle agro climatic zones are better provided with infrastructure and social services than the northern zone. More of the doctors, nurses, and hospitals in the south and to a lesser extent, the middle zone, and the south also have more and better schools. Given the geography of Nigeria, the southern zone also has had a longer exposure to economic development and to modern international links. Nevertheless, poverty is pervasive to differing degrees in all three regions and within all states.

* 1. Measures of Poverty

**Foster, Greer, and Thorbecke Index**

Foster, Greer, and Thorbecke (1984) and World Bank (1990) proposed an index that contains the above measures of poverty. This index provides a distributionally sensitive measure through the choice of a poverty aversion parameter 𝛼 . The formulae is given by

###### P (α) = 1 ∑𝑞

Z−F𝑖 𝛼

2.3.1

𝑁 1 ( Z )

Where α is the FGT parameter, N is the population size, Z is the poverty line, q is the number of persons/households below the poverty line, and Yi the expenditure/income of the household, and α is the FGT parameter which takes the values 0, 1, and 2, depending on the degree of concern about poverty. By increasing the value of α, the “aversion “to poverty as measured by the index, is increased. Where there is no aversion to poverty, α = 0, which is equal to the poverty headcount ratio, the index measures the incidence of poverty, which is based on the ratio or percentage of the number of individual or household whose income are not equal to the poverty line to the total number of individuals or households (Bardhan, 1973; Ahluwalia 1976; Ginneken 1980). As mentioned above, poverty headcount ratio expresses poverty in a single index. It measures the proportion of the population that is counted as poor and is denoted by

P(0) = 1 ∑ I(Yi ≤ Z) = q

2.3.2

N N

where N is the total population, q is the total number of the poor, I (Yi ≤Z) is the indicator function that takes on the value of 1 if the bracketed expression is true and 0 otherwise. Yi is the expenditure, and Z is the poverty line. This is the share of the population whose income or consumption is below the poverty line, that is, the share of the population that cannot afford to buy a basic basket of goods. An analyst using several poverty lines, say, one for poverty and one for extreme poverty, can estimate the incidence of both poverty and extreme poverty. Similarly, for nonmonetary indicators the incidence of poverty measures the share of the population that does not reach the defined threshold (for instance, the percentage of the population with less than three years of education). The headcount index gives a quick and simple-to- understand first look at the incidence of poverty in a particular area.

If the degree of aversion to poverty is increased such that α = 1, the index becomes

P(1)= 1 ∑𝑞 (Z−F𝑖)

2.3.3

𝑁 1 Z

The above index measures the depth of poverty and is referred to as the income gap measure. It measures the intensity / magnitude of poverty. Here the deviation of the poor‟s incomes from the poverty line is average and divided by the poverty line or expressed as its percentage.

This provides information regarding how far off households are from the poverty line. This measure captures the mean aggregate income or consumption shortfall relative to the poverty line across the whole population. It is obtained by adding up all the shortfalls of the poor (assuming that the nonpoor have a shortfall of zero) and dividing the total by the population. In other words, it estimates the total resources needed to bring all the poor to the level of the poverty line (divided by the number of individuals in the population). This measure can also be used for nonmonetary indicators, provided that the measure of the distance is meaningful. The poverty gap in education could be the number of years of education needed or required to reach a defined threshold. In some cases, though, the measure does not make sense or is not quantifiable (for example, when indicators are binary, such as literacy, in which case only the concept of the headcount can be used).

The poverty gap can be used as a measure of the minimum amount of resources necessary to eradicate poverty, that is, the amount that one would have to transfer to the poor under perfect targeting (that is, each poor person getting exactly the amount he/she needs to be lifted out of poverty) to bring them all out of poverty. These two measures both have the problem of being very insensitive to the actual level of the poor. Thus a transfer from the poorest to the least poor which raises the income of the latter above poverty would reduce headcount while in the case of poverty gap; it will be less obvious that poverty has fallen.

This is the difference between the poverty line and mean income of the poor, expressed as a ratio of the poverty line (World Bank, 1993). It adds up the extent to which individuals fall below the poverty line (if they do).By definition, poverty gap is the poverty line less actual income, Yi for the poor individuals

Gn = (Z-Yi)I(Yi < Z ) , therefore, poverty gap is written as

P(1) = 1 ∑ G𝚗

2.3.4

N Z

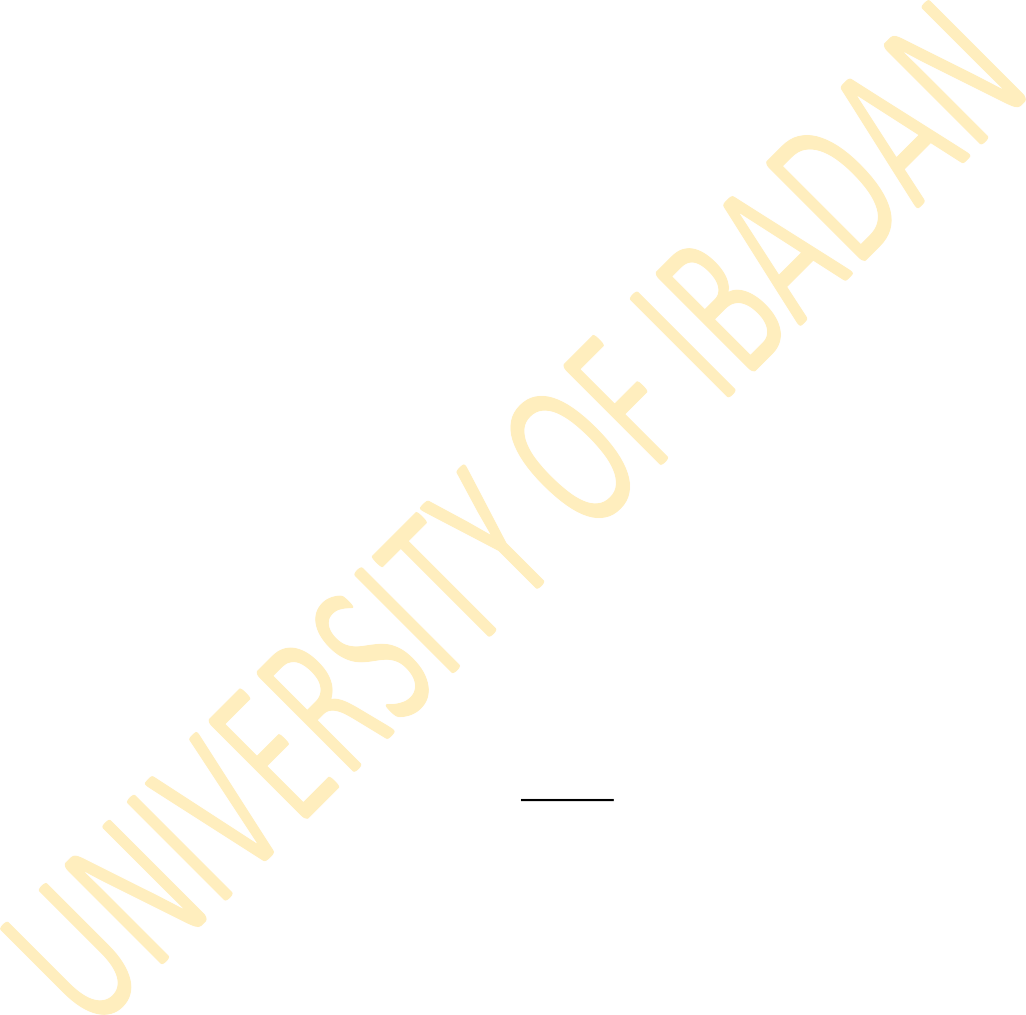
If α =2, the index allows for concern about the poorest of the poor through attaching greater weight to the poverty of the poorest than those jus below the poverty line. This is done by squaring the income gap to capture the severity of poverty.

###### P(2) = 1

𝑁

∑ Z−F𝑖 Z

2

) 2.3.5

(

The severity of poverty index, does not only measure poverty and the depth of poverty, but also includes the distributional effects of the group of people living below the poverty line.

Another advantage of FGT index is that overall poverty can be expressed as the sum of groups poverty weighted by the population share of each of each group thus,

###### P (α) = ∑ 𝐾j 𝑃𝛼j

Where j = 1, 2…m groups, 𝐾j is the population share of each group, and 𝑃𝛼j is the poverty measures for each group. The contribution of each group, 𝐶j to the overall poverty can then be calculated.

𝐶j =

𝐾j𝑃𝛼j

𝑃𝛼

The above index will be used in the research work to determine the distribution of poverty in Nigeria.

* 1. Poverty Lines

Poverty lines can be broadly defined as the socially acceptable minimum standard of living within which a household or individual is classified as poor or non poor. This has become the standard tool of policy makers for poverty monitoring. In a poverty line, people are counted as poor when their measured standard of living falls below a minimum acceptable threshold. There are various measures that can be used to define this minimum level of welfare and much controversy surrounds the choice of poverty

line. Whatever methods used to define this threshold, the poverty line is a relatively arbitrary divider of poor and non-poor.

NBS, (2010), Apart from the relative poverty index, other poverty measurement standards are absolute measure, which puts the country‟s poverty rate at 99.284 million or 60.9 per cent; the dollar per day measure, which puts the poverty rate at

61.2 per cent; and the subjective poverty measure, which puts the poverty level at

93.9 per cent.

NBS (2006) poverty profile for Nigeria: Based on the 2003-04 Nigeria Living Standards Survey (NLSS) estimated the poverty line using the relative measure approaches to poverty line. Average per capita household expenditure was N 35,600 naira. The poverty line was based on 2/3 of the average per capita expenditure or N23,733. All persons with per capita expenditure less than this amount are considered poor. Those equal to or above are non-poor. The results of the surveys show that poverty incidence increases with the size of the household. Households with less than five members are likely not to be in poverty. A direct correlation exists between the size of the household and poverty for all years. A Food poor (or extreme poverty) was defined as 1/3 of the average per capita expenditure of N 11,867 Naira. All persons with per capita expenditure less than this amount are considered extremely poor. All persons whose expenditure falls between N11,867 and N 23,733 Naira are considered moderately poor. This gave a poverty incidence of 54.4%.

Anakor (2005) using the 1996 National consumer survey data from FOS, derived some poverty lines for Nigeria by urban and rural sectors respectively. The overall poverty lines was estimated at ₦520.00 per head per month or ₦6420.00 per year, for core poor urban, and ₦475.83 per head per month or ₦5709.96 per year, for the core poor rural, and ₦1040.31 per head per month or ₦12,489.96 per year, for moderately poor urban and, ₦951.67 per head per month or ₦11,420.04 per year, for moderately poor rural sectors.

According to Poverty and Agricultural Sector in Nigeria Report (FOS, 1996), it revealed that in 1985, 51.4 percent of the population in the rural areas was poor, it declined to 46.0 percent in 1992 and thereafter increased to 69.8 percent in 1996. On

the other hand, the proportion of the poor in the urban areas was 37.8 percent in 1985,

37.5 percent in 1992 and grew to 58.2 percent in 1996.

Ogwumike and Ekpeyong (1995) using the above approach, computed food poverty line based on 1992 prices to be ₦210.00 per head per month or ₦2,500 per head per year. The overall poverty line (food and non food) was ₦280.00 per head per month or ₦3,360.00 per head per year.

Ogwumike (1987, 1991) using micro data of 1980 household survey conducted in Borno, Imo, and Oyo state and complemented by FOS data, derived some poverty lines for Nigeria. This derivation was based on the weekly requirement of an average of six members in a household. The food poverty line derived was ₦38.00 per head per month or ₦456.00 per head per year. The overall basic needs income poverty line was estimated at ₦47.44 per head per month or approximately ₦569.00 per head per year. And using income per head obtained from the survey, the study estimated that 46million Nigerians were living in poverty as at 1986.

Awa, (1983), Awa further rumbles that up to 95% of this great wealth is controlled by about 0.01 % of the population. In another wider study by the World Bank carried out in 1996 on poverty in Nigeria, they assessed the poverty trend in Nigeria between 1985 and 1992 using two-thirds of mean of household‟s expenditure as poverty line. The main findings of the study were firstly, poverty was more pronounced in rural than urban area. Secondly, the southern part of the country had less poverty than either the central or northern part of the country, finally, poverty in Nigeria declined between 1985 and 1992 from 36 million out of a 1995 population of 84 million to

34.7 million out of 1992 population of 102 million. The study shows that the mean per capita household expenditure (in 1985 prices) rose from N592.81 in 1985/86 to N792.6 in 1992/93. Consequently, the estimated moderate and extreme poverty lines stood at N395.41 and N197.71 respectively. Moderate poverty was reported to have fallen from 31 percent in 1985/86 to 20.5 percent in 1992/93, while extreme poverty rose marginally from 12 percent in 1985/86 to 13.6 percent in 1992/93. It was shown that incidence and depth of poverty fell nationally between the two periods, poverty severity rose during the period. In addition, the incidence rose in some states such as Kano, Rivers and Sokoto. The severity also rose in states like Borno, Benue, Cross

Rivers, Kano, Kwara, rural Lagos, Plateau and Rivers. The incidence of poverty for all poor in 1992 was 36.4 percent for rural Nigeria and 30.4 percent for urban Nigeria, which indicates that poverty is not seen in the rural but also co-existed in urban cities/areas of Nigeria.

* 1. Poverty Line Axioms

The Poverty Line which specifies the society‟s minimum standard of living should be fixed across all individuals. In other words, it should be horizontally equitable, which means that all individuals should be treated equally. Since all individuals are different with respect to their basic needs and they live in different geographical regions facing different prices, we cannot and should not have the same Poverty Line for all individuals. In order to achieve horizontal equity, the Poverty Line should be adjusted for the individual circumstances so that all the individuals on the Poverty Line have the same standard of living irrespective of their circumstances.

These circumstances include the fact that individuals vary with respect to their age and sex and, hence their food and non-food requirements are different. For example, children will require less food than adults and women require less food than men in order to maintain an adequate nutritional standard. Thus, the construction of the Poverty Line should take account of different individual needs. This leads us to suggest the following axiom.

Axiom 1: The poverty line should be proportional to individual needs.

If two persons A and B have the same income but A has greater needs than B, then A is poorer than B. Thus, the same Poverty Line should not be applied to both persons; A‟s Poverty Line should be higher than that of B. If person A has poorer health than person B, then person A has to spend a part of his or her income on medical attention and will thus require greater income in order to maintain the same standard of living. **Axiom 2: If two persons A and B have the same needs and face the same prices, but A has more expensive tastes than B, then A should not have higher poverty line than B.**

By this axiom, the difference in individual tastes is a matter of personal choice and should not be a criterion in the measurement of poverty.

Axiom 3: If A enjoys a higher standard of living than B, then the real poverty line for A cannot be higher than that of B.

The above axiom implies that PL is fixed in terms of level of living required so that the consistency criterion is met. This axiom implies that the difference in regional Poverty Lines for persons with the same needs should be entirely attributed to difference in regional costs of living. For example, the richer regions generally have more expensive tastes, which should not entitle them to have a higher real Poverty Line.

Axiom 4: A person on the Poverty Line in period t1, denoted by z t1 should have exactly the same standard of living as the person on the Poverty Line in period t2, denoted by z t2 .

This axiom implies that the Poverty Line should be is fixed over time and adjusted

over time by means of the true cost of living index so that the observed differences in Poverty Line measure the real change in the Poverty Line. This means that the standard of living implied by the Poverty Line does not change over time.

Axiom 4: A person on the PL in period t1, denoted by z t1 should have exactly the same standard of living as the person on the PL in period t2, denoted by z t2 .

This axiom implies that the PL should be is fixed over time and adjusted over time by means of the true cost of living index so that the observed differences in PL measure the real change in the PL. This means that the standard of living implied by the PL does not change over time.

* 1. Basic Properties of the Poverty Line

**Individual Needs:** It has already been pointed out that a person with greater needs will require a greater income than a person with a lesser needs in order to be able to enjoy the same level of living standard. As such, the determination of Poverty Line should take account of individuals‟ needs. However, the evaluation of individuals needs is very problematic since these needs can vary widely across individuals that it is almost impossible to quantify all of them. In order to solve this problem, the measure will focus on only some of the most important individual needs.

Individuals vary with respect to their age and sex and thus their food and non-food requirements also differ. Children require less food than adults in order to maintain the same nutritional standard while women require less food than men but may require more expenditure on clothing. Thus, a person with greater needs should have a

higher Poverty Line than a person with lesser needs. If person A has poorer health than person B, then person A has to spend a greater part of his or her income on medical attention and will thus require greater income in order to maintain the same standard of living.

**Equivalent Adult Scales:** Since it is very difficult to measure each individual‟s consumption separately, surveys typically estimate total household consumption (or income), which then is distributed evenly among household members. Then adult equivalent scales are generally used to take account of the relative needs of individuals of different age and sex within the household. The adult equivalent scale measures the relative income required by households of different composition to maintain the same standard of living. Kakwani takes the view that the estimation of adult equivalent scales from the observed consumption behaviour is not feasible but attempt to take account of individual needs by using the information on calorie requirements, which vary with individuals‟ age and sex.

**Economies of Scale:** A household consumes either private goods, which can be attributed to individuals in the household or public goods, where several individuals within the household can consume jointly without jeopardizing the satisfaction derived by other members of the household. For instance, two or more persons can share a refrigerator or a television set obtaining the same satisfaction as a single person using the same facilities, resulting economies of scale. Economies of scale in household consumption generally occur as a result of joint consumption of public good – the doubling of household size does not result in a doubling of consumption expenditure in order to maintain the same standard of living. Thus, the PL should take account of the economies scale in the larger households. Unfortunately, Kakwani and Sajaia point out that there exists no credible method to estimate them.

**Regional Costs of Living:** Since individuals live in different geographical regions facing different prices, same level of nominal income will buy different level of goods and services. Individuals living in more expensive areas and regions will require more income in order to enjoy the same minimum standard of living and thus should not have the same PL for all regions and areas. Thus, Poverty Line should be adjusted for differences in costs of living across areas and regions.

* 1. Consistency of Poverty Line

Ravallion and Bidani (1994) define a poverty profile to be inconsistent if one of two households deemed to have exactly the same standard of living but located in different regions are classified as poor and the other as not. Thus, consistency requires that the Poverty Line be fixed in terms of the level of living required.

The real Poverty Line is the nominal Poverty Line adjusted for regional differences in the cost of living. In order to maintain consistency, the difference in regional Poverty Lines for people with the same needs should be entirely attributed to differences in regional costs of living. If persons A and B have the same needs and face the same price vectors but living in different regions, they should have exactly the same Poverty Lines. Consistency is an essential requirement of Poverty Lines for without consistency it is impossible to make poverty comparisons across regions.

The poverty line should reflect the consumption patterns of the population

The Poverty Lines should be derived from the basic food and non-food baskets, which reflect the consumption patterns of the poor and the choice of the basic needs basket should take, account the consumption patterns in each region and area. Ravallion and Bidani (1994) call this specificity, which implies that we should have a separate food basket for each area or region. But if we have separate basket for each region, then we may violate the consistency of the Poverty Lines in terms of maintaining a constant standard of living across the regions and area. Thus, there can be a conflict between consistency and specificity. How can we resolve this issue? As a matter of fact, this is the most contentious issue in the specification of Poverty Lines.

**The poverty line should be consistent over time:** To monitor poverty, we need to have poverty profiles that are comparable over time. The comparability of poverty profiles requires that the minimum standard of living implied by the Poverty Line should be fixed over time. The Poverty Line should change over time only because of changes in prices. This property implies that the Poverty Line should be adjusted over time by means of the true cost of living index, so the observed differences in the Poverty Line measure the real change in the Poverty Line. Thus, consumer price indices play an important role in obtaining Poverty Lines that are consistent over time.

* 1. Different Methods of Estimating Poverty Line

**Food Energy Intake Method:** The Food Energy Intake method (FEI) estimates the Poverty Line by finding the Consumption expenditure or income level at which food energy intake is just sufficient to meet predetermined food energy requirements. Once this consumption or income level is located, it automatically provides the allowance for both food and non-food consumption. Separate Poverty Lines are computed for groups or regions having similar tastes and preferences and facing uniform prices. Hence, this method does take into account differences in regional cost of living as well as variations in basic needs and preferences, thus meeting the specificity requirement. Poverty Lines using the FEI method can be obtained either by calculating the mean income or expenditure of households whose estimated calorie intakes are approximately equal to the stipulated requirements; or by using the empirical relationship between food energy intakes and consumption expenditure (either regressing intake against consumption and invert the estimated function, or simply regressing consumption expenditure on nutritional intake). India and Pakistan are among the many countries using this method.

According to Kakwani (2002), the main drawback of this measure is that since the regions can differ with respect to their living standard, the food preferences will also differ. Those living in richer regions generally have more expensive tastes and, thus, buy fewer calories with the same food cost, resulting in their PL being higher than that of the poorer region. Thus, it violates the consistency requirement of a poverty line. It may lead to a situation where the richer regions have a higher incidence of poverty than the poorer regions. That is, this method cannot separate the effects of regional costs of living differences from the differences in living standards across the regions.

**Cost of Basic Needs Method:** The cost of basic needs approach (CBN) estimates the poverty line by computing the cost of a food basket that enables households to meet a predetermined minimum daily nutritional requirement and then adding to this cost an allowance for basic non-food consumption. Three steps are involved in implementing this method: (i) defining a bundle of food items meeting the predetermined minimum daily nutritional requirement, usually in the form of calorie intake; (ii) estimating the cost of this food bundle; and (iii) computing an allowance for non-food items.

**Food Poverty Line:** This can be determined by two methods: (a) by choosing a commonly consumed and least- cost food bundle that yields the specified calorie requirement, and valuing this at current prices. A food basket derived in that manner does not guarantee that people with food expenditure level equal to the Poverty Line are actually consuming the required minimum nutritional intake because of diverse food preferences. The second approach is to determine the food basket that meets the calorie specification which is actually consumed by “a reference group” (normally "a priori" definition of a poor group) as shown by household consumption surveys. Selecting these households ensures that non-basic food items are not represented in the basket. As the composition of the bundle is based on existing consumption patterns in the study area, the food items included in the basket clearly reflects the tastes, culture, and norms of that particular area. This method requires detailed consumption data including the total food expenditure levels and the quantities of the food items actually consumed. There is also an issue of what prices to be used: the average market prices or the prices paid by the “poor”.

**Non-food Poverty Line:** The method of deriving the non-food Poverty Line is analogous to the method of computing the food Poverty Line, that is, by choosing some non-food items considered essential. However, since there is no absolute standard for minimum non-food requirement similar to that of food that has a standard calorie intake as basis, constructing the non-food Poverty Line remains arbitrary and controversial. Thus, this approach is not used as the Poverty Line should be estimated as objectively as possible so that poverty comparisons can be made over time and across various socioeconomic and demographic groups. Thus Kakwani (2004) proposed to use the Consumer Theory to determine the non-food poverty line.

**Subjective Measures of Poverty:** Subjective perceptions can be used to measure poverty. Such measures of poverty are based on questions to households about (a) their perceived situation, such as, “Do you have enough?” “Do you consider your income to be very low, rather low, sufficient, rather high, or high?” (b) a judgment about minimum standards and needs, such as, “What is the minimum amount necessary for a family of two adults and three children to get by?” or “What is the minimum necessary for your family?” or (c) poverty rankings in the community, such as “Which groups are most vulnerable in the village?” On the basis of the answers to these questions, poverty lines can be derived. Answers to the second group of

questions could provide a line for different types of reference households, and answers to the first group of questions can be compared with actual income to infer the income level that households judge to be sufficient. This income level could then be used as the poverty line.

Subjective measures can be used not only to assess the situation of a particular household but also to set or inform the choice of poverty lines, equivalence scales, economies of scale, and regional cost-of-living differences. It can also be useful to compare subjective and self-reported measures of well-being to objective measures based on observed income and consumption data.

Self-reported measures have important limitations, however. Subjective measures might reproduce existing discrimination or exclusion patterns if these patterns are perceived as normal in the society. This might be the case in discrimination against girls or other particular groups in society. Subjective assessments could then fail to capture discrimination, which should be addressed by public policy. More generally, the observed perceptions of poverty need not provide a good basis to establish priority public actions. This may be the case if policymakers have a different time horizon or a different understanding of the determinants of social welfare from the population providing the subjective measures of poverty. It might also be the case that people perceive the elderly to be those most in need, but that public policy aimed at improving nutrition practices or providing preventive health care would have a higher impact on poverty. Goedhart and others (1977). Pradhan and Ravallion

* 1. Theories of Poverty in Contemporary Literature

Recent literature on poverty uniformly acknowledges different theories of poverty, but the literature has classified these theories in multiple ways (for example, compare Blank, 2003; Goldsmith and Blakely, 1992; Jennings and Kushnick,1999; Rodgers, 2000; Schiller, 1989; Shaw, 1996). Virtually all authors distinguish between theories that root the cause of poverty in individual deficiencies (conservative) and theories that lay the cause on broader social phenomena (liberal or progressive). Ryan (1976) addresses this dichotomy in terms of “blaming the victim.” Goldsmith and Blakely, for example distinguish “Poverty as pathology” from “poverty as incident or accident” and “poverty as structure.” Schiller (1989:2-3) explains it in terms of “flawed characters, restricted opportunity, and Big Brother.” Jennings (1999) reviews a number of variants on these individual vs. society conceptions, giving emphasis to racial and political dynamics. Rank

is very clear: “the focus on individual attributes as the cause of poverty is misplaced and misdirected.” Structural failings of the economic, political, and social system are causes instead. The various theories are divergent, and each results in a different type of community development intervention strategy.

This first theory of poverty is a large and multifaceted set of explanations that focus on the individual as responsible for their poverty situation. Typically, politically conservative theoreticians blame individuals in poverty for creating their own problems, and argue that with harder work and better choices the poor could have avoided (and now can remedy) their problems. Other variations of the individual theory of poverty ascribe poverty to lack of genetic qualities such as intelligence that are not so easily reversed. The belief that poverty stems from individual deficiencies is old. Religious doctrine that equated wealth with the favour of God was central to the Protestant reformation and blind, crippled, or deformed people were believed to be punished by God for either their or their parents‟ sins. With the emergence of the

th

concept of inherited intelligence in the 19 century, the eugenics movement went so

far as to rationalize poverty and even sterilization for those who appeared to have limited abilities. Rainwater (1970:16) critically discusses individualistic theories of poverty as a “moralizing perspective” and notes that the poor are “afflicted with the mark of Cain. They are meant to suffer, indeed must suffer, because of their moral failings. They live in a deserved hell on earth.” Rainwater goes on to say that it is difficult to overestimate the extent to which this perspective (incorrectly) under-girds our visions of poverty, including the perspective of the disinherited themselves. Ironically, neo-classical economics reinforces individualistic sources of poverty. The core premise of this dominant paradigm for the study of the conditions leading to poverty is that individuals seek to maximize their own well-being by making choices and investments, and that (assuming that they have perfect information) they seek to maximize their well-being. When some people choose short term and low-payoff returns, economic theory holds the individual largely responsible for their individual choices--for example to forego college education or other training that will lead to better paying jobs in the future.

The economic theory that the poor lack incentives for improving their own conditions is a recurrent theme in articles that blame the welfare system‟s generosity on the perpetuation of poverty. In a Cato Journal article, economists Gwartney and McCaleb argue that the years of the war on poverty actually increased poverty (adjusted for noncash transfers) among working age adults in spite of unprecedented increases in welfare expenditures. They conclude that “the application of simple economic theory” suggests that the problem lies in the war on poverty programs: They [welfare programs] have introduced a perverse incentive structure, one that penalizes self- improvement and protects individuals against the consequences of their own bad choices. This and similar arguments that cast the poor as a “moral hazard” also hold that the problem of poverty continues to fester not because we are failing to do enough, but because we are doing too much that is counterproductive. Their economic model would solve poverty by assuring that the penalty of poverty was great enough that none would choose it (and welfare would be restricted to the truly disabled or otherwise unable to work). A less widely critiqued version of the individualistic theory of poverty comes from American values of individualism-the Horatio Alger myth that any individual can succeed by skills and hard work, and that motivation and persistence are all that are required to achieve success. Self-help literature reinforces the belief that individuals fail because they do not try hard enough. Frank Bettger (1977:187-8), in the Dale Carnegie tradition, tells how he got a list of self- improvement goals on which to focus and became one of the most successful and highly paid salesmen in America. He goes on to say that anyone can succeed by an easy formula--focused goals and hard work. This is the message of hundreds of self- help books, articles, and sermons. By extension, this literature implies that those who do not succeed must face the fact that they themselves are responsible for their failure. While scientifically it is routine to dismiss the individual deficiency theory as an apology for social inequality, it is easy to see how it is embraced in anti-poverty policy which suggests that penalties and incentives can change behaviour

The second theory of poverty roots its cause in the “Culture of Poverty”. This theory is sometimes linked with the individual theory of poverty or other theories to be introduced below, but it recently has become so widely discussed that its special features should not be minimized. This theory suggests that poverty is created by the

transmission over generations of a set of beliefs, values, and skills that are socially generated but individually held. Individuals are not necessarily to blame because they are victims of their dysfunctional subculture or culture. American Sociology has long been fascinated by subcultures of immigrants and ghetto residents as well as the wealthy and powerful. Culture is socially generated and perpetuated, reflecting the interaction of individual and community. This makes the “culture of poverty” theory different from the “individual” theories that link poverty explicitly to individual abilities and motivation. Technically, the culture of poverty is a subculture of poor people in ghettos, poor regions, or social contexts where they develop a shared set of beliefs, values and norms for behaviour that are separate from but embedded in the culture of the main society. Oscar Lewis was one of the main writers to define the culture of poverty as a set of beliefs and values passed from generation to generation. He writes, Once the culture of poverty has come into existence it tends to perpetuate itself. By the time slum children are six or seven they have usually absorbed the basic attitudes and values of their subculture. Thereafter they are psychologically unready to take full advantage of changing conditions or improving opportunities that may develop in their lifetime. Cultures are socialized and learned, and one of the tenants of learning theory is that rewards follow to those who learn what is intended. The culture of poverty theory explains how government antipoverty programs reward people who manipulate the policy and stay on welfare. The underlying argument of conservatives such as Charles Murray in Loosing Ground (1984) is that government welfare perpetuated poverty by permitting a cycle of “welfare dependency” where poor families develop and pass on to others the skills needed to work the system rather than to gain paying employment. This theory of poverty based on perpetuation of cultural values has been fraught with controversy. No one disputes that poor people have subcultures or that the subcultures of the poor are distinctive and perhaps detrimental. The concern is over what causes and constitutes the subculture of poverty. Daniel Patrick Moynihan found the concept particularly applicable to his study of Black poverty in the early 1960s and linked Black poverty to the largely “dysfunctional” Black family found in central cities. Valentine (1968:20) criticizes E. Franklin Frazier, who with Daniel Patrick Moynihan (1965), portrayed the culture of the negro poor as an “immoral chaos brought about by the disintegration of the black folk culture under the impact of urbanization”. In other sub-cultural situations the cultural

portrayal of the poor is more sympathetic. For example, many liberal scholars understand the cultural problems that Native Americans face trying to assimilate middle class value systems. Ironically, after a number of generations we recall the “heroic” efforts of Irish or Italian immigrant groups and their willingness to accept hard work and to suffer for long term socio-economic gains; we forget the cultural discrimination they faced for not fitting in during the first generations after they arrived. Today the sub-cultural values for higher education and entrepreneurship among Asian and Indian immigrant groups are prized as an example of how subcultures can work in the favour of groups trying to escape poverty.

Whereas the first “individualistic” theory of poverty is advocated by conservative thinkers and the second is a culturally liberal approach, the third to which we now turn is a progressive social theory. Theorists in this tradition look not to the individual as a source of poverty, but to the economic, political, and social system which causes people to have limited opportunities and resources with which to achieve income and well being. Research and theories in this tradition attempt to redress the problem noted by Rank, Yoon and Hirschl (2003): “Poverty researchers have in effect focused on who loses out at the economic game, rather than addressing the fact that the game

th

produces losers in the first place.” The 19 century social intellectuals developed a

full attack on the individual theory of poverty by exploring how social and economic systems overrode and created individual poverty situations. For example, Marx showed how the economic system of capitalism created the “reserve army of the unemployed” as a conscientious strategy to keep wages low. Later Durkheim showed that even the most personal of actions (suicide) was in fact mediated by social systems. Discrimination was separated from skill in one after another area, defining opportunity as socially mediated. Taken to an extreme, radical thinkers argued that the system was flawed and should be radically transformed.

Much of the literature on poverty now suggests that the economic system is structured in such as way that poor people fall behind regardless of how competent they may be. Partly the problem is the fact that minimum wages do not allow single mothers or their families to be economically self sufficient .The problem of the working poor is increasingly seen as a wage problem linked to structural barriers preventing poor

families from getting better jobs, complicated by limited numbers of jobs near workers and lack of growth in sectors supporting lower skilled jobs. Interestingly research is showing that the availability of jobs to low income people is about the same as it has been, but wages workers can expect from these jobs have fallen. Fringe benefits including health care and promotions have also become scarce for low skilled workers. Elimination of structural barriers to better jobs through education and training have been the focus of extensive manpower training and other programs, generating substantial numbers of successes but also perceived failures. However, in spite of perceived importance of education, funding per student in less advantaged areas lags that which is spent on richer students, teachers are less adequately trained, books are often out of date or in limited supply, amenities are few, and the culture of learning is under siege. This systemic failure of the schools is thus thought to be the reason poor people have low achievement, poor rates of graduation, and few who pursue higher education (Chubb and Moe, 1996).

A parallel barrier exists with the political system in which the interests and participation of the poor is either impossible or is deceptive. Recent research has confirmed the linkage between wealth and power, and has shown how poor people are less involved in political discussions, their interests are more vulnerable in the political process, and they are excluded at many levels. Coupled with racial discrimination, poor people lack influence in the political system that they might use to mobilize economic benefits and justice.

A final broad category of system flaws associated with poverty relate to groups of people being given a social stigma because of race, gender disability, religion, or other groupings, leading them to have limited opportunities regardless of personal capabilities. No treatment of poverty can be complete without acknowledging that groups against which discrimination is practiced have limited opportunities regardless of legal protections. The process of gaining stronger rights for minorities in poverty is an ongoing one, for which legal initiatives and public policy reform must work with efforts to change public attitudes.

Rural poverty, ghetto poverty, urban disinvestment, Southern poverty, third-world poverty, and other framings of the problem represent a spatial characterization of

poverty that exists separate from other theories. While these geographically based theories of poverty build on the other theories, this theory calls attention to the fact that people, institutions, and cultures in certain areas lack the objective resources needed to generate well being and income, and that they lack the power to claim redistribution. As Shaw (1996:29) points out, “Space is not a backdrop for capitalism, but rather is restructured by it and contributes to the system‟s survival. The geography of poverty is a spatial expression of the capitalist system.”That poverty is most intense in certain areas is an old observation, and explanations abound in the development literature about why regions lack the economic base to compete. Recent explanations include disinvestment, proximity to natural resources, density, diffusion of innovation, and other factors

In a thorough review of the literature on rural poverty, Weber and Jensen (2004) note that most literature finds a “rural differential” in poverty, but that the spatial effect is not as clearly isolated from individual effects as needed for confidence. Goldsmith and Blakely offer a comprehensive perspective on the link between development and poverty in urban contexts. In their book, Separate Societies they argue that the joint processes of movement of households and jobs away from poor areas in central cities and rural regions creates a separation of work, residence, and economic, social and political life. These processes which we already discussed are multiplied by racism and political indifference of the localities in which they flourish.

One theoretical perspective on spatial concentrations of poverty comes from economic agglomeration theory. Usually used to explain the emergence of strong industrial clusters agglomeration shows how propinquity of similar firms attracts supportive services and markets, which further attracts more firms. In reverse, the propinquity of poverty and the conditions leading to poverty or the consequences of poverty (crime and inadequate social services) generate more poverty, while competitive areas attract business clusters, drawing away from impoverished communities. Low housing prices in such locations may attract more poor persons, for example, leading to housing disinvestment by building owners. In a world in which the criteria for investment is “location, location, location,” it is not unreasonable to track investment going to neighbourhoods, communities and regions in which there is already substantial investment, while leaving less attractive areas.

A second theoretical insight is from central place theory and related “human ecology” examinations of urban growth that trace the flows of knowledge and capital. As Niles Hansen (1970) points out, rural areas are often the last stop of technologies, and low wages and competitive pricing dominate production. The lack of infrastructure that allows development of human resources limits economic activity that might use these resources. Places left behind experience the largest competition in restructuring of the economy because the jobs in these categories are most likely to move to less developed countries. An increasing body of literature holds that advantaged areas stand to grow more than disadvantaged areas even in periods of general economic growth and that there will be some “trickle-down” but not an equalizing as classical economists would have us believe. A third perspective involves selective out- migration. One part of Wilson‟s book, The Truly Disadvantaged, holds that the people from ghetto areas with the highest levels of education, the greatest skills, widest world view, and most extensive opportunities were the ones who migrated out of central city locations to other places. In addition, he argued, these departing people also were the community‟s best role models and were often civic leaders. Rural poverty is similarly attributable to selective out migration. Population density (both low rural density and the negative impact of high density) is another part of a growing body of theory on spatial variables in social science using the tools of GIS to track spatial dynamics of opportunity and poverty (Bradshaw and Muller, 2003).

The previous four theories have demonstrated the complexity of the sources of poverty and the variety of strategies to address it. The final theory of poverty I will discuss is by far the most complex and to some degree builds on components of each of the other theories in that it looks at the individual and their community as caught in a spiral of opportunity and problems, and that once problems dominate they close other opportunities and create a cumulative set of problems that make any effective response nearly impossible (Bradshaw, 2000). The cyclical explanation explicitly looks at individual situations and community resources as mutually dependent, with a faltering economy, for example, creating individuals who lack resources to participate in the economy, which makes economic survival even harder for the community since people pay fewer taxes.

This theory has its origins in economics in the work of Myrdal (1957:23) who developed a theory of “interlocking, circular, interdependence within a process of cumulative causation” that helps explain economic underdevelopment and development. Myrdal notes that personal and community well being are closely linked in a cascade of negative consequences, and that closure of a factory or other crisis can lead to a cascade of personal and community problems including migration of people from a community. Thus the interdependence of factors creating poverty actually accelerates once a cycle of decline is started.

One place where the cycle of poverty is clearly defined is in a book on rural education by Jonathan Sher (1977) in which a focus is on the cycle by which education and employment at the community and individual level interact to create a spiral of disinvestment and decline, while in advancing communities the same factors contribute to growth and well being. For example, at the community level, a lack of employment opportunities leads to outmigration, closing retail stores, and declining local tax revenues, which leads to deterioration of the schools, which leads to poorly trained workers, leading firms not to be able to utilize cutting edge technology and to the inability to recruit new firms to the area, which leads back to a greater lack of employment.

This cycle also repeats itself at the individual level. The lack of employment leads to lack of consumption and spending due to inadequate incomes, and to inadequate savings, which means that individuals can not invest in training, and individuals also lack the ability to invest in businesses or to start their own businesses, which leads to lack of expansion, erosion of markets, and disinvestment, all of which contribute back to more inadequate community opportunities. Health problems and the inability to afford preventive medicine, a good diet, and a healthy living environments become reasons the poor fall further behind. The cycle of poverty also means that people who lack ample income fail to invest in their children‟s education, the children do not learn as well in poor quality schools and they fall further behind when they go to get jobs. They also are vulnerable to illness and poor medical care.

A third level of the cycle of poverty is the perspective that individual lack of jobs and income leads to deteriorating self-confidence, weak motivation, and depression. The

psychological problems of individuals are reinforced by association with other individuals, leading to a culture of despair, perhaps a culture of poverty under some circumstances. In rural communities this culture of despair affects leaders as well, generating a sense of hopelessness and fatalism among community leaders.

This brief description of the cycle of poverty incorporates many of the previous theories. It shows how people become disadvantaged in their social context which then affects psychological abilities at the individual level. The various structural and political factors in the cyclical theory reinforce each other, with economic factors linked to community and to political and social variables. Perhaps its greatest value is that it more explicitly links economic factors at the individual level with structural factors that operate at a geographical level. As a theory of poverty, the cyclical theory shows how multiple problems cumulate, and it allows speculation that if one of the linkages in the spiral was broken, the cycle would not continue. The problem is that the linkages are hard to break because each is reinforced by other parts of the spiralling system.

This essay started with the premise that the theory or explanation of poverty one holds shapes the type of anti-poverty efforts that are pursued by community developers. The fact that poverty theory addresses individuals, their culture, the social system in which they are embedded, the place in which they live, and the interconnection among the different factors suggests that different theories of poverty look at community needs from quite different perspectives. The diversity and complexity of causes of poverty allow for these multiple points of view. While none are “wrong,” it is consequential from a community development perspective which theories are applied to particular anti-poverty efforts. How one frames the question of community development determines who gets what types of service and who gets left out.

However, this essay also argues that the first four theories do not fully explore the relation between individuals and their community in the process of placing people in poverty, keeping them there, and potentially getting them out. The growing realization is that individuals are shaped by their community, and communities are as a consequence shaped by their individual members. The strength of the growing interest in social capital by social scientists following Putnam (2000) points to this

interdependence where individuals through association memberships create communities characterized by more trust and reciprocity, and in these communities with more social capital thousands of small activities are possible that contribute to reversing the spiral of decent into poverty. It is no wonder that communities with strong social capital (or similarly entrepreneurial communities described by Flora and Flora) have been shown to be more resilient to adversity and thus protect their residents from the spiral into poverty that less civic communities experience when facing similar challenges. Similarly, community economic and political systems and institutions reflect community values and respond to the social capital that underlies these values. While reforming social institutions is a policy response to poverty essential in poverty communities, Duncan (1999) concludes her book on rural poverty with the observation that communities which value equality and have narrow gaps of opportunity also have institutions that reflect these values and to a greater degree try to not leave anyone behind too far. She thinks that education is the most important local institution where this dynamic can be reversed in poor communities. Goldsmith and Blakely in their book Separate Societies (1992) make the same type of argument. Policies that build community institutions help to close the gap between poverty and rich communities, rather than many existing policies that widen it.

Increasing the effectiveness of anti-poverty programs requires that those designing and implementing those programs need to not only develop adequate theories of poverty to guide programs, but they must make sure that the community development approaches are as comprehensive as possible.

* 1. **Methodology**

##### CHAPTER THREE

This chapter gives detailed background of the methods used in analysis to achieve the objectives of this research work.

* 1. Distribution Fitting

Distribution fitting is the procedure of selecting a statistical distribution that best fits to a data set generated by some random process. In other words, if you have some random data available, and would like to know what particular distribution can be used to describe your data, then distribution fitting is what you are looking for. The principle behind fitting distributions to data is to find the type of distribution (normal, lognormal, gamma, beta, etc) and the value of the parameters (mean, variance, etc) that give the highest probability of producing the observed data. Random factors affect all areas of our life, and businesses striving to succeed in today's highly competitive environment need a tool to deal with risk and uncertainty involved. Using probability distributions is a scientific way of dealing with uncertainty and making informed business decisions. In practice, probability distributions are applied in such diverse fields as actuarial science and insurance, risk analysis, investment, market research, business and economic research, customer support, mining, reliability engineering, chemical engineering, hydrology, image processing, physics, medicine, sociology, demography etc. Probability distributions can be viewed as a tool for dealing with uncertainty. Distributions fitting can be used to perform specific calculations, and apply the results to make well-grounded decisions. However, if you use a wrong tool, you will get wrong results. If you select and apply an inappropriate distribution (the one that doesn't fit to your data well), your subsequent calculations will be incorrect, and that will certainly result in wrong decisions.

In other to fit probability distributions to consumption expenditure, this research work employed easy fit statistical software. Easy fit software is a data analysis and simulation application that allows fitting probability distributions to sample data, it selects the best model, and applies the analysis results to make better decisions. Easy

Fit can be used as a stand-alone Windows application or with Microsoft Excel and other third party Excel-based simulation tools, leaving the complex technical details behind the scenes and enabling you to focus on your business goals. Easy fit combines the classical statistical analysis methods and innovative data analysis techniques to fit a tool of choice for anyone dealing with probability data.

The distributions were selected from non-negative distributions. The selected distributions are: log -normal, log logistic, gamma and frechet distributions. Also Easy Fit estimates the parameters of the distributions using the Maximum Likelihood Estimation method.

Duangkamon C. & William E. (2008) in „Estimating Income Distributions Using a Mixture of Gamma Densities‟, Used a sample of Canadian income data, and applied Bayesian inference to estimate gamma mixtures with two and three components. They describe how to obtain a predictive density and distribution function for income and also illustrated the flexibility of the mixture.

The gamma, or Pearson (1895) Type III, distribution has been used to model a wide range of data types in many disciplines, especially in the context of reliability modeling, life testing and fatigue testing. For example, Birnbaum and Saunders (1958) introduced the gamma distribution for modeling the life-length of certain materials, and the use of this distribution for various reliability problems is noted by both Herd (1959) and Drenick (1960). Gupta and Groll (1961) discuss acceptance sampling based on this distribution, and they derive the operating characteristic function, producer‟s risk, failure rates and minimum sample sizes for this problem.

* 1. Gamma Distribution

The gamma distribution arises in situations where one is concerned about the waiting time for a finite number of independent events to occur, assuming that events occur at a constant rate and chances that more than one event occurs in a small interval of time are negligible. The probability density function of the gamma distribution can be expressed in terms of the parameterized in terms of a shape parameter *k* and scale parameter *θ*. Both *k* and *θ* will be positive values.

The equation defining the probability density function of a gamma-distributed random variable *x* is

3.2.1

 F(x;k,\theta) = \int_0^x f(u;k,\theta)\,du                       = \frac{\gamma\left(k, \frac{x}{\theta}\right)}{\Gamma(k)} \,The [cumulative distribution function](http://en.wikipedia.org/wiki/Cumulative_distribution_function) is the regularized gamma function

where \scriptstyle \gamma(k,\, x/\theta)is the lower incomplete gamma function.

Parameter estimation Maximum likelihood estimation

The likelihood function for *N* iid observations (*x*1, ..., *xN*) is

3.2.2

L(k, \theta) = \prod_{i=1}^N f(x_i;k,\theta)\,\!3.2.3

from which we calculate the log-likelihood function

𝑖=1

𝑙(𝑘, 𝜃) = (𝑘 − 1) ∑𝑁

𝑖=1

𝑙𝑛(𝑥𝑖) − ∑𝑁

𝑥𝑖⁄𝜃 − 𝑁𝐾 𝑙𝑛(𝜃) − 𝑁 𝑙𝑛 𝛤(𝑘) 3.2.4

Finding the maximum with respect to *θ* by taking the derivative and setting it equal to zero yields the maximum likelihood estimator of the θ parameter:

𝜃̂ = 1

𝑘𝑁

𝑁

𝑖=1

∑

𝑥𝑖

3.2.5

\ell = (k-1)\sum_{i=1}^N\ln{(x_i)} - Nk - Nk\ln{\left(\frac{\sum x_i}{kN}\right)} - N\ln[\Gamma(k)] \,\!Substituting this into the log-likelihood function gives

3.2.6

\ln{(k)} - \psi(k) = \ln{\left(\frac{1}{N}\sum_{i=1}^N x_i\right)} - \frac{1}{N}\sum_{i=1}^N\ln{(x_i)} \,\!Finding the maximum with respect to *k* by taking the derivative and setting it equal to zero yields

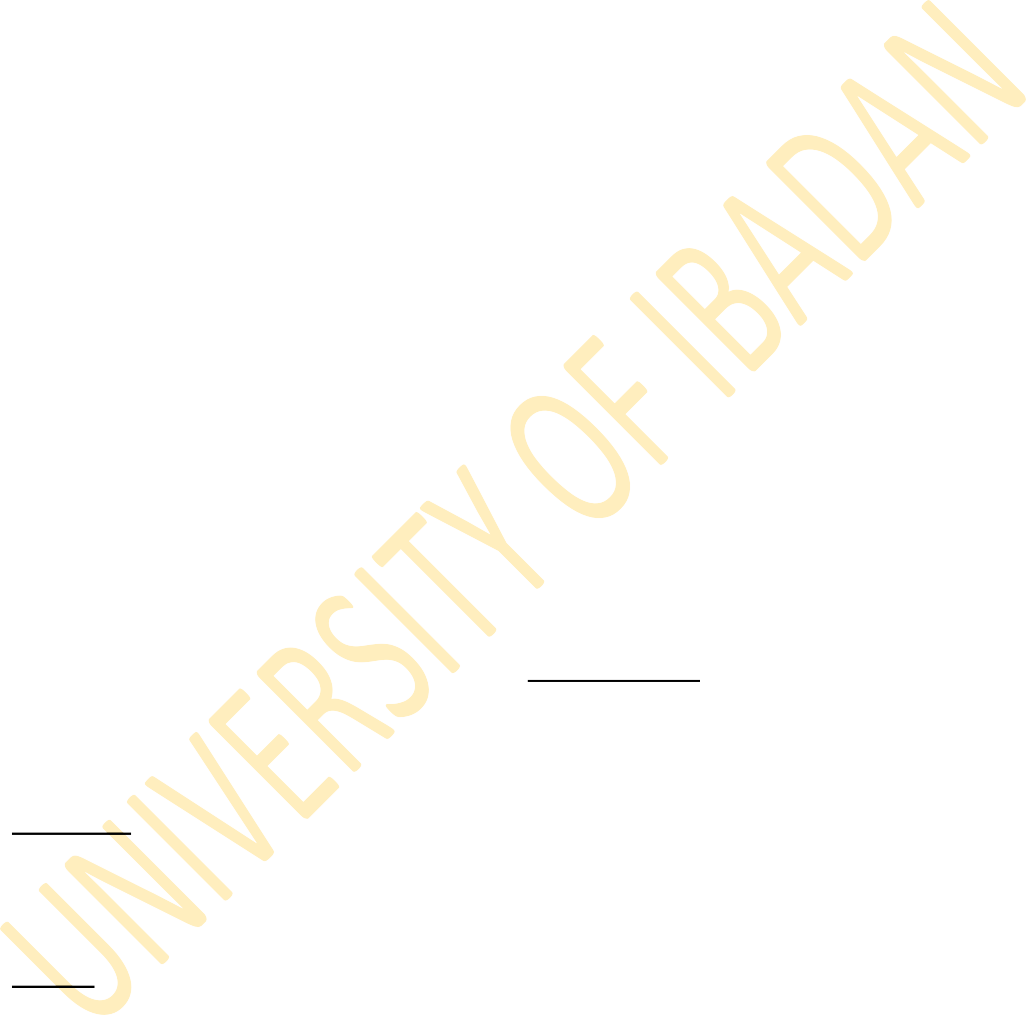
3.2.7

where

\psi(k) = \frac{\Gamma'(k)}{\Gamma(k)} \!3.2.8

is the digamma function..

* 1. Log Logistic Distribution

The log-logistic distribution is the probability distribution of a random variable whose logarithm has a logistic distribution . It is similar in shape to the lognormal but has heavier tails. Its cumulative distribution function can be written in closed form, unlike that of the log- normal. The log-logistic has been used as a simple model of the [distribution of wealth](http://en.wikipedia.org/wiki/Distribution_of_wealth) or [income](http://en.wikipedia.org/wiki/Income_distribution) in [economics](http://en.wikipedia.org/wiki/Economics), where it is known as the Fisk distribution. Its [Gini coefficient](http://en.wikipedia.org/wiki/Gini_coefficient) is 1 / β. The log-logistic distribution has found use in a variety of disciplines. The log-logistic distribution (known as the Fisk distribution in economics) is a continuous probability distribution for a non-negative . It is used in survival analysis as a parametric model for events whose rate increases initially and decreases later, for example mortality from cancer following diagnosis or treatment. It has also been used in hydrology to model stream flow and precipitation, and in economics as a simple model of the distribution of wealth or income.

The cumulative distribution function is

1

𝐹(𝑥; 𝛼, 𝛽) = 1 + (𝑥⁄𝛼)−𝛽

= (x⁄𝝰)β 1+(x⁄𝝰)β

= xβ

𝝰β+xβ

where x > 0, α > 0, β > 0.

The probability density function is

𝑓(𝑥; 𝛼, 𝛽) = (𝛽⁄𝛼)(𝑥⁄𝛼)𝛽−1

[1+(𝑥⁄𝛼)𝛽]2

3.3.1

3.3.2

The parameter α > 0 is a scale parameter and is also the median of the distribution. The parameter β > 0 is a shape parameter. The distribution is unimodal when β > 1 and its dispersion decrease as β increases.

Parameter estimation

Let X1…Xn be an i. i. d. sample from the generalized logistic distribution. Then the log-likelihood is given by

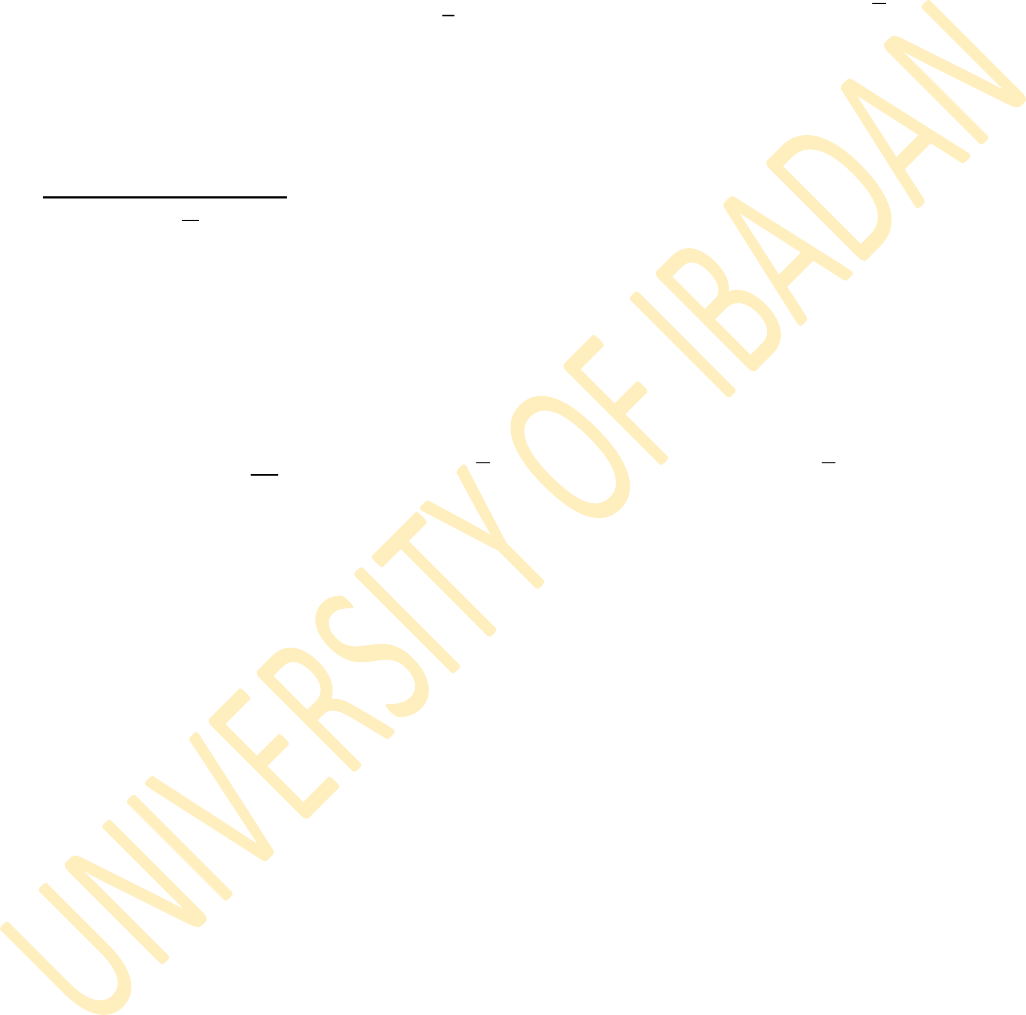
I(b, θ, σ; x x ) = nln(b) − nln(σ) − 1 ∑ (x − θ) − (b + 1) ∑ ln (1 + e

1 ,… n i i i

σ

A closed-form expression for estimating *b* is as follows

−1 (∞ −θ)

σ )

i

3.3.3

𝑏̂ = 𝑛

1

∑𝑖 𝑙𝑛(1+𝑒−σ(*∞*𝑖−𝜃))

3.3.4

Plugging in this estimator into the log-likelihood gives the concentrated log-likelihood

𝑙𝑐(𝜃, 𝜎𝑖, 𝑥1,, … , 𝑥𝑛) =

𝑛𝜃 − ∑ 𝑙𝑛 (1 + 𝑒

σ

𝑖

−1 (*∞*𝑖−𝜃)

) − 𝑛𝑙𝑛 ∑𝑖 𝑙𝑛 (1 + 𝑒

−1 (*∞*𝑖−𝜃)

) + 𝐻(𝜎, 𝑥)

3.3.5

σ

σ

with *H* a function not depending on 𝜃 or *b*. The concentrated log-likelihood function is maximized for 𝜃 → −∞ (Zelterman (1987) p.180). That means the concentrated log-likelihood diverges to infinity and the global maximum is not a consistent estimator of the parameters under consideration. This is a very interesting behaviour which results from introducing a scale parameter and a shape parameter. There is for example no equivalent problem in the location-scale model of the usual logistic distribution.

* 1. Lognormal Distribution

A log-normal distribution is a probability distribution of a random variable whose logarithm is normally distributed. If *X* is a random variable with a normal distribution, then *Y* = exp(*X*) has a log-normal distribution; likewise, if *Y* is log-normally distributed, then *X* = log(*Y*) has a normal distribution. The log-normal distribution is the distribution of a random variable that takes only positive real values, like in

finance. The distribution is occasionally referred to as the Galton distribution or Galton's distribution, after Francis Galton, and other names such as McAlister, Gibrat and Cobb–Douglas been associated. Lognormal distribution is the maximum entropy distribution for a random variate, X for which the mean and variance of ln(X) is fixed. Probability density function

f_X(x;\mu,\sigma) = \frac{1}{x \sigma \sqrt{2 \pi}}\, e^{-\frac{(\ln x - \mu)^2}{2\sigma^2}},\ \ x>0The probability density function of a log-normal distribution is:

3.4.1

This follows by applying the change of variable rules on the density function of a normal distribution.

Cumulative distribution function

The cumulative distribution function is

𝐹 (𝑥; 𝜇, 𝜎) = 1 𝑒𝑟𝑓𝑐 [𝑙𝑛𝑥−𝜇] = Ф (𝑙𝑛𝑥−𝜇) 3.4.2

𝑥 2

σ√2 𝜎

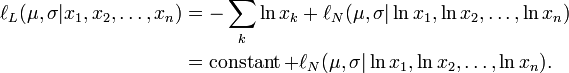
Where erfc is the complementary error function, and Ф is the cumulative distribution function of the normal standard distribution.

Parameter estimation

f_L (x;\mu, \sigma) = \prod_{i=1}^n \left(\frac 1 x_i\right) \, f_N (\ln x; \mu, \sigma)For determining the [maximum likelihood](http://en.wikipedia.org/wiki/Maximum_likelihood) estimators of the log-normal distribution parameters μ and σ, we can use the [same procedure](http://en.wikipedia.org/wiki/Normal_distribution#Maximum_likelihood_estimation_of_parameters) as for the [normal distribution](http://en.wikipedia.org/wiki/Normal_distribution). To avoid repetition, we observe that

3.4.3

where by *ƒL* we denote the probability density function of the log-normal distribution and by *ƒN* that of the normal distribution. Therefore, using the same indices to denote distributions, we can write the log-likelihood function thus:

 3.4.4

Since the first term is constant with regard to μ and σ, both logarithmic likelihood functions, *ℓL* and *ℓN*, reach their maximum with the same *μ* and *σ*. Hence, using the

formulas for the normal distribution maximum likelihood parameter estimators and the equality above, we deduce that for the log-normal distribution it holds that

\widehat \mu = \frac {\sum_k \ln x_k} n,         \widehat \sigma^2 = \frac {\sum_k \left( \ln x_k - \widehat \mu \right)^2} {n}.

* 1. Fréchet distribution

The Fréchet distribution is a special case of the [generalized extreme value](http://en.wikipedia.org/wiki/Generalized_extreme_value_distribution) [distribution](http://en.wikipedia.org/wiki/Generalized_extreme_value_distribution). It has the cumulative distribution function

𝑃𝑟(𝑋 ≤ 𝑥) = 𝑒−𝑥−𝛼 𝑖𝑓 𝑥 > 0

where *α*>0 is a [shape parameter.](http://en.wikipedia.org/wiki/Shape_parameter) It can be generalised to include a [location parameter](http://en.wikipedia.org/wiki/Location_parameter)

*m* (the minimum) and a [scale parameter](http://en.wikipedia.org/wiki/Scale_parameter) *s*>0 with the cumulative distribution function

𝑥−𝑚 −𝛼

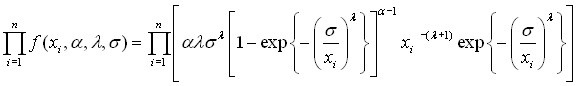
𝑃𝑟(𝑋 ≤ 𝑥) = 𝑒−(

𝔰 )

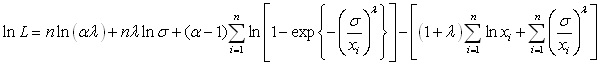
𝑖𝑓 𝑥>𝑚

Parameter Estimation

If *x1, x2,....xn* is a random sample from the Exponentiated Frechet distribution GF (𝛼, 𝜆, 𝜎), then the likelihood function corresponding to this sample is

given by

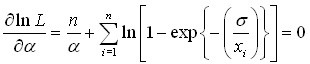
3.5.3

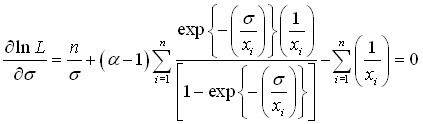
The log likelihood function is

3.5.4

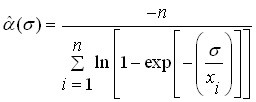
When the parameter 𝜆 is known, we differentiate the log likelihood function with respect to 𝛼 and 𝜎 respectively to obtain the likelihood equations

Therefore

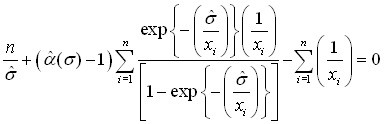
3.5.5

And

3.5.6

Then, the maximum likelihood estimator of 𝛼 as a function of 𝜎 is obtained from (3) as

3.5.7

Substitute from (5) in (4) and solve for 𝜎, we obtain

3.5.8

We apply iterative procedure to find the solution of (6), once we obtain 𝜎̂, The maximum likelihood estimators of a can be obtained from (5).

* 1. Goodness of Fit Tests

The goodness of fit (GOF) tests measures the compatibility of a random sample with a theoretical probability distribution function. In other words, these tests show how well the distribution selected fits a given data set. The general procedure consists of defining a test statistic which is some function of the data measuring the distance between the hypothesis and the data, and then calculating the probability of obtaining

data which have a still larger value of this test statistic than the value observed, assuming the hypothesis is true.

For the purpose of this work, we choose Kolmogorov-Smirnov test statistic because it is an exact test (the chi-square goodness-of-fit test depends on an adequate sample size for the approximations to be valid) and also the Anderson-Darling test is only available for a few specific distributions.

Kolmogorov-Smirnov Test

This test is used to decide if a sample comes from a hypothesized continuous distribution. It is based on the empirical cumulative distribution function (ECDF). Assume that we have a random sample *x*1, ... , *x*n from some distribution with CDF

*F(x)*. The empirical CDF is denoted by

𝐹𝑛

(𝑋) = 1 · [𝑁𝑢𝑚𝑏𝑒𝑟 𝑜𝑓 𝑜𝑏𝑠𝑒𝑟𝑣𝑎𝑡𝑖𝑜𝑛𝑠 ≤ 𝑥] 3.6.1

𝑛

Definition

The Kolmogorov-Smirnov statistic (D) is based on the largest vertical difference between the theoretical and the empirical cumulative distribution function:

𝐷 = max

(𝐹(𝑥 ) − 𝑖−1 , 𝑖 − 𝐹(𝑥 )) 3.6.2

0≤𝑥≤1

𝑖 𝑛 𝑛 𝑖

i= 1, 2,…,n. If the observed maximum departure d is small, then the assumed F(x) may be reasonable as that distribution that generated the data. But if this d is “large” then it is unlikely that F(x) is the underlying data distribution. The critical region for the KS test is d ≥ CV (α , n) and the probability of d ≥ CV (α , n) is α.

Hypothesis Testing

The null and the alternative hypotheses are:

H0: the data follow the specified distribution;

HA: the data do not follow the specified distribution.

The hypothesis regarding the distributional form is rejected at the chosen significance level if the test statistic, D, is greater than the critical value obtained from a table. The

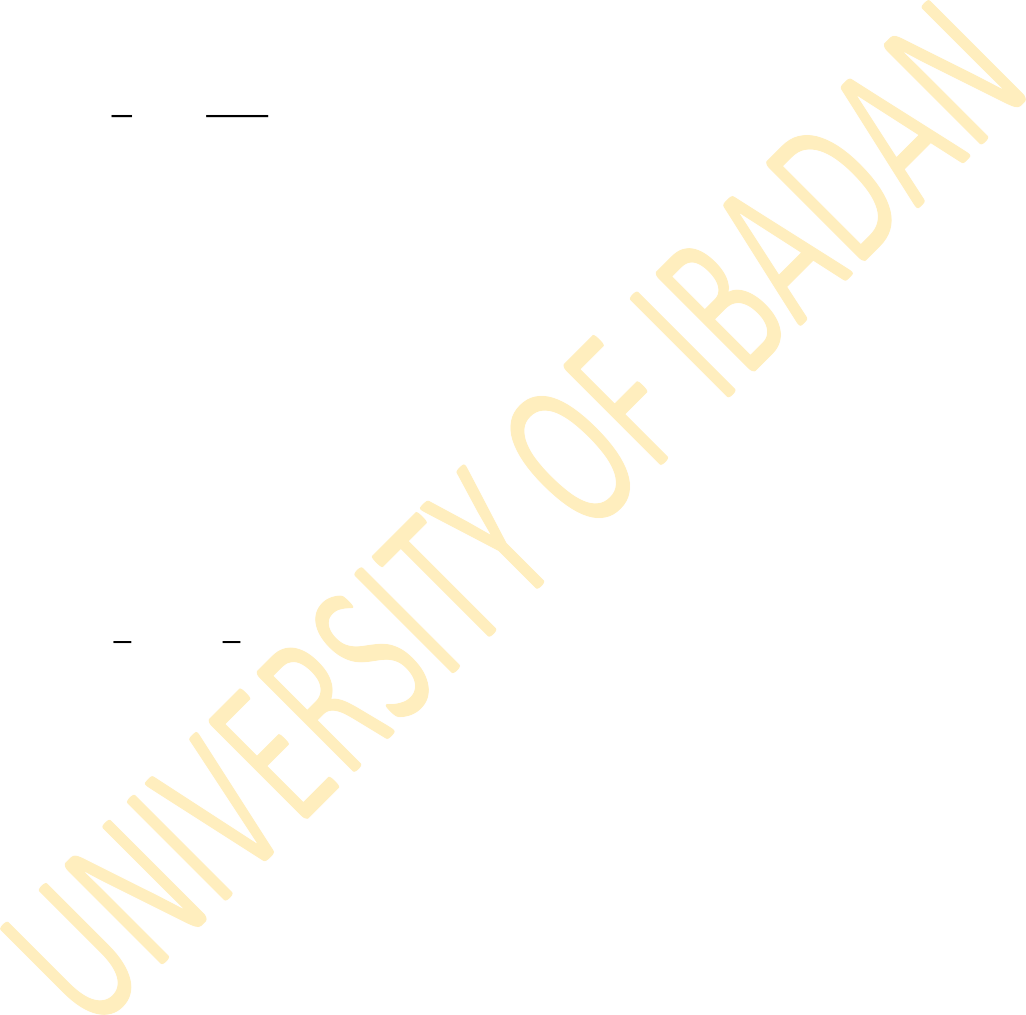
fixed values of (0.01, 0.05 etc.) are generally used to evaluate the null hypothesis (H0) at various significance levels. A value of 0.05 is typically used for most applications, however, in some critical industries; a lower value may be applied. The standard tables of critical values used for this test are only valid when testing whether a data set is from a completely specified distribution. If one or more distribution parameters are estimated, the results will be conservative: the actual significance level will be smaller than that given by the standard table, and the probability that the fit will be rejected in error will be lower.

* 1. Poverty Line Estimation

A poverty line typically specifies the income (or level of spending) required for purchasing a bundle of essential goods (typically food, clothing, shelter, water, electricity, schooling, and reliable healthcare). Identifying the poor as those with income (or expenditures) below a given line brings clarity and focus to policy making and analysis. Having a poverty line allows experts to count the poor, target resources, and monitor progress against a clear benchmark. Communicating the extent of poverty becomes easier, and explaining the notion of deprivation simpler.In determining the poverty line, we normally consider the two concepts of poverty; absolute and relative poverty. Absolute poverty describes a situation where an individual is unable to meet the subsistence basic needs. This implies that what is meant for somebody to be poor does not change with variation of time and space even when the society becomes richer or poorer. But for the relative concept, what is meant for somebody to be poor can change with variation in time and space as the society becomes richer or poorer, since it reflects the standard of living for the society as a whole.

By using the median of the per capita expenditure, the steps for computing this line are outlined below:

1. Aggregate the food expenditures
2. Aggregated the non-food expenditure
3. Obtain total household expenditure (Food + Non-Food),
4. Compute per capita household expenditure: Total household expenditure divided by the household size. All persons with per capita expenditure less than the median of per capita expenditure are considered poor and otherwise, non-poor.
   1. Poverty distribution

As mentioned earlier, Foster, Greer, and Thorbecke index (1984) and reviewed by World Bank (1990) will be applied for determination of distribution of poverty for sectors as well as the country as a whole. The formulae is given by

P (α) = 1 ∑𝑞

Z−F𝑖 𝛼

3.8.1

𝑁 1 ( Z )

Where α is the FGT parameter, N is the population size, Z is the poverty line, q is the number of persons / households below the poverty line, and Yi the expenditure of the household, and α takes the values 0, 1, and 2, depending on the degree of concern about poverty. By increasing the value of α, the “aversion “to poverty as measured by the index, is increased. Where there is no aversion to poverty, α = 0, the index is simply

P(0) = 1 ∑ I = q

3.8.2

N N

Which is equal to the poverty headcount ratio, the index measures the incidence of poverty. As mentioned above, poverty headcount ratio expresses poverty in a single index. It measures the proportion of the population that is counted as poor.

If the degree of aversion to poverty is increased such that α = 1, the index becomes

P(1)= 1 ∑𝑞 (Z−F𝑖)

3.8.3

𝑁 1 Z

The above index measures the depth of poverty and is referred to as the income gap measure. If α =2, the index allows for concern about the poorest of the poor through

attaching greater weight to the poverty of the poorest than those jus below the poverty line. This is done by squaring the income gap to capture the severity of poverty.

3.8.4

P(2) = 1 ∑

𝑁

Z−F𝑖 2

)

(

Z

Another advantage of FGT index is that overall poverty can be expressed as the sum of groups poverty weighted by the population share of each of each group thus,

###### P (α) = ∑ Kj Pαj,

3.8.5

where j = 1, 2…m groups, kJ is the population share of each group, and Pαj is the poverty measures for each group. The contribution of each group, Cj to the overall poverty can then be calculated.

* 1. : Sampling distribution of the difference between two proportions

The sampling distribution of the difference between the two proportions 𝑃̂1 − 𝑃̂2 , is approximately normal, with mean 𝜇𝑃̂1−𝑃̂2 = *p1-p2.* When testing a hypothesis made about two population proportions, the null hypothesis is p1= p2. There is no need to estimate the individual parameters p1and p2, but we can estimate their common value with the pooled sample proportion. Weighted estimate of p1and p2 is

𝑃̅ = 𝑥1+𝑥2

𝑛1+𝑛2

3.9.1

and the standard deviation

𝝈

√𝑝̂q̂ + 𝑝̂q̂

3.9.2

𝑃̂1−𝑃̂2=

𝑛1 𝑛2

The test statistic for two proportions with H0: p1 = p2 is

𝑧 = 𝑃̂1−𝑃̂2

√𝑝̂q̂+𝑝̂q̂

3.9.3

𝑛1 𝑛2

Disparity between the highest poor state and the lowest poor state was checked. This was achieved by using the Z test.

Because of the [central limit theorem](http://en.wikipedia.org/wiki/Central_limit_theorem), many test statistics are approximately normally distributed for large samples. For each significance level, the Z-test has a single critical value (for example, 1.96 for 5% two tailed) which makes it more convenient than the [Student's t-test](http://en.wikipedia.org/wiki/Student%27s_t-test) which has separate critical values for each sample size. Therefore, many statistical tests can be conveniently performed as approximate Z- tests if the sample size is large or the population variance known. If the population variance is unknown (and therefore has to be estimated from the sample itself) and the sample size is not large, the Student t-test may be more appropriate. If *T* is a statistic that is approximately normally distributed under the null hypothesis, the next step in performing a *Z*-test is to estimate the [expected value](http://en.wikipedia.org/wiki/Expected_value) θ of *T* under the null hypothesis, and then obtain an estimate *s* of the [standard deviation](http://en.wikipedia.org/wiki/Standard_deviation) of *T*. We then calculate the [standard score](http://en.wikipedia.org/wiki/Standard_score) *Z* = (*T* − θ) / *s*, from which [one-tailed and two-tailed](http://en.wikipedia.org/wiki/One-_and_two-tailed_tests) [p-values](http://en.wikipedia.org/wiki/P-values) can be calculated as Ф(−|*Z*|) and 2Ф(−|*Z*|), respectively, where Ф is the standard [normal](http://en.wikipedia.org/wiki/Normal_distribution) [cumulative distribution function](http://en.wikipedia.org/wiki/Cumulative_distribution_function).

Therefore, with the assumption of large sample size, P value less than .05 will show that there is disparity between the poor and the non poor.

* 1. Bootstrapping

In poverty analysis, most of the attention focuses on the identification and aggregation of problems. Statistical inference for poverty measures on the other hand is widely ignored. Conclusions about poverty however are typically based on information obtained from sample surveys. These conclusions are subject to sampling and non sampling errors. Statistical inference deals with sampling errors and allows us to determine to what extent the estimated poverty measures represent the true population

parameters. Poverty indices are complex in nature and this would not make for easy analytic solution of statistical distribution of their generalized estimators even when the estimators of the base parameters of income / expenditure are known or assumed. Alternative numerical solution is possible using bootstrapping simulation experiment. Bootstrapping technique was invented by Bradley Efron (1979, 1981, 1982) and further developed by Efron and Tibshirani (1993). "Bootstrap" means that one available sample gives rise to many others by resampling (a concept reminiscent of pulling yourself up by your own bootstrap). While the original objective of cross- validation is to verify replicability of results and that of Jack knife is to detect outliers, Efron (1981, 1982) developed bootstrap with inferential purposes.

Bootstrapping is a statistical method for estimating the [sampling distribution](http://en.wikipedia.org/wiki/Sampling_distribution) of an [estimator](http://en.wikipedia.org/wiki/Estimator) by [sampling](http://en.wikipedia.org/wiki/Sampling_%28statistics%29) with replacement from the original sample, most often with the purpose of deriving robust estimates of [standard errors](http://en.wikipedia.org/wiki/Standard_error) and [confidence intervals](http://en.wikipedia.org/wiki/Confidence_intervals) of a population parameter like a [mean](http://en.wikipedia.org/wiki/Mean), [median,](http://en.wikipedia.org/wiki/Median) [proportion](http://en.wikipedia.org/wiki/Proportionality_%28mathematics%29), [odds ratio](http://en.wikipedia.org/wiki/Odds_ratio), [correlation](http://en.wikipedia.org/wiki/Pearson_product-moment_correlation_coefficient) [coefficient](http://en.wikipedia.org/wiki/Pearson_product-moment_correlation_coefficient) or [regression](http://en.wikipedia.org/wiki/Regression_analysis) coefficient.. It may also be used for constructing hypothesis tests. Bootstrapping is most useful as an alternative to parametric estimates when the assumptions of those methods are in doubt (as in the case of regression models with heteroscedastic residual fit to small samples), or where parametric inference is impossible or requires very complicated formulas for the calculation of standard errors (as in the case of computing confidence intervals for the median, quartiles, and other percentiles). Bootstrap is generally useful for estimating the distribution of a statistic (e.g. mean, variance) without using normal theory (e.g. z-statistic, t-statistic). Bootstrap comes in handy when there is no analytical form or normal theory to help estimate the distribution of the statistics of interest, since bootstrap method can apply to most random quantities, e.g., the ratio of variance and mean Resampling stats for excel was used in this research work to perform the bootstrap simulation.

The poverty incidence P(0 ) = 𝑞 using both median per capita expenditure and two –

𝑁

third mean per capita expenditure were calculated from the original data, 16716 household. We first resample the data to obtain a bootstrap resample from the per

capita expenditure data of size 10,000 households and P (0 ) = 𝑞

𝑁

were calculated for

the 10,000 simulated samples for household expenditure.

Repeat and score the re sampled per capita expenditure data using 1000 iterations to produce the biased estimates of the statistics. From these statistics, we compared the precision of the median per capita and two-third of mean per capita expenditure respectively. All these were obtained using Resampling Stats for Excel statistical package.

##### CHAPTER FOUR

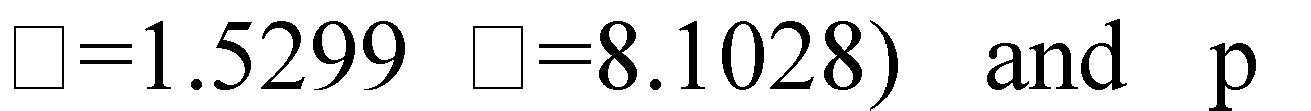
ANALYSIS AND RESULTS

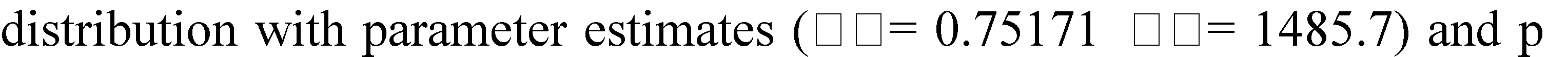
* 1. Introduction

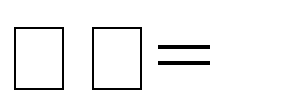
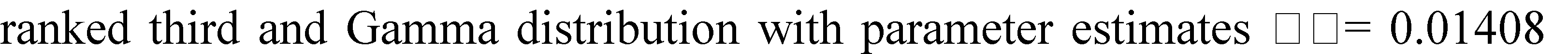
In this chapter, we discus the results of the analysis. This include the result of the distribution fitting, poverty line estimation, distribution of poverty and bootstrap simulation.

* 1. Distribution Fitting

Table 4.1 shows the fitted distributions and their parameter estimates. It shows the frechet, Gamma, log logistic and lognormal distributions and their respective shape and scale parameter estimates.

Table 4.2A - 4.2D shows goodness of fit details for all the four non-negative distributions fitted to per capita expenditure. All the four distributions fitted to the expenditure data, but among them (frechet, gamma, log logistic, and lognormal), log logistic distribution with parameter estimates (=1.0452, =3169.2) and ( p-value < 0.0000014805) performed best, lognormal distribution with parameter estimates ( -value < 0.00014853, ranked second. Frechet

-value = 0



3.5962 X 106 and p-value = 0 ranked fourth.

Table 4.3 also presents the descriptive statistics for fitting the distributions to per capita expenditure in Nigeria. The table shows the range, mean, variance, standard deviation, Coefficient of variation, Standard Error, skewness and Excess kurtosis for per capita expenditure. The table also presents the minimum and maximum values and the percentiles. Looking at the Minimum and Maximum values, the values that are unexpectedly large and small. There is also positive skewness as well as high peakedness in the expenditure.

Figures 4.1-4.4 was used to further explain the descriptive statistics as well as view the distribution of expenditure data. Figures 4.1 and 4.2 shows the log logistic and

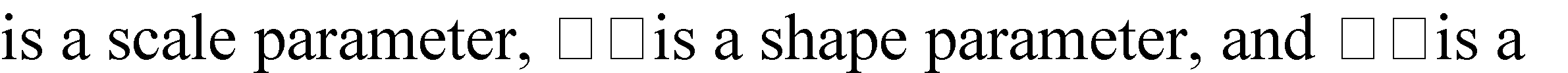
lognormal distribution. Figures 4.3 and 4.4 also shows the frechet and gamma distributions respectively.

Table 4.4 shows the frequency distribution of per capita expenditure. The table presents the bin, frequency and cumulative percentage of per capita expenditure.

Table 4.1 : Fitted Distributions and their parameter estimates

|  |  |  |
| --- | --- | --- |
| # | **Distribution** | **Parameters** |
| 1 | Frechet | = 0.75171 = 1485.7 |
| 2 | Gamma | = 0.01408 6 |
| 3 | Log-Logistic |  |
| 4 | Lognormal |  |

location parameter.



**Table 4.2A : Goodness of Fit details for Log-Logistic distribution**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Kolmogorov-Smirnov | | | | | |
| Sample Size Statistic  P-Value Rank | 16710  0.01824  1.4805 X 10-5  1 | | | | |
| significance) | 0.2 | 0.1 | 0.05 | 0.02 | 0.01 |
| Critical Value | 0.0083 | 0.00946 | 0.01051 | 0.01174 | 0.0126 |
| Reject? | Yes | Yes | Yes | Yes | Yes |

Probability Density Function

2.4E-4

2.2E-4

2E-4

1.8E-4

1.6E-4

1.4E-4

1.2E-4

1E-4

8E-5

6E-5

4E-5

2E-5

0

0

10000

20000

x

Log-Logistic (1.4448; 2576.3)

**Figure 4.1: PROBABILITY DENSITY FUNCTION FOR LOG LOGISTIC DISTRIBUTION**

**Table 4.2B: Goodness of fit details for lognormal distribution**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Kolmogorov-Smirnov | | | | | |
| Sample Size Statistic  P-Value Rank | 16710  0.02054  1.4853 X10-6  2 | | | | |
| significance) | 0.2 | 0.1 | 0.05 | 0.02 | 0.01 |
| Critical Value | 0.0083 | 0.00946 | 0.01051 | 0.01174 | 0.0126 |
| Reject? | Yes | Yes | Yes | Yes | Yes |

2.8E-4

2.6E-4

2.4E-4

2.2E-4

2E-4

1.8E-4

1.6E-4

1.4E-4

1.2E-4

1E-4

8E-5

6E-5

4E-5

2E-5

0

0

## Probability Density Function

5000

## x

10000

Lognormal (1.239; 7.8387)

**Figure 4.2: PROBABILITY DENSITY FUNCTION FOR LOGNORMAL DISTRIBUTION**

**Table 4.2C : Goodness of Fit details for Frechet distribution**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Kolmogorov-Smirnov | | | | | |
| Sample Size Statistic  P-Value Rank | 16710  0.08516  0  3 | | | | |
| significance) | 0.2 | 0.1 | 0.05 | 0.02 | 0.01 |
| Critical Value | 0.0083 | 0.00946 | 0.01051 | 0.01174 | 0.0126 |
| Reject? | Yes | Yes | Yes | Yes | Yes |

4E-4

3.6E-4

3.2E-4

2.8E-4

2.4E-4

2E-4

1.6E-4

1.2E-4

8E-5

4E-5

0

# Probability Density Function

0 2000

4000

6000

# x

8000

10000

12000

Frechet (0.74514; 1337.2)

**Figure 4.3: PROBABILITY DENSITY FUNCTION FOR FRECHET DISTRIBUTION**

**Table 4.2D : Goodness of Fit details for Gamma distribution**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Kolmogorov-Smirnov | | | | | |
| Sample Size Statistic  P-Value Rank | 16710  0.09731  0  7 | | | | |
| significance) | 0.2 | 0.1 | 0.05 | 0.02 | 0.01 |
| Critical Value | 0.0083 | 0.00946 | 0.01051 | 0.01174 | 0.0126 |
| Reject? | Yes | Yes | Yes | Yes | Yes |

### Probability Density Function

3.2E-4

2.8E-4

2.4E-4

2E-4

1.6E-4

1.2E-4

8E-5

4E-5

#### 0

0 10000

20000

### x

#### 30000

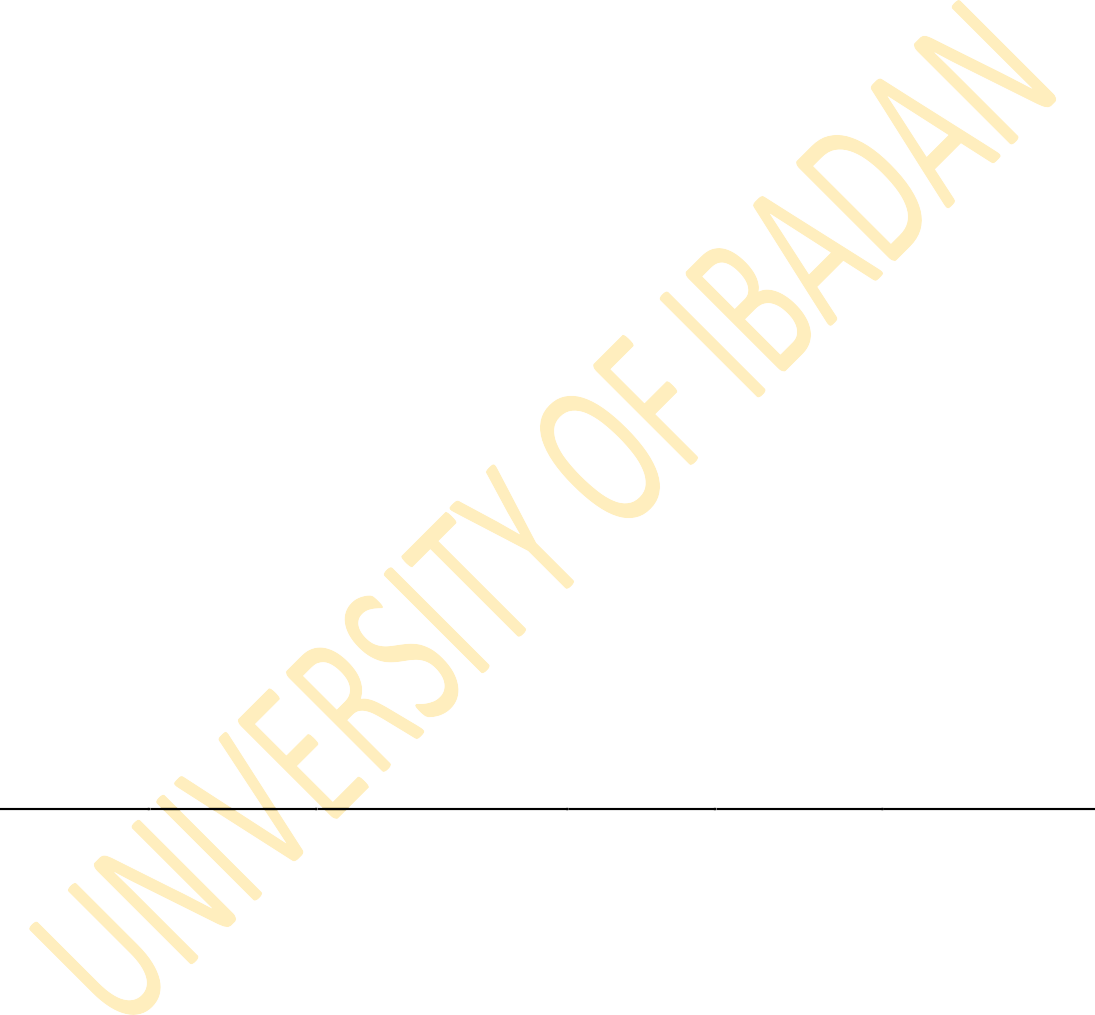
Gamma (0.78233; 6939.6)

Figure 4.4: PROBABILITY DENSITY FUNCTION FOR GAMMA DISTRIBUTION

**Table 4.3: Descriptive Statistics for per capita expenditure in Nigeria**

|  |  |  |  |
| --- | --- | --- | --- |
| **Statistic** | **Value** | **Percentile** | **Value** |
| Sample Size | 16710 | Min | 0 |
| Range | 8.5764 x 105 | 5% | 333.33 |
| Mean | 5420.6 | 10% | 550 |
| Variance | 2.0461 x 108 | 25% (Q1) | 1166.7 |
| Std. Deviation | 14304.0 | 50% (Median) | 2550 |
| Coef. of Variation | 2.6389 | 75% (Q3) | 5750 |
| Std. Error | 110.66 | 90% | 11700 |
| Skewness | 28.321 | 95% | 18000 |
| Excess Kurtosis | 1286.6 | Max | 8.5764 x 105 |

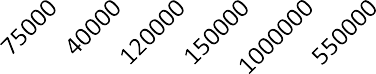
Q1 =25th percentile, Q2 = median, Q3 = 75th percentile

**Table 4.4: Frequency Distribution of per capita expenditure**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Bin* | *Frequency* | *Cumulative %* | *Bin* | *Frequency* | *Cumulative %* |
| 1000 | 3651 | 21.85% | 5000 | 8304 | 49.70% |
| 5000 | 8304 | 71.55% | 1000 | 3651 | 71.55% |
| 10000 | 2697 | 87.69% | 10000 | 2697 | 87.69% |
| 15000 | 923 | 93.21% | 15000 | 923 | 93.21% |
| 20000 | 462 | 95.98% | 20000 | 462 | 95.98% |
| 25000 | 220 | 97.29% | 25000 | 220 | 97.29% |
| 30000 | 143 | 98.15% | 30000 | 143 | 98.15% |
| 35000 | 81 | 98.64% | 35000 | 81 | 98.64% |
| 40000 | 44 | 98.90% | 75000 | 67 | 99.04% |
| 50000 | 63 | 99.28% | 50000 | 63 | 99.41% |
| 75000 | 67 | 99.68% | 40000 | 44 | 99.68% |
| 100000 | 27 | 99.84% | 100000 | 27 | 99.84% |
| 120000 | 10 | 99.90% | 120000 | 10 | 99.90% |
| 150000 | 3 | 99.92% | 200000 | 6 | 99.93% |
| 200000 | 6 | 99.95% | 150000 | 3 | 99.95% |
| 250000 | 1 | 99.96% | 500000 | 3 | 99.97% |
| 300000 | 0 | 99.96% | 1000000 | 3 | 99.99% |
| 500000 | 3 | 99.98% | 250000 | 1 | 99.99% |
| 550000 | 1 | 99.98% | 550000 | 1 | 100.00% |
| 1000000 | 3 | 100.00% | 300000 | 0 | 100.00% |
| More | 0 | 100.00% | More | 0 | 100.00% |

**Frequency**

**Figure 4.5: HISTOGRAM OF PER CAPITA EXPENDITURE**



**Bin**

0.00%

0

1000

20.00%

2000

3000 40.00%

Frequency

Cumulative %

4000

60.00%

5000

80.00%

6000

7000

100.00%

8000

120.00%

9000

**Histogram**

* 1. **Poverty Line Estimation**

The poverty line using the proposed method, median of per capita expenditure (MPCE) was computed as well as the corresponding poverty line using two – third mean per capita expenditure (TMPCE) to estimate cost of living with respect to food and non food consumption in Nigeria. The MPCE was N2, 550.00 while the Two- third Mean Per Capita Expenditure (TMPCE) was N3, 613.75 per month respectively. The proportion of the poor was 50.1% using MPCE but rose to 61.6% when TMPCE was used.

Table 4.5 shows the poverty line for the states using MPCE and TMPCE respectively. Poverty lines obtained for the states in Nigeria varied across states and sectors (urban and rural), this provides justification for the use of state specific poverty line. The use of a single poverty line for all states would lead to under estimation of poverty in some states and over estimation in some others.

With MPCE, the result shows that Katsina state has the lowest poverty line of N1150.00 per month, and FCT has the highest poverty line of N5857.14 per month. TMPCE also shows that Ogun state has the lowest poverty line of N1438.21 per month, and FCT have the highest poverty line of N8417.54 per month.

Poverty lines for the states in the south east (Anambra, Imo, and Abia) and south south (Akwaibom, Bayelsa, and Delta) were generally higher than the poverty lines for the states in the Northern zones and South western zone.

These poverty lines are reflections of the cost of living with respect to food and non food consumptions in the states.

This result shows that TMPCE assigned higher Poverty lines to the states than MPCE.

Table 4.5: States with their poverty lines using MPCE and TMPCE

|  |  |  |
| --- | --- | --- |
| **State** | **Poverty line (MPCE)** | **Poverty line (TMPCE)** |
| **Abia** | 3833.333 | 4405.666 |
| **Adamawa** | 3866.667 | 5020.876 |
| **Akwa ibom** | 4900 | 5142.63 |
| **Anambra** | 5300 | 6211.144 |
| **Bauchi** | 2225 | 2443.177 |
| **Bayelsa** | 5200 | 5648.84 |
| **Benue** | 2737.5 | 4115.983 |
| **Borno** | 2000 | 2576.279 |
| **Cross\_rivers** | 2500 | 2988.814 |
| **Delta** | 4500 | 5935.646 |
| **Ebonyi** | 1900 | 2296.196 |
| **Edo** | 3000 | 3974.204 |
| **Ekiti** | 1500 | 2339.136 |
| **Enugu** | 2950.833 | 5863.844 |
| **Gombe** | 2575 | 2869.408 |
| **Imo** | 4183.333 | 6245.927 |
| **Jigawa** | 2066.667 | 2353.158 |
| **Kaduna** | 2505 | 2953.126 |
| **Kano** | 2250 | 2640.481 |
| **Katsina** | **1150** | 1772.845 |
| **Kebbi** | 2700 | 3024.582 |
| **Kogi** | 2187.5 | 3514.612 |
| **Kwara** | 1716.667 | 3203.053 |
| **Lagos** | 3800 | 5450.926 |
| **Nassarawa** | 2800 | 3069.572 |
| **Niger** | 4966.667 | 5543.891 |
| **Ogun** | 1158.333 | **1438.208** |
| **Ondo** | 1600 | 2417.11 |
| **Osun** | 2071.429 | 2421.271 |
| **Oyo** | 2000 | 3659.112 |
| **Plateau** | 2416 | 3600.091 |
| **Rivers** | 5500 | 5976.527 |
| **Sokoto** | 2400 | 2758.682 |
| **Taraba** | 2312 | 2819.496 |
| **Yobe** | 2800 | 3641.282 |
| **Zamfara** | 1883.333 | 2206.91 |
| **FCT** | **5857.143** | **8417.54** |

* 1. **: Difference in poverty proportion**

Using the difference in proportion and assuming large sample, Z = 2.963 and P <

0.003 for the highest poor state, Katsina and the lowest poor state, Anambra state using the MPCE, while Z =1.188 and P < 0.246 for the highest poor state and the lowest poor state using TMPCE.

* 1. : Distribution of Poverty (Incidence, Depth, and Severity of poverty) for Nigeria as well as the states and sectors

The result of the Foster, Greer and Thorbeck poverty index, shows that at national level, the poverty headcount, Poverty gap, and severity of poverty are 0.501, 0.260, and 0.171 respectively using the median per capita expenditure (MPCE) and 0.616,

0.349 and 0.181, respectively using two-third mean per capita expenditure (TMPCE). This means that while approximately, 50 percent of the population was in poverty, 26% of the poverty line would be needed to lift the poor to or above the poverty line using the proposed method, (MPCE), the proportion rose to 62%, and 35% of the poverty line to move the poor to or above the poverty line using the conventional method, (TMPCE).

Tables 4.6 presents the FGT poverty index for 36 states and FCT using MPCE and TMPCE respectively. The result of MPCE shows highest poverty incidence in Katsina states with 53% of the population in poverty and lowest poverty proportion in Anambra state with 43%. This implies that 43 per cent of the population were in poverty. It can also be seen that the depth of poverty was highest in Zamfara state 46%.This implies that 46 per cent of the poverty line will be needed to lift those in poverty above or to the poverty line, and lowest depth of poverty in Anambra state,18% , also implying that 18 per cent of the poverty line will be needed to lift those in poverty above or to the poverty line. Also severity of poverty was highest in Zamfara state (28%) and lowest in Anambra state (10%).

TMPCE shows highest poverty proportion in Kwara states with 73% of the population in poverty and lowest proportion in Anambra state with 48% of the population in poverty. Also, it can be seen that the depth of poverty was highest in Kaduna state with 54%, meaning that 55 per cent of the poverty line will be needed to lift those in poverty, above or to the poverty line, and lowest, 21% in Akwa ibom state, also

meaning that 21 per cent of the poverty line will be needed to lift those in poverty above or to the poverty line. The severity of poverty was highest in Enugu state, 33% and lowest in Akwa ibom state, 12%.

Poverty lines, poverty proportions, poverty depth and poverty severity in the states using MPCE and TMPCE are further illustrated in figures 4.6 - 4.13.

Table 4.7 and 4.8 present the urban and rural distribution of poverty for the states, it shows that Ondo state had highest urban poverty proportion (52%) while Oyo had lowest (49%) urban proportion. Cross-river had the highest rural poverty proportion (53%) while Anambra had the lowest (36%) rural proportion. The urban poverty depth was highest in Borno state (32%), i.e. 32 per cent of the poverty line will be required to lift those in poverty above or to the poverty line and lowest in Akwa Ibom state (22%), only 22 per cent of the poverty line to lift those in poverty above or to the poverty line. The highest rural poverty depth of poverty was in Enugu (33%), i.e 33 per cent of the poverty line to lift those in poverty above or to the poverty line and the lowest was in Imo state (17%), only 17 per cent of the poverty line to lift those in poverty above or to the poverty line. Highest urban poverty depth was in Borno (31%), 31 per cent of the poverty line to lift those in poverty above or to the poverty line and the lowest was in Ebonyi (16%), only 16 per cent of the poverty line to lift those in poverty above or to the poverty line. Highest severity of poverty was in Enugu state (25%) and the lowest was in Imo state (9%).

Table 4.6: Distribution of poverty (Incidence, Depth, and Severity of poverty) using MPCE and TMPCE for the states

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | MPCE | | | TMPCE | | |
| **State** | p(0) | p(1) | p(2) | p(0) | p(1) | p(2) |
| **Abia** | 0.497283 | 0.235352 | 0.143503 | 0.548913 | 0.273085 | 0.170595 |
| **Adamawa** | 0.501916 | 0.264136 | 0.168746 | 0.605364 | 0.331251 | 0.222109 |
| **Akwa ibom** | 0.469484 | 0.19674 | 0.103443 | 0.502347 | **0.21054** | **0.125533** |
| **Anambra** | **0.429234** | **0.178012** | **0.098707** | **0.483221** | 0.218219 | 0.125833 |
| **Bauchi** | 0.5 | 0.241486 | 0.152896 | 0.538 | 0.268979 | 0.172309 |
| **Bayelsa** | 0.47451 | 0.24835 | 0.169069 | 0.529412 | 0.278064 | 0.18955 |
| **Benue** | 0.5 | 0.265031 | 0.172737 | 0.631481 | 0.367073 | 0.256077 |
| **Borno** | 0.511521 | 0.296645 | 0.2131 | 0.56682 | 0.351038 | 0.258015 |
| **Cross\_rivers** | 0.479592 | 0.219781 | 0.133242 | 0.540816 | 0.24353 | 0.204.314657024 |
| **Delta** | 0.501538 | 0.235003 | 0.142955 | 0.593846 | 0.309978 | 0.199296 |
| **Ebonyi** | 0.467611 | 0.236736 | 0.149421 | 0.530364 | 0.282137 | 0.18474 |
| **Edo** | 0.507553 | 0.250521 | 0.161037 | 0.55287 | 0.319815 | 0.215977 |
| **Ekiti** | 0.506796 | 0.303529 | 0.229529 | 0.648544 | 0.403468 | 0.305459 |
| **Enugu** | 0.498952 | 0.286081 | 0.196853 | 0.704403 | 0.45057 | **0.336899** |
| **FCT** | 0.5 | 0.254499 | 0.161543 | 0.583012 | 0.269743 | 0.159318 |
| **Gombe** | 0.492278 | 0.217035 | 0.121876 | 0.633197 | 0.360659 | 0.248141 |
| **Imo** | 0.5 | 0.258753 | 0.165395 | 0.56378 | 0.266804 | 0.161657 |
| **Jigawa** | 0.491339 | 0.215585 | 0.126063 | 0.552756 | **0.536318** | 0.32947 |
| **Kaduna** | 0.489764 | 0.444519 | 0.265086 | 0.589606 | 0.301478 | 0.192641 |
| **Kano** | 0.498208 | 0.246888 | 0.150739 | 0.645161 | 0.377256 | 0.26285 |
| **Katsina** | **0.527231** | 0.251237 | 0.161204 | 0.547619 | 0.288614 | 0.187859 |
| **Kebbi** | 0.505495 | 0.260224 | 0.165724 | 0.683186 | 0.36592 | 0.243961 |
| **Kogi** | 0.500885 | 0.235736 | 0.140606 | **0.738722** | 0.417355 | 0.280235 |
| **Kwara** | 0.50188 | 0.225946 | 0.134235 | 0.628032 | 0.368058 | 0.265991 |
| **Lagos** | 0.504043 | 0.280303 | 0.200104 | 0.546296 | 0.269813 | 0.16804 |
| **Nassarawa** | 0.501852 | 0.245238 | 0.149921 | 0.573896 | 0.290691 | 0.188158 |
| **Niger** | 0.50096 | 0.261982 | 0.166446 | 0.581114 | 0.325909 | 0.225633 |
| **Ogun** | 0.48184 | 0.251765 | 0.168303 | 0.634387 | 0.393062 | 0.293511 |
| **Ondo** | 0.503953 | 0.303051 | 0.21806 | 0.595122 | 0.336372 | 0.241967 |
| **Osun** | 0.512195 | 0.284262 | 0.202724 | 0.591078 | 0.425572 | 0.330857 |
| **Oyo** | 0.510052 | 0.299558 | 0.218774 | 0.648438 | 0.356841 | 0.242242 |
| **Plateau** | 0.501953 | 0.251161 | 0.159151 | 0.56682 | 0.262067 | 0.16044 |
| **Rivers** | 0.511521 | 0.237525 | 0.143416 | 0.573333 | 0.268635 | 0.159642 |
| **Sokoto** | 0.508571 | 0.223968 | 0.128034 | 0.606 | 0.308463 | 0.197232 |
| **Taraba** | 0.5 | 0.243965 | 0.149659 | 0.614481 | 0.324292 | 0.214915 |
| **Yobe** | 0.510763 | 0.253252 | 0.162328 | 0.570423 | 0.283233 | 0.17705 |
| **Zamfara** | 0.484155 | **0.462406** | **0.287846** | 0.646154 | 0.355943 | 0.238251 |

P(0) = poverty headcount, p(1) = depth of poverty, p(2) = severity of poverty

**Table 4.7: Distribution of poverty by urban sector (Median per capita**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **State** | **p(0)** | **p(1)** | **p(2)** | **Poverty line** |
| Abia | 0.5 | 0.235562 | 0.145697 | 4183.333 |
| Adamawa | 0.501241 | 0.256971 | 0.16241 | 4371.667 |
| Akwa ibom | 0.5 | 0.224027 | 0.123601 | 5587.5 |
| Anambra | 0.503906 | 0.288796 | 0.131359 | 6700 |
| Bauchi | 0.501155 | 0.248365 | 0.15851 | 2425 |
| Bayelsa | 0.5 | 0.252901 | 0.172354 | 6645.833 |
| Benue | 0.502041 | 0.248244 | 0.156532 | 3166.667 |
| Borno | 0.504695 | 0.314124 | 0.233135 | 2350 |
| Cross\_rivers | 0.5 | 0.244156 | 0.152958 | 2945.833 |
| Delta | 0.5 | 0.248495 | 0.153705 | 5166.667 |
| Ebonyi | 0.5 | 0.175024 | 0.169237 | 2125 |
| Edo | 0.5 | 0.225637 | 0.135034 | 2721.667 |
| Ekiti | 0.508658 | 0.302536 | 0.224332 | 1700 |
| Enugu | 0.501587 | 0.282681 | 0.195117 | 2960 |
| Gombe | 0.504451 | 0.225524 | 0.129583 | 3200 |
| Imo | 0.5 | 0.264156 | 0.171927 | 4812.5 |
| Jigawa | 0.500982 | 0.233086 | 0.140961 | 2500 |
| Kaduna | 0.500994 | 0.238595 | 0.14678 | 3053 |
| Kano | 0.5 | 0.236534 | 0.141485 | 2725 |
| Katsina | 0.5 | 0.254771 | 0.160666 | 1442.857 |
| Kebbi | 0.5 | 0.253047 | 0.158558 | 3270.833 |
| Kogi | 0.500921 | 0.243186 | 0.147124 | 2640 |
| Kwara | 0.499006 | 0.233038 | 0.140702 | 2071.429 |
| Lagos | 0.50495 | 0.285002 | 0.202437 | 4000 |
| Nassarawa | 0.501211 | 0.243706 | 0.14814 | 3375 |
| Niger | 0.504587 | 0.264233 | 0.169389 | 6250 |
| Ogun | 0.502717 | 0.273439 | 0.191132 | 1300 |
| Ondo | 0.517621 | 0.307505 | 0.224564 | 2000 |
| Osun | 0.503448 | 0.262499 | 0.176805 | 2125 |
| Oyo | 0.49363 | 0.288696 | 0.213872 | 2233.333 |
| Plateau | 0.509025 | 0.256906 | 0.164363 | 3000 |
| Rivers | 0.5 | 0.258653 | 0.172032 | 5520 |
| Sokoto | 0.5 | 0.255245 | 0.165026 | 2550 |
| Taraba | 0.506266 | 0.237463 | 0.142219 | 2560 |
| Yobe | 0.5 | 0.251259 | 0.160397 | 3658.333 |
| Zamfara | 0.502033 | 0.237806 | 0.142368 | 2800 |
| FCT | 0.5 | 0.27463 | 0.178176 | 7880 |

**Table 4.8: Distribution of poverty by rural sector (Median per capita**

**expenditure)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **State** | **Poverty line** | **p(0)** | **p(1)** | **p(2)** |
| **Abia** | 3633.333 | 0.5 | 0.220221 | 0.123937 |
| Adamawa | 6000 | 0.520661 | 0.280757 | 0.191827 |
| Akwa ibom | 7500 | 0.532258 | 0.236045 | 0.13273 |
| Anambra | 8666.667 | 0.365854 | 0.263987 | 0.16529 |
| Bauchi | 3320 | 0.507463 | 0.270687 | 0.172401 |
| Bayelsa | 5014.286 | 0.454545 | 0.184903 | 0.125423 |
| Benue | 4333.333 | 0.490566 | 0.306137 | 0.2211 |
| Borno | 2500 | 0.421053 | 0.215747 | 0.145979 |
| Cross\_rivers | 2375 | 0.533333 | 0.163021 | 0.098903 |
| Delta | 6175 | 0.515152 | 0.232749 | 0.130551 |
| Ebonyi | 3198.333 | 0.5 | 0.236233 | 0.152242 |
| Edo | 3783.333 | 0.496855 | 0.2435 | 0.16074 |
| Ekiti | 1466.667 | 0.5 | 0.312846 | 0.242232 |
| Enugu | 3175 | 0.5 | 0.332171 | 0.254599 |
| Gombe | 3166.667 | 0.502513 | 0.209529 | 0.119749 |
| Imo | 4000 | 0.52381 | 0.161729 | 0.091876 |
| Jigawa | 2325 | 0.507246 | 0.211816 | 0.119136 |
| Kaduna | 3178.333 | 0.5 | 0.282021 | 0.197583 |
| Kano | 2700 | 0.506329 | 0.232575 | 0.150506 |
| Katsina | 1575 | 0.5 | 0.291883 | 0.207192 |
| Kebbi | 3000 | 0.510638 | 0.218249 | 0.127681 |
| Kogi | 4233.333 | 0.483871 | 0.213113 | 0.122375 |
| Kwara | 1860.417 | 0.5 | 0.226368 | 0.130711 |
| Lagos | 4500 | 0.507246 | 0.267783 | 0.187471 |
| Nassarawa | 3325 | 0.5 | 0.212705 | 0.121635 |
| Niger | 5500 | 0.50116 | 0.250392 | 0.158028 |
| Ogun | 916.6667 | 0.5 | 0.304311 | 0.237204 |
| Ondo | 2100 | 0.505747 | 0.280838 | 0.205669 |
| Osun | 2733.333 | 0.5 | 0.286639 | 0.208165 |
| Oyo | 2400 | 0.507692 | 0.314936 | 0.243641 |
| Plateau | 2540.5 | 0.504167 | 0.235123 | 0.138551 |
| Rivers | 6350 | 0.51087 | 0.203079 | 0.105551 |
| Sokoto | 2725 | 0.5 | 0.20468 | 0.109067 |
| Taraba | 3500 | 0.504274 | 0.265772 | 0.167477 |
| Yobe | 3875 | 0.5 | 0.258565 | 0.16897 |
| Zamfara | 3416.667 | 0.5 | 0.234614 | 0.135313 |
| FCT | 6666.667 | 0.515152 | 0.202406 | 0.10489 |

* 1. **: Bootstrap simulation**

Tables 4.9 shows the descriptive statistics of bootstrap simulation of poverty head count using median per capita and two-third mean per capita expenditure respectively. The table shows the mean, standard error, median, mode, standard deviation, sample variance, kurtosis, skewness and range. Emphasis was on the variances which was used to measure precision estimates. The precision estimate (variances) obtained through the bootstrap simulation was 2.49637 x 10-05 for the median method and 9.77929 x 10-05 for the two-third of mean per capita expenditure.

The relative gain in efficiency of the median method over two-third of mean method was 25%.

**Table 4.9: Descriptive statistics of bootstrap simulation (using MPCE and TMPCE)**

|  |  |  |
| --- | --- | --- |
|  | **MPCE** | **TMPCE** |
| Mean | 0.25617189 | 0.52956734 |
| Standard Error | 0.000485291 | 0.000312719 |
| Median | 0.25525 | 0.52948905 |
| Mode | #N/A | #N/A |
| Standard Deviation | 0.004996373 | 0.009889028 |
| Sample Variance | 2.49637E-05 | 9.77929E-05 |
| Kurtosis | 0 | 0.021707515 |
| Skewness | 0.379010818 | 0.090130421 |
| Range | 0.023333333 | 0.060734991 |
| Minimum | 0.246666667 | 0.501590124 |
| Maximum | 0.27 | 0.562325115 |
| Sum | 27.1542203 | 529.5673403 |
| Count | 106 | 1000 |
|  |  |  |

##### CHAPTER FIVE

FINDINGS AND SUMMARY, LIMITATIONS AND RECOMMENDATIONS

* 1. Findings and Summary

Among the distributions fitted to the per capita expenditure, log logistic distribution with parameter estimates (  =1.0452,  =3169.2) with (p-value, < 0.0000014805) performed best. The results indicate the plausibility of Log logistic probability density function to poverty estimation in the states of Nigeria, The Log logistic distribution can be used to model per capita expenditure in Nigeria

From the descriptive statistics for fitting the distributions to per capita expenditure in Nigeria, the Minimum and Maximum values are unexpectedly large and small. In other words, there are outliers in the data set. The sampling distribution of expenditure data is positively skewed, high peaked and also unimodal. The measure of variability in the expenditure was high. All the above description indicates that the expenditure data are not normally distributed and also the mean is not the best value to report or describe the central tendency of expenditure data.

Poverty line estimate of N2, 550.00 obtained using the new approach as proposed in the research work (MPCE) was lower compared to N3,613.75, obtained using the two-third of mean per capita expenditure method (TMPCE). This is as a result of the extreme values / outliers present in the data set, which was not considered by mean.

Poverty lines obtained for the states in Nigeria varied across states and sectors (urban and rural). This provides justification for the use of state specific poverty line. The use of a single poverty line for all states would lead to under estimation of poverty in some states and over estimation in some others.

Using MPCE, Katsina state had the lowest poverty line of N1150.00 per month, and FCT had the highest poverty line of N5857.14 per month. Also with TMPCE, poverty line also varied across the state with Ogun state having the lowest poverty line of N1438.21 per month, and FCT have the highest poverty line of N8417.54 per

month. These poverty lines are reflections of the cost of living with respect to food and non food consumption in the states.

The result shows that majority of the states in the Northern region like Zamfara, Taraba, Sokoto, Katsina, Kano, Kano, Jigawa, Borno, and Bauchi states had poverty lines lower than the national poverty line, while majority of the states in the southern region like Bayelsa, Anambra, Rivers, Akwa ibom, Delta, Imo, and Abia states had poverty lines above the national poverty line.

From the research, poverty proportion for Nigeria is 50.1%. This implies that approximately half of Nigerian population were in poverty using MPCE method while using TMPCE the poverty proportion is 61.6%, this also implies that the approximately 62% of Nigeria population were living in poverty.

Poverty depth of 0.260 implies that 26 per cent of the poverty line would be needed to lift the poor to or above the poverty line using the proposed method, (MPCE), also,

0.349 implies that approximately 35 per cent of the poverty line to move the poor to or above the poverty line using the conventional method, (TMPCE).

Poverty incidence was higher in the Katsina, Yobe and Borno. Also depth of poverty was highest in Zamfara state and also high in Kaduna state .High poverty incidence and depths were also found in states like: Osun, Oyo and Rivers states.

In this work, it was confirmed that poverty incidence was higher in rural sectors than in the urban sectors as suggested by Oshewolo, Seun (2010), NBS report, (2010), and host of other researchers that have worked on different aspects of poverty. The result shows that Poverty line was also higher in the urban sectors than in the rural sectors.

The precision estimate (variances) obtained through the bootstrap simulation gave 2.49637 x 10-05 for the MPCE method and 9.77929 x 10-05 for the TMPCE. This shows clearly that the MPCE is more efficient than the TMPCE

Using the difference in proportion and assuming large sample, Z = 2.963 and P <

0.003 for the highest poor state, Katsina and the lowest poor state, Anambra state using the MPCE, also Z =1.188 and P < 0.246 for the highest poor state and the

lowest poor state using TMPCE. The difference was highly significant using the proposed method, while with TMPCE, the difference was not significant.

The frequency distribution of per capita expenditure also revealed that majority of wealth in Nigeria is in the hands of few individuals. In other words, there is inequality in expenditure pattern. This is an iniquitous practice, which the Nigerian state must redress.

From the result bootstrap simulation and the relative gain in efficiency, it can be seen that the median rather than two-third of mean per capita expenditure is a better method for measuring poverty.

The inevitable conclusion from the foregoing is that for improved precision of poverty measurement in Nigeria, median per capita expenditure (MPCE) method would be a better approach.

* 1. Limitations
     1. There was no availability of recent data as at the time of this research, thus the result is based on the most recent data that was available.
     2. The survey data (GHS) used for the research work did not dwell much on food related information, thereby restricting exploration level of the research work
  2. Contributions of the Study
     1. The study showed the log logistic distribution to be the appropriate probability density for fitting expenditure data for poverty analysis
     2. That median per capita expenditure was better than two-third mean per capita expenditure in computing a poverty line.
     3. That a single poverty line fails to capture the level of poverty in all the states: derived state-specific poverty lines.
     4. Estimated 50.1 percent of Nigerians to be grappling with poverty and 26 per cent of the poverty line to move the poor to or above the poverty line.
     5. Confirmed that the poor were still more in the rural than in the urban areas of Nigeria.
  3. Recommendations
* The ideas presented in this study should be extended in a multivariate setting since poverty is perceived to be multidimensional.
* Researchers have concentrated on poverty analysis leaving the related issues on inequality and vulnerability. The ideas presented on this study should be extended to these areas as well.
* Further research should be carried out using MPCE method as well as with

recent data in order to have update of the poverty situation in Nigeria. This will aid the Nigerian Nation in achieving the 1st Millennium Development goal by the year 2015.

##### REFERENCES

**Aboyade, O. 1975.** On the need for an operational specification of poverty in the Nigerian economy. Proceedings of the Annual Conference of the Nigerian Economic Society (NES). Ibadan pp25-34

**Adesopo, A. 2008.** The Poverty Question and the National Anti-Poverty Programmes in Nigeria. In K. Ajayi (Ed.), Public Administration and Public Policy Analysis in Nigeria (pp. 213-227). Abuja: Panaf Publishing Inc.

**Adeyeye, V.A 1987** Rural Crisis in Nigeria: Increase in Food Deficits, Decline in Real Income and widespread Rural Poverty” paper presented at the second 1987 NISER Seminar series, Jan. 28

**Adeyeye, V.A 1999** Designing Social Safety Nets for Rural Poor: Conceptual Issues Evidence and Policy choices for Developing Countries Memio NISER, Ibadan.

**African Development Bank (ADB). 2002.** Achieving the Millennium Development Goals in Africa: Progress, Prospects, and Policy Implications.

**Ajakaiye, D.O and V.A Adeyeye 1998.** concepts, measurement and causes of poverty. EFRVOL39*-*4*-*5

**Ajakaiye, D .O and V.A. Adeyeye 2001.** The Nature of Poverty in Nigeria.

Technical Report, NISER, Ibadan

**Ajakaiye, O. 2002.** Overview of the Current Poverty Eradication Programme in Nigeria. In A. Jega & H. Wakili (Eds.), The Poverty Eradication Programmes in Nigeria: Problems and Prospects, (pp 8-33). CDRT, Kano.

**Aigbokhan, B.E. 2008.** Poverty, Growth and Inequality in Nigeria: A Case Study.

African Economic Research Consortium (AERC). Nairobi, Kenya.

**Aluko, S. 1975.** Poverty: Its remedies in Poverty in Nigeria. The Nigerian Economic Society, Ibadan.

**Amartya, K. 1976**. Poverty: An Ordinal Approach to Measurement, Econometrica 46:437-446.

**Amartya, K. 1983**, Poor Relatively Speaking, Oxford Economic Papers 35.

**Amartya, K. 1987.** The standard of Living. Cambridge University Press. Silver. H.

**Amartya, K. 1994.** Social Exclusion and Social Security: Three Paradigms, International Institute for Labour Studies. Discussion Paper Geneva.

**Anakor, F.C.2005.** Characterization of poverty in Nigeria: unpublished Masters project: Department of Statistics, University of Ibadan.

**Anyanwu, J.C. 1997.** Poverty Concepts, Measurement and Determinants Proceeding of NES conference on Poverty Alleviation in Nigeria, Dept of Economics, University of Ibadan, Ibadan

**Asen, R. 2002.** Visions of Poverty: Welfare Policy and Political Imagination. East Lansing: Michigan State University Press.

**Ashkar, Fahim; Mahdi, Smail 2006.** Fitting the log-logistic distribution by generalized moments, **328** (3–4): 694–703.

**Asra, Abuzar and Vivian Santos-Francisco 2001.** Poverty Line: Eight Countries‟ Experiences and the Issue of Specificity and Consistency, ADB Poverty Forum.

**Atikson and Bourguignon 1999.** Absolute poverty, relative deprivation and social exclusion Villa Borsig Workshop Series 1999 Inclusion, Justice, and Poverty Reduction

**Awa, E. O. 1983.** Teaching Political Science in African Universities: A Problem Solving Approach. In Y. Barongo (ed), Political Science in Africa (pp. 27-37). United Kingdom: Zed Press Plc.

**Bidani, Benu; Gaurav Datt; Jean Olsen Lanjouw and Peter Lanjouw 2001.** Specifying Poverty Lines: How and Why. Paper presented at the Asia and Pacific Forum on Poverty: Reforming Policies and Institutions for Poverty Reduction, Asia Development Bank, Manila, 5-9 February.

**Bennett, Steve 1983.** Log-Logistic Regression Models for Survival Data: Applied Statistics (Journal of the Royal Statistical Society. Series C (Applied Statistics), Vol. 32, No. 2) **32** (2): 165–171.

**Blakely, E. J., & Bradshaw, T. K. 2002.** Planning Local Economic Development.

Thousand Oaks: Sage. Theory and practice (3rd ed. ed.) California

**Blank, R. M. 1997.** It Takes a Nation: A New Agenda for Fighting Poverty.

Princeton NJ: Princeton University Press.

**Blank, R. M. 2003.** Selecting Among Anti-Poverty Policies: Can an Economics Be Both Critical and Caring? Review of Social Economy, 61(4), 447-471.

**Blackwood and Lynch 1994** The Measurement of Inequality and Poverty: A Policy Maker‟s Guide to the Literature”, World development 22 (4): 567-578

**Bradshaw, T.K.2006.** Theories of Poverty and Anti-Poverty Programs in Community Development. RPRC Working Paper No. 05-06.

**Campbell, D. & Wright, J. 2005.** Rethinking Welfare School Attendance Policies.

Social Service Review, 79(1), 2-28.

**Canagarajah et al 1997.** The Evolution of Poverty and Welfare Assessment In Nigeria, Background Document, No 1715 (Jan), World Bank, Washington D.C.

**CBN/NISER 1992.** The Impact of SAP on Nigerian Agriculture and Rural Life.

CBN/NISER Publication, NISER, Ibadan

**Chubb, J. E. & Moe, T. M. 1996**. Politics, markets, and equality in schools: Reducing Poverty in America: Views and Approaches (pp. 121-153). Thousand Oaks: Sage.

**Citron, Constance F. and Michael, Robert T. 1995**, Measuring Poverty: A new Approach. Washington DC: National Academy Press.

**Deaton, Angus 1992.** Understanding Consumption Oxford University Press.

**Darby, M. R. 1996.** Facing and Reducing Poverty. in M. R. Darby (ed), Reducing Poverty in America: Views and Approaches (pp. 3-12). Thousand Oaks, California: Sage.

**Dasgupta, P. 1993.** An Injury into well-being and Destitution, Oxford Clarendan Press.

**Deepa Narayan et al 1999** Can anyone hear us? Voices of 47 Countries: Poverty Group, PREM,WorldBank Vol 1.

**Demery L. and L. Squire (1996)** Macroeconomic Adjustment and Poverty in Africa: An Emerging Picture” World Bank Research Observer.

**Doessel and Gounder, 1994.** Theory and Measurement of Living Levels: Some Empirical Result for the Human Development Index: Journal of International Development 6 (4) : 415-435.

**Dreze and Sen 1990.** Hunger and public Action, Oxford University Press, USA, Sep 6, 1990 - 398 pages.

**Duangkamon Chotikapanich & William E Griffiths 2008**. Estimating Income Distributions Using a Mixture of Gamma Densities.

**Duncan, C. M. 1999.** Worlds Apart: Why Poverty Persists in Rural America. New Haven: Yale University Press.

**Echebiri, R. N. 1997.** The Structure of Income, Inequality and Poverty in Rural Southeastern Nigeria. Proceedings of the 1997 Annual Conference of the Nigerian Economic Society.

**Egendorf, L. K. Ed. 1999.** Poverty: Opposing Viewpoints. San Diego: Greenhaven Press.

**Epstein, W. M. 1997.** Welfare in America: How Social Science Fails the Poor.

Madison.

**Falconer and Arnold, 1989.** Household Food Security and Forestry: An Analysis of Socio-Economic Issues. FAO, ROME.

**Fisher and Weber, 2005.** A Critical Review of Rural Poverty Literature: Is There Truly a Rural Effect? Institute for Research on Poverty Discussion Paper no. 1309-05.

**Fisk, P.R. 1961.** The Graduation of Income Distributions: Econometrica (Econometrica, Vol. 29, No. 2) **29** (2): 171–185.

**FOS, 1996.** National consumer survey 1992/93: Abuja.

**FOS, 2004.** Draft report of Nigeria living standard survey 2003-2004, Abuja.

**Foster, James, J. Greer, and Erik Thorbecke, 1984**, A Class of Decomposable Poverty Measures: Econometrica 52:761-66.

**Gore, C. 2002.** Globalization, the International Poverty Trap and Chronic Poverty in the Least Developed Countries*.* CPRC Working Paper No. 30.

**Greer, J. and Erik – Thorbecke 1986,** A methodology for measuring food poverty applied to Kenya” Journal of Development Economics 24:59-74

**Gupta, R.D. and D. Kundu, 2001.** Exponentiated exponential family: an alternative to gamma and Weibull distributions. Biometrical J., 43: 117- 130.

**Jollife, 2004.** A Critical Review of Rural Poverty Literature: Is There Truly a Rural Effect? Institute for Research on Poverty Discussion Paper no. 1309-05.

**Kakwani, N. 2001.** On Specifying Poverty Lines. Paper presented at the Asia and Pacific Forum on Poverty: Reforming Policies and Institutions for Poverty Reduction, Asia Development Bank, Manila, 5-9 February.

**Kakwani,N.2002.** Issues in Setting Absolute Poverty Lines: Poverty and Social Development Paper No 4, July, Asian Development Bank, Manila.

**Kakwani, N. 2003b**. Official Poverty Line in Thailand: issues, methodology and Options, Development Evaluation and Communication Office, National Economic and Communication Office, National Economic and Social Development Board, Bangkok, Thailand and UNDP, Thailand.

**Kundu, D. and R.D. Gupta, 2007.** A convenient way of generating gamma random variables using generalized exponential distribution. Comput.Statist. & Data Anal., 51(6): 2796-2802.

**National Bureau of Statistics. 2010.** Nigerian Poverty Profile Report 2010 - NBS Category: Nigerian Economy.

**Nwaobi, G.C. 2003.** Solving the Poverty Crisis in Nigeria: An Applied General Equilibrium approach. Quantitative Economic Research Bureau. Gwagwalada, Abuja.

**Nwosu, A. C. and V.A Adeyeye 1989.** Are the Rural Poor Really Benefiting from SAP? Technical Report, NISER, Ibadan.

**Obadan, M. 1997** Analytical Framework for Poverty Reduction: Issue of Economic Growth versus other Strategies”: Proceedings of the Annual Conference of the Nigerian Economic Society (NES). Obaseki,P.J.Ed.Ibadan:NES,1-18.

**Obadan, M 2003.** Poverty reduction in nigeria: the way forward”: CBN publications

EFRVOL39-4-3.

**Ogwumike, F.O. 1987.** Poverty and basic needs: an approach to development In Nigeria. Ph.D Thesis. Department of Economics. University of Ibadan.

**Ogwumike, F.O. 1991.** A basic needs – oriented approach to the measurement of poverty in Nigeria. Nigerian Journal of Economic and Social Sciences (NJESS) 33.2: 105-120.

**Ogwumike, F.O. 2001.** An Appraisal of Poverty and Poverty Reduction Strategies in Nigeria. CBN Economic and Financial Review, 39(4), 45-71.

**Ogwumike, F.O. and Aromolaran, A.B. 2001.** Poverty dynamics in Nigeria. A final Report submitted to the World Bank Office.

.

**Okpe, I. J. and Abu, G. A. 2009.** Foreign Private Investment and Poverty Reduction in Nigeria (1975-2003). J. Soc. Sci., 19(3), 205-211.

**Omonona,B.T. 2001.** Poverty and its correlates among rural farming households in Kogi state, Nigeria. Ph.D Thesis. Department of Agricultural Economics. University of Ibadan.

**Omonona, B.T 2011.** Quantitative analysis of rural poverty in Nigeria” International Food Policy Research Institute (IFPRI) 17.

**Omotola, J.S. 2008.** Combating Poverty for Sustainable Human Development in Nigeria: The Continuing Struggle. Journal of Poverty, 12(4), 496-517.

**Oni et al 2011.** A capability approach to the analysis of rural household‟s well being in Nigeria. MPRA Paper No. 34508.

**Oshewole, S 2010.** Galloping poverty in Nigeria: an appraisal of the

government‟s interventionist policies Journal of Sustainable Development in Africa (Volume 12, No.6,).

**Osowole, 2011.** Modelling poverty incidence in Nigeria Ph.D Thesis.Department of Statistics. University of Ibadan.

**Osmani, Siddiqur, 1982.** Economic Inequality and Group Welfare Oxford: Oxford University Press.

**Oyekale et al 2011** Impact of poverty reduction programs on multidimensional poverty in rural Nigeria Journal of Sustainable Development in Africa Volume 13, No.6.

**Population Reference Bureau 2009.** World population Data sheet. Washington, DC Report.

**Pudji Ismartini et al 2011** Toward a Hierarchical Bayesian Framework for Modelling the Effect of Regional Diversity on Household Expenditure, Journal of Mathematics and Statistics 8 (2): 283-291, 2012.

**Ravallion, Martin, 1993.** Poverty comparisons: a guide to concept and methods. World Bank Living Standards Measurement Study Working Paper No 88.

**Ravallion, Martin and Benu Bidani 1994.** How Robust is a Poverty Profile? World Bank Economic Review 8; 75-102.

**Ravallion and Sen, 1996.** Issues in measuring and modelling poverty. The Economic Journal 106:1328-1343

**Ravallion, Martin 1998.** Poverty Lines in Theory and Practice: LSMS Working Paper No 133, The World Bank, Washington, D.C.

**Rocha, S. 1998.** On Statistical Mapping of Poverty: Social Reality, Concepts and Measurement. Background Paper.

**R. V. Hogg and A. T. Craig. 1978.** Introduction to Mathematical Statistics, 4th edition. New York: Macmillan. Section 3.3.

**Sen, A. 1977.** Starvation and Exchange Entitlement: A General Approach and Its Implications to the Great Bengal Famine: Cambridge Journal of Economics.

**S. C. Choi and R. Wette. 1969.** Maximum Likelihood Estimation of the Parameters of the Gamma Distribution and Their Bias, Technometrics, 11(4) 683–690.

**Shoukri, M.M.; Mian, I.U.M.; Tracy, D.S. 1988.** Sampling Properties of Estimators of the Log-Logistic Distribution with Application to Canadian Precipitation Data, (The Canadian Journal of Statistics / La Revue Canadienne de Statistique, Vol. 16, No. 3) **16** (3): 223–236.

**Sprinthall, Richard copyright 2003**. Basic Statistical Analysis: Seventh Edition, Pearson Education Group.

**Tadikamalla, Pandu R. 1980.** A Look at the Burr and Related Distributions", International Statistical Review (International Statistical Review / Revue Internationale de Statistique, Vol. 48, No. 3: 337–344.

**Townsend, Peter, 1985.** A sociological Approach to the Measurement of Poverty: A Rejoinder to Professor Amartya San: Oxford Economic Papers 37.

**Ulimwenga and Kraybill, 2004,** Poverty over time and location, An examination of metro – non metro differences Institute for Research on Poverty ,Discussion Paper no. 1309-05.

**Development Programme, 1990.** Human Development Report, Oxford University Press, New York.

**UNDP, 2004.** Human Development Report 2004. New York, USA **UNDP, 2005**. Human Development Report 2004. New York, USA **UNDP 2006**. Human Development Report 2004. New York, USA **UNDP 2009**. Human Development Report 2004. New York, USA

**William Beveridge, 1942.** Report of the Inter-Departmental Committee on Social Insurance and Allied Services.

**World Bank, 1990,** World Development Report, Poverty. New York: Oxford University Press.

**World Bank, 1993.** Poverty Reduction Handbook: The World Bank, Washington D.C.

**World Bank, 1995b.** Distribution and Growth: Complements Not Compromise Policy Research Bulletin 6(3), May-July6.

**World Bank, 1996a.** Taking Action for Poverty Alleviation in Sub-Saharan Africa Report of an African Task Force, May 1, World Bank, Washington D.C.

**World Bank, 1996b.** Poverty in the Midst of Plenty. The challenge of Growth with Inclusion: A World Bank Poverty Assessment, May 31.World Bank Washington D.C.

**World Bank. 2000.** Poverty in the Age of Globalization*.* Washington DC:

**World Bank 2001.** Attacking poverty New York, Oxford.

**World Bank. 2008**. World Development Report 2009.

**World Bank 2009.** Human Development Report 2004. New York, USA.

**World Health Organization, 1984.** Biomass Fuel Combination and Health: Geneva,World Health Organization.

**Zelterman, D. 1987.** Parameter estimation in the generalized logistic distribution.

Computational Statistics & Data Analysis 5, 177-184.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **APPENDIX A: EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY** | | | | | | | | | |
| **State** | **Memnum** | **Total Hhexp** | **Per capita** | **TMPCE** | | | **MPCE** | | |
| **I** | **P1** | **P2** | **I** | **P1** | **P2** |
| **Abia** | 1 | 9000 | 9000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 2 | 47000 | 23500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 1 | 8000 | 8000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 2 | 38500 | 19250 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 3 | 18400 | 6133.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 4 | 19000 | 4750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 5 | 29000 | 5800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 6 | 22000 | 3666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 7 | 13000 | 1857.143 | 1 | 0.271709 | 0.073826 | 1 | 0.486125 | 0.11488 |
| **Abia** | 8 | 17000 | 2125 | 1 | 0.166667 | 0.027778 | 1 | 0.412009 | 0.069939 |
| **Abia** | 9 | 5200 | 577.7778 | 1 | 0.77342 | 0.598179 | 1 | 0.840128 | 0.592975 |
| **Abia** | 1 | 24000 | 24000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 1 | 1600 | 1600 | 1 | 0.372549 | 0.138793 | 1 | 0.557277 | 0.173067 |
| **Abia** | 2 | 5500 | 2750 | 0 | 0 | 0 | 1 | 0.23907 | 0.013664 |
| **Abia** | 3 | 6400 | 2133.333 | 1 | 0.163399 | 0.026699 | 1 | 0.409703 | 0.068771 |
| **Abia** | 4 | 7900 | 1975 | 1 | 0.22549 | 0.050846 | 1 | 0.453514 | 0.093277 |
| **Abia** | 1 | 4800 | 4800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 2 | 2300 | 1150 | 1 | 0.54902 | 0.301423 | 1 | 0.681793 | 0.316926 |
| **Abia** | 3 | 12000 | 4000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 4 | 7550 | 1887.5 | 1 | 0.259804 | 0.067498 | 1 | 0.477726 | 0.109027 |
| **Abia** | 5 | 9400 | 1880 | 1 | 950.262745 | 0.069035 | 1 | 0.479801 | 0.110454 |

95

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Abia** | 1 | 29000 | 29000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 1 | 8400 | 8400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 3 | 7900 | 2633.333 | 0 | 0 | 0 | 1 | 0.271352 | 0.01998 |
| **Abia** | 4 | 16700 | 4175 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 5 | 16500 | 3300 | 0 | 0 | 0 | 1 | 0.086884 | 0.000656 |
| **Abia** | 6 | 11300 | 1883.333 | 1 | 0.261438 | 0.06835 | 1 | 0.478878 | 0.109819 |
| **Abia** | 1 | 7700 | 7700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 2 | 7200 | 3600 | 0 | 0 | 0 | 1 | 0.003874 | 5.81E-08 |
| **Abia** | 3 | 11500 | 3833.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 4 | 10700 | 2675 | 0 | 0 | 0 | 1 | 0.259823 | 0.01754 |
| **Abia** | 5 | 12500 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Abia** | 6 | 12580 | 2096.667 | 1 | 0.177778 | 0.031605 | 1 | 0.419849 | 0.074008 |
| **Abia** | 7 | 8000 | 1142.857 | 1 | 0.551821 | 0.304506 | 1 | 0.683769 | 0.31969 |
| **Abia** | 8 | 8000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Abia** | 1 | 12950 | 12950 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 2 | 5100 | 2550 | 1 | 0 | 0 | 1 | 0.294411 | 0.025519 |
| **Abia** | 3 | 10000 | 3333.333 | 0 | 0 | 0 | 1 | 0.077661 | 0.000468 |
| **Abia** | 4 | 8200 | 2050 | 1 | 0.196078 | 0.038447 | 1 | 0.432761 | 0.081049 |
| **Abia** | 5 | 6200 | 1240 | 1 | 0.513725 | 0.263914 | 1 | 0.65689 | 0.283451 |
| **Abia** | 1 | 5500 | 5500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 1 | 40000 | 40000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 2 | 16000 | 8000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 1 | 27500 | 27500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 2 | 26000 | 13000 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Abia** | 3 | 5670 | 1890 | 1 | 0.258824 | 0.06699 | 1 | 0.477034 | 0.108554 |
| **Abia** | 4 | 28000 | 7000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 5 | 3100 | 620 | 1 | 0.756863 | 0.572841 | 1 | 0.828445 | 0.568579 |
| **Abia** | 6 | 12000 | 2000 | 1 | 0.215686 | 0.046521 | 1 | 0.446597 | 0.089073 |
| **Abia** | 1 | 9300 | 9300 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Abia** | 2 | 45000 | 22500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 1 | 7900 | 7900 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 2 | 11500 | 5750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 3 | 10000 | 3333.333 | 0 | 0 | 0 | 1 | 0.077661 | 0.000468 |
| **Adamawa** | 1 | 20300 | 20300 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 2 | 3955 | 1977.5 | 1 | 0.22451 | 0.050405 | 1 | 0.452822 | 0.09285 |
| **Adamawa** | 1 | 13000 | 13000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 2 | 69000 | 34500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 1 | 7450 | 7450 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 2 | 4360 | 2180 | 1 | 0.145098 | 0.021053 | 1 | 0.39679 | 0.062472 |
| **Adamawa** | 3 | 11000 | 3666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 4 | 17000 | 4250 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 5 | 6100 | 1220 | 1 | 0.521569 | 0.272034 | 1 | 0.662424 | 0.290675 |
| **Adamawa** | 1 | 10505 | 10505 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 2 | 8032 | 4016 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 1 | 11300 | 11300 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 2 | 5900 | 2950 | 0 | 0 | 0 | 1 | 0.18373 | 0.006202 |
| **Adamawa** | 3 | 5600 | 1866.667 | 1 | 0.267974 | 0.07181 | 1 | 0.48349 | 0.113022 |
| **Adamawa** | 1 | 87000 | 87000 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Adamawa** | 2 | 20000 | 10000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 1 | 30000 | 30000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 2 | 12000 | 6000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 1 | 17000 | 17000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 1 | 14000 | 14000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 1 | 17000 | 17000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 1 | 19000 | 19000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 2 | 14000 | 7000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 1 | 17000 | 17000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 2 | 20000 | 10000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 3 | 8500 | 2833.333 | 0 | 0 | 0 | 1 | 0.216012 | 0.010079 |
| **Adamawa** | 1 | 95650 | 95650 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 2 | 5690 | 2845 | 0 | 0 | 0 | 1 | 0.212784 | 0.009634 |
| **Adamawa** | 3 | 22500 | 7500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 4 | 8100 | 2025 | 1 | 0.205882 | 0.042388 | 1 | 0.439679 | 0.084998 |
| **Adamawa** | 5 | 2500 | 500 | 1 | 0.803922 | 0.64629 | 1 | 0.861649 | 0.639722 |
| **Adamawa** | 1 | 5700 | 5700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 2 | 8500 | 4250 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 3 | 22200 | 7400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 4 | 21500 | 5375 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 1 | 9500 | 9500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 2 | 4700 | 2350 | 1 | 0.078431 | 0.006151 | 1 | 0.349751 | 0.042784 |
| **Adamawa** | 1 | 94800 | 94800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 2 | 5150 | 2575 | 0 | 0 | 0 | 1 | 0.287493 | 0.023762 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Adamawa** | 3 | 5300 | 1766.667 | 1 | 0.30719 | 0.094365 | 1 | 0.51116 | 0.133558 |
| **Adamawa** | 4 | 5500 | 1375 | 1 | 0.460784 | 0.212322 | 1 | 0.619535 | 0.237792 |
| **Adamawa** | 5 | 5500 | 1100 | 1 | 0.568627 | 0.323337 | 1 | 0.695628 | 0.336613 |
| **Adamawa** | 6 | 10500 | 1750 | 1 | 0.313725 | 0.098424 | 1 | 0.515772 | 0.137206 |
| **Adamawa** | 7 | 6200 | 885.7143 | 1 | 0.652661 | 0.425966 | 1 | 0.754921 | 0.430234 |
| **Adamawa** | 1 | 7600 | 7600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 2 | 5650 | 2825 | 0 | 0 | 0 | 1 | 0.218318 | 0.010406 |
| **Adamawa** | 3 | 16000 | 5333.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 4 | 10000 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Adamawa** | 1 | 14200 | 14200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 1 | 10200 | 10200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 2 | 16000 | 8000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Adamawa** | 3 | 9000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Akwa ibom** | 1 | 40000 | 40000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 2 | 27000 | 13500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 3 | 12500 | 4166.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 4 | 13000 | 3250 | 0 | 0 | 0 | 1 | 0.100719 | 0.001022 |
| **Akwa ibom** | 5 | 8110 | 1622 | 1 | 0.363922 | 0.132439 | 1 | 0.55119 | 0.167457 |
| **Akwa ibom** | 6 | 18050 | 3008.333 | 0 | 0 | 0 | 1 | 0.167589 | 0.004707 |
| **Akwa ibom** | 7 | 12900 | 1842.857 | 1 | 0.277311 | 0.076901 | 1 | 0.490078 | 0.117705 |
| **Akwa ibom** | 1 | 18200 | 18200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 2 | 33900 | 16950 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 3 | 27900 | 9300 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 4 | 10100 | 2525 | 1 | 0.009804 | 9.61E-05 | 1 | 0.301328 | 0.02736 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Akwa ibom** | 1 | 4500 | 4500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 2 | 27000 | 13500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 1 | 14000 | 14000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 2 | 28000 | 14000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 3 | 46000 | 15333.33 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 1 | 21000 | 21000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 2 | 22000 | 11000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 3 | 30000 | 10000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 1 | 23000 | 23000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 2 | 23000 | 11500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 1 | 3220 | 3220 | 0 | 0 | 0 | 1 | 0.10902 | 0.001296 |
| **Akwa ibom** | 2 | 16000 | 8000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 3 | 11000 | 3666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 1 | 12000 | 12000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 2 | 18000 | 9000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 3 | 7000 | 2333.333 | 1 | 0.084967 | 0.007219 | 1 | 0.354363 | 0.044498 |
| **Akwa ibom** | 4 | 16300 | 4075 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 1 | 14000 | 14000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 2 | 13500 | 6750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 3 | 11550 | 3850 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 4 | 11009 | 2752.25 | 0 | 0 | 0 | 1 | 0.238448 | 0.013557 |
| **Akwa ibom** | 5 | 13000 | 2600 | 0 | 0 | 0 | 1 | 0.280576 | 0.022088 |
| **Akwa ibom** | 6 | 10500 | 1750 | 1 | 0.313725 | 0.098424 | 1 | 0.515772 | 0.137206 |
| **Akwa ibom** | 7 | 10000 | 1428.571 | 1 | 0.439776 | 0.193403 | 1 | 0.604712 | 0.221129 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Akwa ibom** | 8 | 12000 | 1500 | 1 | 0.411765 | 0.16955 | 1 | 0.584947 | 0.200148 |
| **Akwa ibom** | 1 | 9000 | 9000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 2 | 6700 | 3350 | 0 | 0 | 0 | 1 | 0.073049 | 0.00039 |
| **Akwa ibom** | 3 | 20400 | 6800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 4 | 5400 | 1350 | 1 | 0.470588 | 0.221453 | 1 | 0.626453 | 0.245847 |
| **Akwa ibom** | 5 | 15400 | 3080 | 0 | 0 | 0 | 1 | 0.147759 | 0.003226 |
| **Akwa ibom** | 6 | 14400 | 2400 | 1 | 0.058824 | 0.00346 | 1 | 0.335916 | 0.037905 |
| **Akwa ibom** | 7 | 10100 | 1442.857 | 1 | 0.434174 | 0.188507 | 1 | 0.600759 | 0.216821 |
| **Akwa ibom** | 8 | 2900 | 362.5 | 1 | 0.857843 | 0.735895 | 1 | 0.899696 | 0.728261 |
| **Akwa ibom** | 1 | 14400 | 14400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 2 | 15000 | 7500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 3 | 10000 | 3333.333 | 0 | 0 | 0 | 1 | 0.077661 | 0.000468 |
| **Akwa ibom** | 1 | 5000 | 5000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 2 | 10000 | 5000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 3 | 23000 | 7666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 4 | 27000 | 6750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 5 | 21600 | 4320 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 1 | 13200 | 13200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 2 | 15300 | 7650 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Akwa ibom** | 1 | 10000 | 10000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 3 | 12000 | 4000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 4 | 8400 | 2100 | 1 | 0.176471 | 0.031142 | 1 | 0.418926 | 0.073521 |
| **Anambra** | 1 | 11950 | 11950 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 2 | 17200 | 8600 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Anambra** | 1 | 14000 | 14000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 2 | 20800 | 10400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 3 | 17000 | 5666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 4 | 9000 | 2250 | 1 | 0.117647 | 0.013841 | 1 | 0.377421 | 0.053762 |
| **Anambra** | 5 | 17400 | 3480 | 0 | 0 | 0 | 1 | 0.037078 | 5.1E-05 |
| **Anambra** | 13 | 14300 | 1100 | 1 | 0.568627 | 0.323337 | 1 | 0.695628 | 0.336613 |
| **Anambra** | 2 | 11300 | 5650 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 3 | 17500 | 5833.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 1 | 34100 | 34100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 2 | 13800 | 6900 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 3 | 13680 | 4560 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 4 | 19950 | 4987.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 5 | 10300 | 2060 | 1 | 0.192157 | 0.036924 | 1 | 0.429994 | 0.079504 |
| **Anambra** | 6 | 8295 | 1382.5 | 1 | 0.457843 | 0.20962 | 1 | 0.61746 | 0.235411 |
| **Anambra** | 7 | 10040 | 1434.286 | 1 | 0.437535 | 0.191437 | 1 | 0.603131 | 0.219399 |
| **Anambra** | 8 | 11200 | 1400 | 1 | 0.45098 | 0.203383 | 1 | 0.612618 | 0.229916 |
| **Anambra** | 9 | 13550 | 1505.556 | 1 | 0.409586 | 0.167761 | 1 | 0.58341 | 0.198574 |
| **Anambra** | 1 | 9050 | 9050 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 1 | 19500 | 19500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 2 | 11000 | 5500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 3 | 12000 | 4000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 4 | 8250 | 2062.5 | 1 | 0.191176 | 0.036548 | 1 | 0.429303 | 0.079121 |
| **Anambra** | 5 | 8000 | 1600 | 1 | 0.372549 | 0.138793 | 1 | 0.557277 | 0.173067 |
| **Anambra** | 1 | 8700 | 8700 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Anambra** | 2 | 11100 | 5550 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 1 | 11950 | 11950 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 2 | 10000 | 5000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 3 | 12500 | 4166.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 4 | 14000 | 3500 | 0 | 0 | 0 | 1 | 0.031544 | 3.14E-05 |
| **Anambra** | 5 | 10100 | 2020 | 1 | 0.207843 | 0.043199 | 1 | 0.441063 | 0.085803 |
| **Anambra** | 1 | 14500 | 14500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 2 | 10900 | 5450 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 3 | 6300 | 2100 | 1 | 0.176471 | 0.031142 | 1 | 0.418926 | 0.073521 |
| **Anambra** | 4 | 67500 | 16875 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 5 | 49300 | 9860 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 1 | 59000 | 59000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 2 | 67000 | 33500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 3 | 59000 | 19666.67 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 4 | 41500 | 10375 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 5 | 33000 | 6600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 1 | 73500 | 73500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 2 | 43600 | 21800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 3 | 28500 | 9500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anambra** | 4 | 9100 | 2275 | 1 | 0.107843 | 0.01163 | 1 | 0.370504 | 0.05086 |
| **Bauchi** | 2 | 10500 | 5250 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bauchi** | 3 | 2400 | 800 | 1 | 0.686275 | 0.470973 | 1 | 0.778639 | 0.472072 |
| **Bauchi** | 4 | 3280 | 820 | 1 | 0.678431 | 0.460269 | 1 | 0.773105 | 0.462077 |
| **Bauchi** | 5 | 3450 | 690 | 1 | 0.729412 | 0.532042 | 1 | 0.809076 | 0.529624 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Bauchi** | 1 | 3500 | 3500 | 0 | 0 | 0 | 1 | 0.031544 | 3.14E-05 |
| **Bauchi** | 2 | 6930 | 3465 | 0 | 0 | 0 | 1 | 0.041229 | 7.01E-05 |
| **Bauchi** | 3 | 4280 | 1426.667 | 1 | 0.440523 | 0.19406 | 1 | 0.605239 | 0.221708 |
| **Bauchi** | 1 | 2480 | 2480 | 1 | 0.027451 | 0.000754 | 1 | 0.31378 | 0.030894 |
| **Bauchi** | 2 | 4800 | 2400 | 1 | 0.058824 | 0.00346 | 1 | 0.335916 | 0.037905 |
| **Bauchi** | 1 | 9300 | 9300 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bauchi** | 2 | 9000 | 4500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bauchi** | 3 | 6200 | 2066.667 | 1 | 0.189542 | 0.035926 | 1 | 0.42815 | 0.078485 |
| **Bauchi** | 4 | 7000 | 1750 | 1 | 0.313725 | 0.098424 | 1 | 0.515772 | 0.137206 |
| **Bauchi** | 1 | 5500 | 5500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bauchi** | 2 | 3500 | 1750 | 1 | 0.313725 | 0.098424 | 1 | 0.515772 | 0.137206 |
| **Bauchi** | 3 | 8500 | 2833.333 | 0 | 0 | 0 | 1 | 0.216012 | 0.010079 |
| **Bauchi** | 4 | 6200 | 1550 | 1 | 0.392157 | 0.153787 | 1 | 0.571112 | 0.186279 |
| **Bauchi** | 5 | 7000 | 1400 | 1 | 0.45098 | 0.203383 | 1 | 0.612618 | 0.229916 |
| **Bauchi** | 1 | 4800 | 4800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bauchi** | 2 | 5800 | 2900 | 0 | 0 | 0 | 1 | 0.197565 | 0.007711 |
| **Bauchi** | 3 | 3700 | 1233.333 | 1 | 0.51634 | 0.266607 | 1 | 0.658735 | 0.285845 |
| **Bauchi** | 4 | 5200 | 1300 | 1 | 0.490196 | 0.240292 | 1 | 0.640288 | 0.262498 |
| **Bauchi** | 1 | 5700 | 5700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bauchi** | 1 | 5700 | 5700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bauchi** | 2 | 9000 | 4500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bauchi** | 3 | 3300 | 1100 | 1 | 0.568627 | 0.323337 | 1 | 0.695628 | 0.336613 |
| **Bauchi** | 4 | 3700 | 925 | 1 | 0.637255 | 0.406094 | 1 | 0.744051 | 0.411915 |
| **Bauchi** | 5 | 4100 | 820 | 1 | 0.678431 | 0.460269 | 1 | 0.773105 | 0.462077 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Bauchi** | 1 | 4200 | 4200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bauchi** | 2 | 3900 | 1950 | 1 | 0.235294 | 0.055363 | 1 | 0.460432 | 0.09761 |
| **Bauchi** | 3 | 2900 | 966.6667 | 1 | 0.620915 | 0.385535 | 1 | 0.732522 | 0.393062 |
| **Bauchi** | 4 | 3450 | 862.5 | 1 | 0.661765 | 0.437933 | 1 | 0.761345 | 0.44131 |
| **Bauchi** | 1 | 4400 | 4400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bauchi** | 2 | 9100 | 4550 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bauchi** | 1 | 2600 | 2600 | 0 | 0 | 0 | 1 | 0.280576 | 0.022088 |
| **Bauchi** | 2 | 5100 | 2550 | 1 | 0 | 0 | 1 | 0.294411 | 0.025519 |
| **Bauchi** | 3 | 3650 | 1216.667 | 1 | 0.522876 | 0.273399 | 1 | 0.663346 | 0.291891 |
| **Bauchi** | 4 | 3100 | 775 | 1 | 0.696078 | 0.484525 | 1 | 0.785556 | 0.484766 |
| **Bauchi** | 5 | 1250 | 250 | 1 | 0.901961 | 0.813533 | 1 | 0.930825 | 0.806498 |
| **Bauchi** | 6 | 1100 | 183.3333 | 1 | 0.928105 | 0.861378 | 1 | 0.949271 | 0.855404 |
| **Bauchi** | 7 | 450 | 64.28571 | 1 | 0.97479 | 0.950215 | 1 | 0.982212 | 0.94758 |
| **Bauchi** | 8 | 2590 | 323.75 | 1 | 0.873039 | 0.762197 | 1 | 0.910418 | 0.754609 |
| **Bauchi** | 1 | 650 | 650 | 1 | 0.745098 | 0.555171 | 1 | 0.820144 | 0.551658 |
| **Bauchi** | 1 | 3250 | 3250 | 0 | 0 | 0 | 1 | 0.100719 | 0.001022 |
| **Bauchi** | 2 | 1850 | 925 | 1 | 0.637255 | 0.406094 | 1 | 0.744051 | 0.411915 |
| **Bayelsa** | 1 | 11200 | 11200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 2 | 11500 | 5750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 3 | 28500 | 9500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 4 | 17800 | 4450 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 1 | 21000 | 21000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 2 | 17500 | 8750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 3 | 12500 | 4166.667 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Bayelsa** | 4 | 7000 | 1750 | 1 | 0.313725 | 0.098424 | 1 | 0.515772 | 0.137206 |
| **Bayelsa** | 1 | 36000 | 36000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 2 | 22000 | 11000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 3 | 38000 | 12666.67 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 4 | 9300 | 2325 | 1 | 0.088235 | 0.007785 | 1 | 0.356669 | 0.045373 |
| **Bayelsa** | 5 | 46000 | 9200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 6 | 30400 | 5066.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 7 | 31000 | 4428.571 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 1 | 7456 | 7456 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 2 | 19000 | 9500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 1 | 9400 | 9400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 2 | 10300 | 5150 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 3 | 19550 | 6516.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 1 | 25500 | 25500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 2 | 7650 | 3825 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 3 | 17000 | 5666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 4 | 17500 | 4375 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 1 | 9050 | 9050 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 2 | 44000 | 22000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 3 | 18000 | 6000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 4 | 3950 | 987.5 | 1 | 0.612745 | 0.375457 | 1 | 0.726757 | 0.383856 |
| **Bayelsa** | 5 | 13900 | 2780 | 0 | 0 | 0 | 1 | 0.230769 | 0.012289 |
| **Bayelsa** | 6 | 10900 | 1816.667 | 1 | 0.287582 | 0.082703 | 1 | 0.497325 | 0.123005 |
| **Bayelsa** | 7 | 8500 | 1214.286 | 1 | 0.52381 | 0.274376 | 1 | 0.664005 | 0.292762 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Bayelsa** | 1 | 8000 | 8000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 2 | 9000 | 4500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 3 | 30000 | 10000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 1 | 36900 | 36900 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 2 | 14500 | 7250 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 3 | 1780 | 593.3333 | 1 | 0.76732 | 0.58878 | 1 | 0.835824 | 0.583907 |
| **Bayelsa** | 4 | 96000 | 24000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 1 | 27000 | 27000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 2 | 16900 | 8450 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 3 | 18500 | 6166.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 4 | 24 | 6 | 1 | 0.997647 | 0.9953 | 1 | 0.99834 | 0.995028 |
| **Bayelsa** | 5 | 33090 | 6618 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 6 | 31000 | 5166.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 7 | 7000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Bayelsa** | 8 | 43200 | 5400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 9 | 15000 | 1666.667 | 1 | 0.346405 | 0.119997 | 1 | 0.53883 | 0.156443 |
| **Bayelsa** | 10 | 30200 | 3020 | 0 | 0 | 0 | 1 | 0.164361 | 0.00444 |
| **Bayelsa** | 11 | 25000 | 2272.727 | 1 | 0.108734 | 0.011823 | 1 | 0.371132 | 0.05112 |
| **Bayelsa** | 1 | 28050 | 28050 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bayelsa** | 2 | 30100 | 15050 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 8 | 3200 | 400 | 1 | 0.843137 | 0.71088 | 1 | 0.889319 | 0.703353 |
| **Benue** | 9 | 4100 | 455.5556 | 1 | 0.821351 | 0.674617 | 1 | 0.873947 | 0.667506 |
| **Benue** | 10 | 13000 | 1300 | 1 | 0.490196 | 0.240292 | 1 | 0.640288 | 0.262498 |
| **Benue** | 11 | 8200 | 745.4545 | 1 | 0.707665 | 0.50079 | 1 | 0.793731 | 0.500058 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Benue** | 12 | 9000 | 750 | 1 | 0.705882 | 0.49827 | 1 | 0.792474 | 0.497685 |
| **Benue** | 1 | 10800 | 10800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 2 | 8000 | 4000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 3 | 8700 | 2900 | 0 | 0 | 0 | 1 | 0.197565 | 0.007711 |
| **Benue** | 4 | 4600 | 1150 | 1 | 0.54902 | 0.301423 | 1 | 0.681793 | 0.316926 |
| **Benue** | 5 | 16000 | 3200 | 0 | 0 | 0 | 1 | 0.114555 | 0.001503 |
| **Benue** | 6 | 10350 | 1725 | 1 | 0.323529 | 0.104671 | 1 | 0.52269 | 0.142801 |
| **Benue** | 7 | 3500 | 500 | 1 | 0.803922 | 0.64629 | 1 | 0.861649 | 0.639722 |
| **Benue** | 3 | 26000 | 8666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 7 | 19700 | 2814.286 | 0 | 0 | 0 | 1 | 0.221282 | 0.010835 |
| **Benue** | 10 | 8800 | 880 | 1 | 0.654902 | 0.428897 | 1 | 0.756502 | 0.432943 |
| **Benue** | 1 | 2000 | 2000 | 1 | 0.215686 | 0.046521 | 1 | 0.446597 | 0.089073 |
| **Benue** | 2 | 18000 | 9000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 4 | 3200 | 800 | 1 | 0.686275 | 0.470973 | 1 | 0.778639 | 0.472072 |
| **Benue** | 5 | 3900 | 780 | 1 | 0.694118 | 0.481799 | 1 | 0.784173 | 0.482209 |
| **Benue** | 6 | 5800 | 966.6667 | 1 | 0.620915 | 0.385535 | 1 | 0.732522 | 0.393062 |
| **Benue** | 1 | 3100 | 3100 | 0 | 0 | 0 | 1 | 0.142225 | 0.002877 |
| **Benue** | 2 | 7500 | 3750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 3 | 6000 | 2000 | 1 | 0.215686 | 0.046521 | 1 | 0.446597 | 0.089073 |
| **Benue** | 4 | 4650 | 1162.5 | 1 | 0.544118 | 0.296064 | 1 | 0.678334 | 0.312127 |
| **Benue** | 5 | 18500 | 3700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 1 | 23500 | 23500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 2 | 2700 | 1350 | 1 | 0.470588 | 0.221453 | 1 | 0.626453 | 0.245847 |
| **Benue** | 3 | 25000 | 8333.333 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Benue** | 4 | 90700 | 22675 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 5 | 29000 | 5800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 1 | 67000 | 67000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 2 | 194000 | 97000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 3 | 61050 | 20350 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 4 | 79180 | 19795 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 5 | 23500 | 4700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 6 | 83005 | 13834.17 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 7 | 139100 | 19871.43 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 1 | 8850 | 8850 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Benue** | 2 | 1900 | 950 | 1 | 0.627451 | 0.393695 | 1 | 0.737133 | 0.400533 |
| **Benue** | 3 | 10550 | 3516.667 | 0 | 0 | 0 | 1 | 0.026932 | 1.95E-05 |
| **Benue** | 4 | 11950 | 2987.5 | 0 | 0 | 0 | 1 | 0.173354 | 0.00521 |
| **Benue** | 5 | 2150 | 430 | 1 | 0.831373 | 0.69118 | 1 | 0.881018 | 0.68384 |
| **Borno** | 10 | 7700 | 770 | 1 | 0.698039 | 0.487259 | 1 | 0.78694 | 0.487331 |
| **Borno** | 11 | 7900 | 718.1818 | 1 | 0.71836 | 0.516041 | 1 | 0.801278 | 0.514457 |
| **Borno** | 12 | 16000 | 1333.333 | 1 | 0.477124 | 0.227647 | 1 | 0.631064 | 0.251316 |
| **Borno** | 14 | 13400 | 957.1429 | 1 | 0.62465 | 0.390187 | 1 | 0.735157 | 0.39732 |
| **Borno** | 1 | 10700 | 10700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 1 | 15900 | 15900 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 2 | 11430 | 5715 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 3 | 12600 | 4200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 4 | 5000 | 1250 | 1 | 0.509804 | 0.2599 | 1 | 0.654123 | 0.279884 |
| **Borno** | 5 | 6000 | 1200 | 1 | 0.529412 | 0.280277 | 1 | 0.667958 | 0.298021 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Borno** | 6 | 3000 | 500 | 1 | 0.803922 | 0.64629 | 1 | 0.861649 | 0.639722 |
| **Borno** | 7 | 5300 | 757.1429 | 1 | 0.703081 | 0.494323 | 1 | 0.790497 | 0.493971 |
| **Borno** | 1 | 5400 | 5400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 2 | 10900 | 5450 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 3 | 6000 | 2000 | 1 | 0.215686 | 0.046521 | 1 | 0.446597 | 0.089073 |
| **Borno** | 4 | 4400 | 1100 | 1 | 0.568627 | 0.323337 | 1 | 0.695628 | 0.336613 |
| **Borno** | 1 | 19000 | 19000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 2 | 14000 | 7000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 1 | 17000 | 17000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 2 | 17000 | 8500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 3 | 18300 | 6100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 4 | 18500 | 4625 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 5 | 13000 | 2600 | 0 | 0 | 0 | 1 | 0.280576 | 0.022088 |
| **Borno** | 1 | 14500 | 14500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 2 | 18800 | 9400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 3 | 2300 | 766.6667 | 1 | 0.699346 | 0.489085 | 1 | 0.787862 | 0.489047 |
| **Borno** | 1 | 4100 | 4100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 2 | 5700 | 2850 | 0 | 0 | 0 | 1 | 0.2114 | 0.009447 |
| **Borno** | 3 | 1700 | 566.6667 | 1 | 0.777778 | 0.604938 | 1 | 0.843202 | 0.599509 |
| **Borno** | 4 | 5000 | 1250 | 1 | 0.509804 | 0.2599 | 1 | 0.654123 | 0.279884 |
| **Borno** | 5 | 1100 | 220 | 1 | 0.913725 | 0.834894 | 1 | 0.939126 | 0.828268 |
| **Borno** | 1 | 3000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Borno** | 2 | 2400 | 1200 | 1 | 0.529412 | 0.280277 | 1 | 0.667958 | 0.298021 |
| **Borno** | 3 | 3000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Borno** | 4 | 11500 | 2875 | 0 | 0 | 0 | 1 | 0.204483 | 0.00855 |
| **Borno** | 5 | 12000 | 2400 | 1 | 0.058824 | 0.00346 | 1 | 0.335916 | 0.037905 |
| **Borno** | 1 | 20500 | 20500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 2 | 7800 | 3900 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 3 | 10600 | 3533.333 | 0 | 0 | 0 | 1 | 0.022321 | 1.11E-05 |
| **Borno** | 4 | 17500 | 4375 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Borno** | 5 | 10500 | 2100 | 1 | 0.176471 | 0.031142 | 1 | 0.418926 | 0.073521 |
| **Borno** | 6 | 8100 | 1350 | 1 | 0.470588 | 0.221453 | 1 | 0.626453 | 0.245847 |
| **Cross\_rivers** | 5 | 10500 | 2100 | 1 | 0.176471 | 0.031142 | 1 | 0.418926 | 0.073521 |
| **Cross\_rivers** | 6 | 5000 | 833.3333 | 1 | 0.673203 | 0.453202 | 1 | 0.769415 | 0.455494 |
| **Cross\_rivers** | 1 | 8500 | 8500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 2 | 3900 | 1950 | 1 | 0.235294 | 0.055363 | 1 | 0.460432 | 0.09761 |
| **Cross\_rivers** | 3 | 6500 | 2166.667 | 1 | 0.150327 | 0.022598 | 1 | 0.40048 | 0.06423 |
| **Cross\_rivers** | 4 | 12100 | 3025 | 0 | 0 | 0 | 1 | 0.162977 | 0.004329 |
| **Cross\_rivers** | 5 | 60000 | 12000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 6 | 9600 | 1600 | 1 | 0.372549 | 0.138793 | 1 | 0.557277 | 0.173067 |
| **Cross\_rivers** | 1 | 17000 | 17000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 2 | 12405 | 6202.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 3 | 2000 | 666.6667 | 1 | 0.738562 | 0.545474 | 1 | 0.815532 | 0.542405 |
| **Cross\_rivers** | 4 | 10000 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Cross\_rivers** | 1 | 2500 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Cross\_rivers** | 2 | 4400 | 2200 | 1 | 0.137255 | 0.018839 | 1 | 0.391256 | 0.059894 |
| **Cross\_rivers** | 3 | 12000 | 4000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 4 | 8500 | 2125 | 1 | 0.166667 | 0.027778 | 1 | 0.412009 | 0.069939 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Cross\_rivers** | 5 | 9700 | 1940 | 1 | 0.239216 | 0.057224 | 1 | 0.463199 | 0.099381 |
| **Cross\_rivers** | 1 | 9500 | 9500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 2 | 3500 | 1750 | 1 | 0.313725 | 0.098424 | 1 | 0.515772 | 0.137206 |
| **Cross\_rivers** | 3 | 27400 | 9133.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 4 | 17000 | 4250 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 5 | 7200 | 1440 | 1 | 0.435294 | 0.189481 | 1 | 0.60155 | 0.217678 |
| **Cross\_rivers** | 6 | 5700 | 950 | 1 | 0.627451 | 0.393695 | 1 | 0.737133 | 0.400533 |
| **Cross\_rivers** | 7 | 3300 | 471.4286 | 1 | 0.815126 | 0.66443 | 1 | 0.869555 | 0.657493 |
| **Cross\_rivers** | 1 | 1350 | 1350 | 1 | 0.470588 | 0.221453 | 1 | 0.626453 | 0.245847 |
| **Cross\_rivers** | 2 | 10400 | 5200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 3 | 18100 | 6033.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 4 | 4050 | 1012.5 | 1 | 0.602941 | 0.363538 | 1 | 0.71984 | 0.372998 |
| **Cross\_rivers** | 5 | 9250 | 1850 | 1 | 0.27451 | 0.075356 | 1 | 0.488102 | 0.116287 |
| **Cross\_rivers** | 6 | 5200 | 866.6667 | 1 | 0.660131 | 0.435773 | 1 | 0.760192 | 0.439309 |
| **Cross\_rivers** | 1 | 8000 | 8000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 2 | 4700 | 2350 | 1 | 0.078431 | 0.006151 | 1 | 0.349751 | 0.042784 |
| **Cross\_rivers** | 3 | 17000 | 5666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 4 | 8900 | 2225 | 1 | 0.127451 | 0.016244 | 1 | 0.384339 | 0.056773 |
| **Cross\_rivers** | 5 | 6250 | 1250 | 1 | 0.509804 | 0.2599 | 1 | 0.654123 | 0.279884 |
| **Cross\_rivers** | 6 | 28100 | 4683.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 7 | 3400 | 485.7143 | 1 | 0.809524 | 0.655329 | 1 | 0.865602 | 0.648567 |
| **Cross\_rivers** | 8 | 4000 | 500 | 1 | 0.803922 | 0.64629 | 1 | 0.861649 | 0.639722 |
| **Cross\_rivers** | 9 | 8900 | 988.8889 | 1 | 0.6122 | 0.374789 | 1 | 0.726373 | 0.383247 |
| **Cross\_rivers** | 1 | 9000 | 9000 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Cross\_rivers** | 2 | 2800 | 1400 | 1 | 0.45098 | 0.203383 | 1 | 0.612618 | 0.229916 |
| **Cross\_rivers** | 3 | 8595 | 2865 | 0 | 0 | 0 | 1 | 0.20725 | 0.008902 |
| **Cross\_rivers** | 4 | 12000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Cross\_rivers** | 5 | 2500 | 500 | 1 | 0.803922 | 0.64629 | 1 | 0.861649 | 0.639722 |
| **Cross\_rivers** | 6 | 17350 | 2891.667 | 0 | 0 | 0 | 1 | 0.199871 | 0.007985 |
| **Cross\_rivers** | 7 | 9550 | 1364.286 | 1 | 0.464986 | 0.216212 | 1 | 0.6225 | 0.241222 |
| **Cross\_rivers** | 1 | 3000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Cross\_rivers** | 2 | 1800 | 900 | 1 | 0.647059 | 0.418685 | 1 | 0.750968 | 0.423511 |
| **Cross\_rivers** | 3 | 4430 | 1476.667 | 1 | 0.420915 | 0.177169 | 1 | 0.591404 | 0.206848 |
| **Cross\_rivers** | 4 | 1500 | 375 | 1 | 0.852941 | 0.727509 | 1 | 0.896237 | 0.719894 |
| **Cross\_rivers** | 5 | 20000 | 4000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 6 | 4000 | 666.6667 | 1 | 0.738562 | 0.545474 | 1 | 0.815532 | 0.542405 |
| **Cross\_rivers** | 1 | 4850 | 4850 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 2 | 9000 | 4500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 3 | 90300 | 30100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 4 | 29000 | 7250 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 5 | 3000 | 600 | 1 | 0.764706 | 0.584775 | 1 | 0.833979 | 0.58005 |
| **Cross\_rivers** | 6 | 9480 | 1580 | 1 | 0.380392 | 0.144698 | 1 | 0.562811 | 0.178274 |
| **Cross\_rivers** | 1 | 7420 | 7420 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 2 | 14000 | 7000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 1 | 4000 | 4000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 2 | 7500 | 3750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cross\_rivers** | 3 | 2000 | 666.6667 | 1 | 0.738562 | 0.545474 | 1 | 0.815532 | 0.542405 |
| **Cross\_rivers** | 4 | 16310 | 4077.5 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Cross\_rivers** | 21 | 9500 | 452.381 | 1 | 0.822596 | 0.676664 | 1 | 0.874825 | 0.669521 |
| **Delta** | 3 | 8960 | 2986.667 | 0 | 0 | 0 | 1 | 0.173584 | 0.00523 |
| **Delta** | 4 | 11400 | 2850 | 0 | 0 | 0 | 1 | 0.2114 | 0.009447 |
| **Delta** | 5 | 5000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Delta** | 6 | 39400 | 6566.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 7 | 11000 | 1571.429 | 1 | 0.383754 | 0.147267 | 1 | 0.565183 | 0.180537 |
| **Delta** | 8 | 9500 | 1187.5 | 1 | 0.534314 | 0.285491 | 1 | 0.671417 | 0.302675 |
| **Delta** | 1 | 8200 | 8200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 1 | 14200 | 14200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 1 | 18600 | 18600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 2 | 21000 | 10500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 3 | 14600 | 4866.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 1 | 8800 | 8800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 1 | 4100 | 4100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 2 | 15000 | 7500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 3 | 16500 | 5500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 4 | 8750 | 2187.5 | 1 | 0.142157 | 0.020209 | 1 | 0.394715 | 0.061497 |
| **Delta** | 1 | 81000 | 81000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 2 | 6000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Delta** | 3 | 21200 | 7066.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 4 | 10900 | 2725 | 0 | 0 | 0 | 1 | 0.245988 | 0.014885 |
| **Delta** | 1 | 9000 | 9000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 2 | 6800 | 3400 | 0 | 0 | 0 | 1 | 0.059214 | 0.000208 |
| **Delta** | 3 | 9000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Delta** | 4 | 23000 | 5750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 5 | 24900 | 4980 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 6 | 15300 | 2550 | 1 | 0 | 0 | 1 | 0.294411 | 0.025519 |
| **Delta** | 7 | 18500 | 2642.857 | 0 | 0 | 0 | 1 | 0.268717 | 0.019404 |
| **Delta** | 1 | 4500 | 4500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 2 | 24000 | 12000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 3 | 2300 | 766.6667 | 1 | 0.699346 | 0.489085 | 1 | 0.787862 | 0.489047 |
| **Delta** | 4 | 9500 | 2375 | 1 | 0.068627 | 0.00471 | 1 | 0.342833 | 0.040295 |
| **Delta** | 1 | 5900 | 5900 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 2 | 7400 | 3700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 3 | 4300 | 1433.333 | 1 | 0.437908 | 0.191764 | 1 | 0.603394 | 0.219687 |
| **Delta** | 4 | 5300 | 1325 | 1 | 0.480392 | 0.230777 | 1 | 0.63337 | 0.254081 |
| **Delta** | 5 | 5300 | 1060 | 1 | 0.584314 | 0.341423 | 1 | 0.706696 | 0.352938 |
| **Delta** | 6 | 5600 | 933.3333 | 1 | 0.633987 | 0.401939 | 1 | 0.741745 | 0.408098 |
| **Delta** | 7 | 1500 | 214.2857 | 1 | 0.915966 | 0.838994 | 1 | 0.940707 | 0.832459 |
| **Delta** | 8 | 13200 | 1650 | 1 | 0.352941 | 0.124567 | 1 | 0.543442 | 0.160494 |
| **Delta** | 9 | 27000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Delta** | 10 | 3350 | 335 | 1 | 0.868627 | 0.754514 | 1 | 0.907305 | 0.746895 |
| **Delta** | 2 | 3700 | 1850 | 1 | 0.27451 | 0.075356 | 1 | 0.488102 | 0.116287 |
| **Delta** | 1 | 9780 | 9780 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 1 | 27000 | 27000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 2 | 2070 | 1035 | 1 | 0.594118 | 0.352976 | 1 | 0.713614 | 0.363404 |
| **Delta** | 3 | 7500 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Delta** | 4 | 16000 | 4000 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Delta** | 5 | 21800 | 4360 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 6 | 29000 | 4833.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Delta** | 7 | 13000 | 1857.143 | 1 | 0.271709 | 0.073826 | 1 | 0.486125 | 0.11488 |
| **Delta** | 8 | 20000 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Delta** | 9 | 10500 | 1166.667 | 1 | 0.542484 | 0.294289 | 1 | 0.677181 | 0.310538 |
| **Ebonyi** | 1 | 10660 | 10660 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ebonyi** | 1 | 7500 | 7500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ebonyi** | 2 | 9600 | 4800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ebonyi** | 1 | 4300 | 4300 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ebonyi** | 2 | 9400 | 4700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ebonyi** | 3 | 2900 | 966.6667 | 1 | 0.620915 | 0.385535 | 1 | 0.732522 | 0.393062 |
| **Ebonyi** | 1 | 9500 | 9500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ebonyi** | 2 | 1700 | 850 | 1 | 0.666667 | 0.444444 | 1 | 0.764804 | 0.447352 |
| **Ebonyi** | 3 | 2800 | 933.3333 | 1 | 0.633987 | 0.401939 | 1 | 0.741745 | 0.408098 |
| **Ebonyi** | 4 | 4300 | 1075 | 1 | 0.578431 | 0.334583 | 1 | 0.702546 | 0.346756 |
| **Ebonyi** | 5 | 5900 | 1180 | 1 | 0.537255 | 0.288643 | 1 | 0.673492 | 0.30549 |
| **Ebonyi** | 1 | 2500 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Ebonyi** | 2 | 2200 | 1100 | 1 | 0.568627 | 0.323337 | 1 | 0.695628 | 0.336613 |
| **Ebonyi** | 3 | 4900 | 1633.333 | 1 | 0.359477 | 0.129224 | 1 | 0.548054 | 0.164615 |
| **Ebonyi** | 5 | 7600 | 1520 | 1 | 0.403922 | 0.163153 | 1 | 0.579413 | 0.194521 |
| **Ebonyi** | 6 | 8000 | 1333.333 | 1 | 0.477124 | 0.227647 | 1 | 0.631064 | 0.251316 |
| **Ebonyi** | 7 | 12000 | 1714.286 | 1 | 0.327731 | 0.107408 | 1 | 0.525654 | 0.145245 |
| **Ebonyi** | 8 | 6000 | 750 | 1 | 0.705882 | 0.49827 | 1 | 0.792474 | 0.497685 |
| **Ebonyi** | 1 | 7800 | 7800 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Ebonyi** | 1 | 7100 | 7100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ebonyi** | 2 | 6700 | 3350 | 0 | 0 | 0 | 1 | 0.073049 | 0.00039 |
| **Ebonyi** | 3 | 6460 | 2153.333 | 1 | 0.155556 | 0.024198 | 1 | 0.404169 | 0.066022 |
| **Ebonyi** | 4 | 8200 | 2050 | 1 | 0.196078 | 0.038447 | 1 | 0.432761 | 0.081049 |
| **Ebonyi** | 5 | 6700 | 1340 | 1 | 0.47451 | 0.22516 | 1 | 0.62922 | 0.249119 |
| **Ebonyi** | 1 | 3800 | 3800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ebonyi** | 2 | 3000 | 1500 | 1 | 0.411765 | 0.16955 | 1 | 0.584947 | 0.200148 |
| **Ebonyi** | 3 | 2700 | 900 | 1 | 0.647059 | 0.418685 | 1 | 0.750968 | 0.423511 |
| **Ebonyi** | 1 | 2400 | 2400 | 1 | 0.058824 | 0.00346 | 1 | 0.335916 | 0.037905 |
| **Ebonyi** | 2 | 4400 | 2200 | 1 | 0.137255 | 0.018839 | 1 | 0.391256 | 0.059894 |
| **Ebonyi** | 3 | 3200 | 1066.667 | 1 | 0.581699 | 0.338374 | 1 | 0.704852 | 0.350181 |
| **Ebonyi** | 4 | 2200 | 550 | 1 | 0.784314 | 0.615148 | 1 | 0.847814 | 0.609399 |
| **Ebonyi** | 5 | 7000 | 1400 | 1 | 0.45098 | 0.203383 | 1 | 0.612618 | 0.229916 |
| **Ebonyi** | 6 | 12000 | 2000 | 1 | 0.215686 | 0.046521 | 1 | 0.446597 | 0.089073 |
| **Ebonyi** | 7 | 9800 | 1400 | 1 | 0.45098 | 0.203383 | 1 | 0.612618 | 0.229916 |
| **Ebonyi** | 8 | 9120 | 1140 | 1 | 0.552941 | 0.305744 | 1 | 0.68456 | 0.3208 |
| **Ebonyi** | 9 | 11450 | 1272.222 | 1 | 0.501089 | 0.251091 | 1 | 0.647974 | 0.272065 |
| **Ebonyi** | 10 | 9150 | 915 | 1 | 0.641176 | 0.411107 | 1 | 0.746818 | 0.416528 |
| **Ebonyi** | 11 | 6500 | 590.9091 | 1 | 0.768271 | 0.59024 | 1 | 0.836494 | 0.585314 |
| **Ebonyi** | 1 | 7085 | 7085 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ebonyi** | 2 | 11200 | 5600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ebonyi** | 3 | 16000 | 5333.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ebonyi** | 4 | 2600 | 650 | 1 | 0.745098 | 0.555171 | 1 | 0.820144 | 0.551658 |
| **Edo** | 3 | 25000 | 8333.333 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Edo** | 4 | 2800 | 700 | 1 | 0.72549 | 0.526336 | 1 | 0.806309 | 0.524209 |
| **Edo** | 5 | 21000 | 4200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 1 | 14000 | 14000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 2 | 3600 | 1800 | 1 | 0.294118 | 0.086505 | 1 | 0.501937 | 0.126458 |
| **Edo** | 1 | 10000 | 10000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 2 | 57600 | 28800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 3 | 20000 | 6666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 4 | 16200 | 4050 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 5 | 8400 | 1680 | 1 | 0.341176 | 0.116401 | 1 | 0.535141 | 0.153252 |
| **Edo** | 6 | 5100 | 850 | 1 | 0.666667 | 0.444444 | 1 | 0.764804 | 0.447352 |
| **Edo** | 7 | 18600 | 2657.143 | 0 | 0 | 0 | 1 | 0.264764 | 0.01856 |
| **Edo** | 8 | 9500 | 1187.5 | 1 | 0.534314 | 0.285491 | 1 | 0.671417 | 0.302675 |
| **Edo** | 9 | 6100 | 677.7778 | 1 | 0.734205 | 0.539057 | 1 | 0.812458 | 0.536293 |
| **Edo** | 10 | 7800 | 780 | 1 | 0.694118 | 0.481799 | 1 | 0.784173 | 0.482209 |
| **Edo** | 11 | 21950 | 1995.455 | 1 | 0.217469 | 0.047293 | 1 | 0.447854 | 0.089828 |
| **Edo** | 12 | 1250 | 104.1667 | 1 | 0.95915 | 0.919969 | 1 | 0.971177 | 0.915999 |
| **Edo** | 14 | 20400 | 1457.143 | 1 | 0.428571 | 0.183673 | 1 | 0.596806 | 0.212569 |
| **Edo** | 15 | 8460 | 564 | 1 | 0.778824 | 0.606566 | 1 | 0.84394 | 0.601084 |
| **Edo** | 16 | 18200 | 1137.5 | 1 | 0.553922 | 0.306829 | 1 | 0.685252 | 0.321774 |
| **Edo** | 1 | 9700 | 9700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 2 | 15900 | 7950 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 3 | 10600 | 3533.333 | 0 | 0 | 0 | 1 | 0.022321 | 1.11E-05 |
| **Edo** | 4 | 11000 | 2750 | 0 | 0 | 0 | 1 | 0.23907 | 0.013664 |
| **Edo** | 5 | 11100 | 2220 | 1 | 0.129412 | 0.016747 | 1 | 0.385722 | 0.057388 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Edo** | 1 | 5000 | 5000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 2 | 61000 | 30500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 1 | 12600 | 12600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 1 | 4730 | 4730 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 2 | 420 | 210 | 1 | 0.917647 | 0.842076 | 1 | 0.941893 | 0.835611 |
| **Edo** | 1 | 27300 | 27300 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 2 | 9830 | 4915 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 3 | 15000 | 5000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 4 | 6000 | 1500 | 1 | 0.411765 | 0.16955 | 1 | 0.584947 | 0.200148 |
| **Edo** | 1 | 13600 | 13600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 2 | 6650 | 3325 | 0 | 0 | 0 | 1 | 0.079967 | 0.000511 |
| **Edo** | 3 | 34000 | 11333.33 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 4 | 6000 | 1500 | 1 | 0.411765 | 0.16955 | 1 | 0.584947 | 0.200148 |
| **Edo** | 5 | 9900 | 1980 | 1 | 0.223529 | 0.049965 | 1 | 0.452131 | 0.092425 |
| **Edo** | 1 | 4360 | 4360 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 2 | 7500 | 3750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 3 | 15300 | 5100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 1 | 18300 | 18300 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Edo** | 2 | 5000 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Ekiti** | 1 | 8000 | 8000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 2 | 11400 | 5700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 3 | 3800 | 1266.667 | 1 | 0.503268 | 0.253279 | 1 | 0.649511 | 0.274006 |
| **Ekiti** | 4 | 3500 | 875 | 1 | 0.656863 | 0.431469 | 1 | 0.757886 | 0.435323 |
| **Ekiti** | 1 | 13300 | 13300 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Ekiti** | 1 | 14500 | 14500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 2 | 6900 | 3450 | 0 | 0 | 0 | 1 | 0.045379 | 9.34E-05 |
| **Ekiti** | 3 | 12000 | 4000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 4 | 3150 | 787.5 | 1 | 0.691176 | 0.477725 | 1 | 0.782097 | 0.47839 |
| **Ekiti** | 1 | 2300 | 2300 | 1 | 0.098039 | 0.009612 | 1 | 0.363586 | 0.048064 |
| **Ekiti** | 2 | 1600 | 800 | 1 | 0.686275 | 0.470973 | 1 | 0.778639 | 0.472072 |
| **Ekiti** | 3 | 2900 | 966.6667 | 1 | 0.620915 | 0.385535 | 1 | 0.732522 | 0.393062 |
| **Ekiti** | 4 | 5400 | 1350 | 1 | 0.470588 | 0.221453 | 1 | 0.626453 | 0.245847 |
| **Ekiti** | 5 | 4200 | 840 | 1 | 0.670588 | 0.449689 | 1 | 0.767571 | 0.452225 |
| **Ekiti** | 6 | 5000 | 833.3333 | 1 | 0.673203 | 0.453202 | 1 | 0.769415 | 0.455494 |
| **Ekiti** | 7 | 9200 | 1314.286 | 1 | 0.484594 | 0.234831 | 1 | 0.636335 | 0.257666 |
| **Ekiti** | 1 | 4100 | 4100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 1 | 14000 | 14000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 2 | 8806 | 4403 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 3 | 8100 | 2700 | 0 | 0 | 0 | 1 | 0.252905 | 0.016176 |
| **Ekiti** | 4 | 4000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Ekiti** | 5 | 10400 | 2080 | 1 | 0.184314 | 0.033972 | 1 | 0.42446 | 0.076474 |
| **Ekiti** | 1 | 25000 | 25000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 2 | 5700 | 2850 | 0 | 0 | 0 | 1 | 0.2114 | 0.009447 |
| **Ekiti** | 9 | 16400 | 1822.222 | 1 | 0.285403 | 0.081455 | 1 | 0.495788 | 0.121868 |
| **Ekiti** | 4 | 10600 | 2650 | 0 | 0 | 0 | 1 | 0.26674 | 0.018979 |
| **Ekiti** | 5 | 4700 | 940 | 1 | 0.631373 | 0.398631 | 1 | 0.7399 | 0.40506 |
| **Ekiti** | 1 | 4000 | 4000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 1 | 17600 | 17600 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Ekiti** | 2 | 17300 | 8650 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 3 | 2300 | 766.6667 | 1 | 0.699346 | 0.489085 | 1 | 0.787862 | 0.489047 |
| **Ekiti** | 4 | 8000 | 2000 | 1 | 0.215686 | 0.046521 | 1 | 0.446597 | 0.089073 |
| **Ekiti** | 5 | 2380 | 476 | 1 | 0.813333 | 0.661511 | 1 | 0.86829 | 0.654628 |
| **Ekiti** | 6 | 5200 | 866.6667 | 1 | 0.660131 | 0.435773 | 1 | 0.760192 | 0.439309 |
| **Ekiti** | 1 | 7500 | 7500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 2 | 12000 | 6000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 3 | 5100 | 1700 | 1 | 0.333333 | 0.111111 | 1 | 0.529607 | 0.148546 |
| **Ekiti** | 4 | 8000 | 2000 | 1 | 0.215686 | 0.046521 | 1 | 0.446597 | 0.089073 |
| **Ekiti** | 1 | 3900 | 3900 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 2 | 17000 | 8500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 3 | 7400 | 2466.667 | 1 | 0.03268 | 0.001068 | 1 | 0.317469 | 0.031997 |
| **Ekiti** | 1 | 7500 | 7500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 2 | 2000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Ekiti** | 3 | 4900 | 1633.333 | 1 | 0.359477 | 0.129224 | 1 | 0.548054 | 0.164615 |
| **Ekiti** | 4 | 1000 | 250 | 1 | 0.901961 | 0.813533 | 1 | 0.930825 | 0.806498 |
| **Ekiti** | 5 | 200 | 40 | 1 | 0.984314 | 0.968874 | 1 | 0.988932 | 0.967162 |
| **Ekiti** | 6 | 1000 | 166.6667 | 1 | 0.934641 | 0.873553 | 1 | 0.953883 | 0.867931 |
| **Ekiti** | 1 | 1700 | 1700 | 1 | 0.333333 | 0.111111 | 1 | 0.529607 | 0.148546 |
| **Ekiti** | 2 | 3000 | 1500 | 1 | 0.411765 | 0.16955 | 1 | 0.584947 | 0.200148 |
| **Ekiti** | 3 | 2500 | 833.3333 | 1 | 0.673203 | 0.453202 | 1 | 0.769415 | 0.455494 |
| **Ekiti** | 4 | 400 | 100 | 1 | 0.960784 | 0.923106 | 1 | 0.97233 | 0.919265 |
| **Ekiti** | 5 | 1000 | 200 | 1 | 0.921569 | 0.849289 | 1 | 0.94466 | 0.842997 |
| **Ekiti** | 1 | 16400 | 16400 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Ekiti** | 1 | 19000 | 19000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 2 | 1300 | 650 | 1 | 0.745098 | 0.555171 | 1 | 0.820144 | 0.551658 |
| **Ekiti** | 3 | 18000 | 6000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 4 | 14300 | 3575 | 0 | 0 | 0 | 1 | 0.010791 | 1.26E-06 |
| **Ekiti** | 5 | 12000 | 2400 | 1 | 0.058824 | 0.00346 | 1 | 0.335916 | 0.037905 |
| **Ekiti** | 1 | 6207 | 6207 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 1 | 23480 | 23480 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 1 | 24500 | 24500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 2 | 5250 | 2625 | 0 | 0 | 0 | 1 | 0.273658 | 0.020494 |
| **Ekiti** | 3 | 3700 | 1233.333 | 1 | 0.51634 | 0.266607 | 1 | 0.658735 | 0.285845 |
| **Ekiti** | 1 | 3750 | 3750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 1 | 8100 | 8100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 1 | 5700 | 5700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 2 | 11900 | 5950 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 3 | 2400 | 800 | 1 | 0.686275 | 0.470973 | 1 | 0.778639 | 0.472072 |
| **Ekiti** | 4 | 32800 | 8200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 1 | 3300 | 3300 | 0 | 0 | 0 | 1 | 0.086884 | 0.000656 |
| **Ekiti** | 1 | 3700 | 3700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ekiti** | 1 | 700 | 700 | 1 | 0.72549 | 0.526336 | 1 | 0.806309 | 0.524209 |
| **Enugu** | 2 | 7500 | 3750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Enugu** | 3 | 1400 | 466.6667 | 1 | 0.816993 | 0.667478 | 1 | 0.870873 | 0.660486 |
| **Enugu** | 4 | 1800 | 450 | 1 | 0.823529 | 0.678201 | 1 | 0.875484 | 0.671035 |
| **Enugu** | 5 | 1000 | 200 | 1 | 0.921569 | 0.849289 | 1 | 0.94466 | 0.842997 |
| **Enugu** | 1 | 3200 | 3200 | 0 | 0 | 0 | 1 | 0.114555 | 0.001503 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Enugu** | 2 | 6300 | 3150 | 0 | 0 | 0 | 1 | 0.12839 | 0.002116 |
| **Enugu** | 3 | 2950 | 983.3333 | 1 | 0.614379 | 0.377462 | 1 | 0.72791 | 0.385685 |
| **Enugu** | 4 | 2606 | 651.5 | 1 | 0.74451 | 0.554295 | 1 | 0.819729 | 0.550821 |
| **Enugu** | 5 | 800 | 160 | 1 | 0.937255 | 0.878447 | 1 | 0.955728 | 0.872977 |
| **Enugu** | 6 | 7240 | 1206.667 | 1 | 0.526797 | 0.277515 | 1 | 0.666113 | 0.295559 |
| **Enugu** | 7 | 2800 | 400 | 1 | 0.843137 | 0.71088 | 1 | 0.889319 | 0.703353 |
| **Enugu** | 1 | 7900 | 7900 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Enugu** | 1 | 6000 | 6000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Enugu** | 2 | 6600 | 3300 | 0 | 0 | 0 | 1 | 0.086884 | 0.000656 |
| **Enugu** | 3 | 13560 | 4520 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Enugu** | 1 | 3800 | 3800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Enugu** | 2 | 5000 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Enugu** | 3 | 8800 | 2933.333 | 0 | 0 | 0 | 1 | 0.188342 | 0.006681 |
| **Enugu** | 4 | 17000 | 4250 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Enugu** | 1 | 19800 | 19800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Enugu** | 2 | 6000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Enugu** | 3 | 2600 | 866.6667 | 1 | 0.660131 | 0.435773 | 1 | 0.760192 | 0.439309 |
| **Enugu** | 4 | 4800 | 1200 | 1 | 0.529412 | 0.280277 | 1 | 0.667958 | 0.298021 |
| **Enugu** | 5 | 6200 | 1240 | 1 | 0.513725 | 0.263914 | 1 | 0.65689 | 0.283451 |
| **Enugu** | 6 | 4900 | 816.6667 | 1 | 0.679739 | 0.462045 | 1 | 0.774027 | 0.463733 |
| **Enugu** | 1 | 11000 | 11000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Enugu** | 2 | 3700 | 1850 | 1 | 0.27451 | 0.075356 | 1 | 0.488102 | 0.116287 |
| **Enugu** | 3 | 4600 | 1533.333 | 1 | 0.398693 | 0.158956 | 1 | 0.575724 | 0.190828 |
| **Enugu** | 1 | 3620 | 3620 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Kaduna** | 6 | 14200 | 2366.667 | 1 | 0.071895 | 0.005169 | 1 | 0.345139 | 0.041113 |
| **Kaduna** | 1 | 9000 | 9000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kaduna** | 2 | 5500 | 2750 | 0 | 0 | 0 | 1 | 0.23907 | 0.013664 |
| **Kaduna** | 3 | 12200 | 4066.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kaduna** | 4 | 6000 | 1500 | 1 | 0.411765 | 0.16955 | 1 | 0.584947 | 0.200148 |
| **Kaduna** | 5 | 14000 | 2800 | 0 | 0 | 0 | 1 | 0.225235 | 0.011426 |
| **Kaduna** | 6 | 6000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Kaduna** | 7 | 9200 | 1314.286 | 1 | 0.484594 | 0.234831 | 1 | 0.636335 | 0.257666 |
| **Kaduna** | 1 | 12700 | 12700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kaduna** | 2 | 12600 | 6300 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kano** | 1 | 38000 | 38000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kano** | 2 | 34000 | 17000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kano** | 3 | 35000 | 11666.67 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kano** | 4 | 59000 | 14750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kano** | 5 | 25000 | 5000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kano** | 6 | 33000 | 5500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kano** | 1 | 51000 | 51000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kano** | 2 | 3200 | 1600 | 1 | 0.372549 | 0.138793 | 1 | 0.557277 | 0.173067 |
| **Kano** | 3 | 3150 | 1050 | 1 | 0.588235 | 0.346021 | 1 | 0.709463 | 0.3571 |
| **Kano** | 4 | 2600 | 650 | 1 | 0.745098 | 0.555171 | 1 | 0.820144 | 0.551658 |
| **Kano** | 5 | 6200 | 1240 | 1 | 0.513725 | 0.263914 | 1 | 0.65689 | 0.283451 |
| **Kano** | 6 | 6000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Kano** | 1 | 3400 | 3400 | 0 | 0 | 0 | 1 | 0.059214 | 0.000208 |
| **Kano** | 2 | 2700 | 1350 | 1 | 0.470588 | 0.221453 | 1 | 0.626453 | 0.245847 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Kano** | 3 | 3000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Kano** | 4 | 6100 | 1525 | 1 | 0.401961 | 0.161572 | 1 | 0.57803 | 0.193131 |
| **Kano** | 1 | 4200 | 4200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kano** | 2 | 8500 | 4250 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kano** | 3 | 9000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Kano** | 4 | 13500 | 3375 | 0 | 0 | 0 | 1 | 0.066132 | 0.000289 |
| **Kano** | 1 | 9100 | 9100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kano** | 2 | 13000 | 6500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kano** | 3 | 11000 | 3666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Katsina** | 3 | 3150 | 1050 | 1 | 0.588235 | 0.346021 | 1 | 0.709463 | 0.3571 |
| **Katsina** | 1 | 2200 | 2200 | 1 | 0.137255 | 0.018839 | 1 | 0.391256 | 0.059894 |
| **Katsina** | 2 | 4350 | 2175 | 1 | 0.147059 | 0.021626 | 1 | 0.398174 | 0.063127 |
| **Katsina** | 3 | 3510 | 1170 | 1 | 0.541176 | 0.292872 | 1 | 0.676259 | 0.309271 |
| **Katsina** | 4 | 5000 | 1250 | 1 | 0.509804 | 0.2599 | 1 | 0.654123 | 0.279884 |
| **Katsina** | 1 | 5100 | 5100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Katsina** | 2 | 3600 | 1800 | 1 | 0.294118 | 0.086505 | 1 | 0.501937 | 0.126458 |
| **Katsina** | 3 | 3630 | 1210 | 1 | 0.52549 | 0.27614 | 1 | 0.665191 | 0.294333 |
| **Katsina** | 4 | 5050 | 1262.5 | 1 | 0.504902 | 0.254926 | 1 | 0.650664 | 0.275468 |
| **Katsina** | 5 | 4100 | 820 | 1 | 0.678431 | 0.460269 | 1 | 0.773105 | 0.462077 |
| **Katsina** | 6 | 6100 | 1016.667 | 1 | 0.601307 | 0.36157 | 1 | 0.718687 | 0.371209 |
| **Katsina** | 1 | 12000 | 12000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Katsina** | 2 | 4500 | 2250 | 1 | 0.117647 | 0.013841 | 1 | 0.377421 | 0.053762 |
| **Katsina** | 3 | 5500 | 1833.333 | 1 | 0.281046 | 0.078987 | 1 | 0.492714 | 0.119614 |
| **Katsina** | 4 | 11000 | 2750 | 0 | 0 | 0 | 1 | 0.23907 | 0.013664 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Katsina** | 5 | 5500 | 1100 | 1 | 0.568627 | 0.323337 | 1 | 0.695628 | 0.336613 |
| **Katsina** | 1 | 8500 | 8500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Katsina** | 2 | 5500 | 2750 | 0 | 0 | 0 | 1 | 0.23907 | 0.013664 |
| **Katsina** | 3 | 6500 | 2166.667 | 1 | 0.150327 | 0.022598 | 1 | 0.40048 | 0.06423 |
| **Katsina** | 7 | 9506 | 1358 | 1 | 0.467451 | 0.21851 | 1 | 0.624239 | 0.24325 |
| **Katsina** | 8 | 67600 | 8450 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Katsina** | 1 | 21200 | 21200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Katsina** | 2 | 7000 | 3500 | 0 | 0 | 0 | 1 | 0.031544 | 3.14E-05 |
| **Katsina** | 3 | 5500 | 1833.333 | 1 | 0.281046 | 0.078987 | 1 | 0.492714 | 0.119614 |
| **Katsina** | 4 | 10000 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Katsina** | 5 | 6700 | 1340 | 1 | 0.47451 | 0.22516 | 1 | 0.62922 | 0.249119 |
| **Katsina** | 6 | 4500 | 750 | 1 | 0.705882 | 0.49827 | 1 | 0.792474 | 0.497685 |
| **Katsina** | 7 | 7000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Katsina** | 8 | 9700 | 1212.5 | 1 | 0.52451 | 0.275111 | 1 | 0.664499 | 0.293416 |
| **Katsina** | 1 | 6100 | 6100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Katsina** | 2 | 19000 | 9500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 2 | 17000 | 8500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 3 | 14000 | 4666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 4 | 15000 | 3750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 1 | 16000 | 16000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 2 | 13000 | 6500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 1 | 19500 | 19500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 2 | 17000 | 8500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 3 | 18000 | 6000 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Kebbi** | 4 | 10000 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Kebbi** | 1 | 10000 | 10000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 2 | 19000 | 9500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 3 | 28000 | 9333.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 4 | 14000 | 3500 | 0 | 0 | 0 | 1 | 0.031544 | 3.14E-05 |
| **Kebbi** | 1 | 9000 | 9000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 2 | 19000 | 9500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 3 | 5850 | 1950 | 1 | 0.235294 | 0.055363 | 1 | 0.460432 | 0.09761 |
| **Kebbi** | 4 | 10000 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Kebbi** | 5 | 22100 | 4420 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 1 | 30000 | 30000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 2 | 14500 | 7250 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 3 | 5060 | 1686.667 | 1 | 0.338562 | 0.114624 | 1 | 0.533296 | 0.151672 |
| **Kebbi** | 1 | 24000 | 24000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 2 | 7000 | 3500 | 0 | 0 | 0 | 1 | 0.031544 | 3.14E-05 |
| **Kebbi** | 1 | 27000 | 27000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 2 | 31000 | 15500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 3 | 10620 | 3540 | 0 | 0 | 0 | 1 | 0.020476 | 8.58E-06 |
| **Kebbi** | 1 | 4400 | 4400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 2 | 9060 | 4530 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kebbi** | 3 | 800 | 266.6667 | 1 | 0.895425 | 0.801786 | 1 | 0.926213 | 0.794571 |
| **Kebbi** | 5 | 4700 | 940 | 1 | 0.631373 | 0.398631 | 1 | 0.7399 | 0.40506 |
| **Kebbi** | 1 | 3300 | 3300 | 0 | 0 | 0 | 1 | 0.086884 | 0.000656 |
| **Kebbi** | 2 | 1500 | 750 | 1 | 0.705882 | 0.49827 | 1 | 0.792474 | 0.497685 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Kebbi** | 3 | 7700 | 2566.667 | 0 | 0 | 0 | 1 | 0.289799 | 0.024338 |
| **Kebbi** | 4 | 3200 | 800 | 1 | 0.686275 | 0.470973 | 1 | 0.778639 | 0.472072 |
| **Kebbi** | 5 | 9060 | 1812 | 1 | 0.289412 | 0.083759 | 1 | 0.498616 | 0.123965 |
| **Kebbi** | 6 | 18000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Kebbi** | 7 | 13000 | 1857.143 | 1 | 0.271709 | 0.073826 | 1 | 0.486125 | 0.11488 |
| **Kebbi** | 8 | 14000 | 1750 | 1 | 0.313725 | 0.098424 | 1 | 0.515772 | 0.137206 |
| **Kebbi** | 9 | 14000 | 1555.556 | 1 | 0.389978 | 0.152083 | 1 | 0.569575 | 0.184779 |
| **Kebbi** | 10 | 15000 | 1500 | 1 | 0.411765 | 0.16955 | 1 | 0.584947 | 0.200148 |
| **Kebbi** | 4 | 8000 | 2000 | 1 | 0.215686 | 0.046521 | 1 | 0.446597 | 0.089073 |
| **Kebbi** | 5 | 8000 | 1600 | 1 | 0.372549 | 0.138793 | 1 | 0.557277 | 0.173067 |
| **Kebbi** | 6 | 6000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Kebbi** | 7 | 5590 | 798.5714 | 1 | 0.686835 | 0.471742 | 1 | 0.779034 | 0.472791 |
| **Kebbi** | 1 | 1800 | 1800 | 1 | 0.294118 | 0.086505 | 1 | 0.501937 | 0.126458 |
| **Kebbi** | 2 | 4800 | 2400 | 1 | 0.058824 | 0.00346 | 1 | 0.335916 | 0.037905 |
| **Kebbi** | 3 | 3700 | 1233.333 | 1 | 0.51634 | 0.266607 | 1 | 0.658735 | 0.285845 |
| **Kebbi** | 4 | 2820 | 705 | 1 | 0.723529 | 0.523495 | 1 | 0.804925 | 0.521515 |
| **Kebbi** | 5 | 4360 | 872 | 1 | 0.658039 | 0.433016 | 1 | 0.758716 | 0.436755 |
| **Kebbi** | 6 | 2950 | 491.6667 | 1 | 0.80719 | 0.651555 | 1 | 0.863955 | 0.644872 |
| **Kebbi** | 7 | 2900 | 414.2857 | 1 | 0.837535 | 0.701465 | 1 | 0.885366 | 0.694015 |
| **Kogi** | 1 | 10000 | 10000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kogi** | 2 | 11000 | 5500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kogi** | 3 | 9100 | 3033.333 | 0 | 0 | 0 | 1 | 0.160671 | 0.004148 |
| **Kogi** | 4 | 11106 | 2776.5 | 0 | 0 | 0 | 1 | 0.231738 | 0.012445 |
| **Kogi** | 5 | 16000 | 3200 | 0 | 0 | 0 | 1 | 0.114555 | 0.001503 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Kogi** | 6 | 12400 | 2066.667 | 1 | 0.189542 | 0.035926 | 1 | 0.42815 | 0.078485 |
| **Kogi** | 1 | 7600 | 7600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kogi** | 2 | 6000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Kogi** | 1 | 13800 | 13800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kogi** | 2 | 4000 | 2000 | 1 | 0.215686 | 0.046521 | 1 | 0.446597 | 0.089073 |
| **Kogi** | 3 | 3000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Kogi** | 4 | 15400 | 3850 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kogi** | 1 | 4900 | 4900 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kogi** | 2 | 9150 | 4575 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kogi** | 1 | 14250 | 14250 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kogi** | 2 | 5100 | 2550 | 1 | 0 | 0 | 1 | 0.294411 | 0.025519 |
| **Kogi** | 3 | 3950 | 1316.667 | 1 | 0.48366 | 0.233927 | 1 | 0.635676 | 0.256867 |
| **Kogi** | 4 | 5250 | 1312.5 | 1 | 0.485294 | 0.23551 | 1 | 0.636829 | 0.258267 |
| **Kogi** | 1 | 3450 | 3450 | 0 | 0 | 0 | 1 | 0.045379 | 9.34E-05 |
| **Kogi** | 2 | 9500 | 4750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kogi** | 3 | 31000 | 10333.33 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kogi** | 4 | 12750 | 3187.5 | 0 | 0 | 0 | 1 | 0.118013 | 0.001644 |
| **Kogi** | 5 | 15800 | 3160 | 0 | 0 | 0 | 1 | 0.125623 | 0.001982 |
| **Kogi** | 6 | 1200 | 200 | 1 | 0.921569 | 0.849289 | 1 | 0.94466 | 0.842997 |
| **Kogi** | 7 | 8400 | 1200 | 1 | 0.529412 | 0.280277 | 1 | 0.667958 | 0.298021 |
| **Kogi** | 8 | 10800 | 1350 | 1 | 0.470588 | 0.221453 | 1 | 0.626453 | 0.245847 |
| **Kogi** | 9 | 7900 | 877.7778 | 1 | 0.655773 | 0.430039 | 1 | 0.757117 | 0.434 |
| **Kogi** | 10 | 6200 | 620 | 1 | 0.756863 | 0.572841 | 1 | 0.828445 | 0.568579 |
| **Kwara** | 7 | 4000 | 571.4286 | 1 | 0.77591 | 0.602037 | 1 | 0.841885 | 0.596703 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Kwara** | 8 | 6000 | 750 | 1 | 0.705882 | 0.49827 | 1 | 0.792474 | 0.497685 |
| **Kwara** | 9 | 2500 | 277.7778 | 1 | 0.891068 | 0.794001 | 1 | 0.923138 | 0.786684 |
| **Kwara** | 1 | 9020 | 9020 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kwara** | 2 | 44200 | 22100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kwara** | 3 | 5000 | 1666.667 | 1 | 0.346405 | 0.119997 | 1 | 0.53883 | 0.156443 |
| **Kwara** | 4 | 12700 | 3175 | 0 | 0 | 0 | 1 | 0.121472 | 0.001792 |
| **Kwara** | 5 | 10400 | 2080 | 1 | 0.184314 | 0.033972 | 1 | 0.42446 | 0.076474 |
| **Kwara** | 6 | 11500 | 1916.667 | 1 | 0.248366 | 0.061686 | 1 | 0.469655 | 0.103595 |
| **Kwara** | 1 | 15900 | 15900 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kwara** | 2 | 5400 | 2700 | 0 | 0 | 0 | 1 | 0.252905 | 0.016176 |
| **Kwara** | 3 | 4100 | 1366.667 | 1 | 0.464052 | 0.215345 | 1 | 0.621841 | 0.240457 |
| **Kwara** | 4 | 31900 | 7975 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kwara** | 4 | 4500 | 1125 | 1 | 0.558824 | 0.312284 | 1 | 0.688711 | 0.326671 |
| **Kwara** | 6 | 2500 | 416.6667 | 1 | 0.836601 | 0.699902 | 1 | 0.884708 | 0.692467 |
| **Kwara** | 1 | 600 | 600 | 1 | 0.764706 | 0.584775 | 1 | 0.833979 | 0.58005 |
| **Kwara** | 2 | 1600 | 800 | 1 | 0.686275 | 0.470973 | 1 | 0.778639 | 0.472072 |
| **Kwara** | 3 | 5200 | 1733.333 | 1 | 0.320261 | 0.102567 | 1 | 0.520384 | 0.140919 |
| **Kwara** | 5 | 7340 | 1468 | 1 | 0.424314 | 0.180042 | 1 | 0.593802 | 0.209375 |
| **Kwara** | 6 | 600 | 100 | 1 | 0.960784 | 0.923106 | 1 | 0.97233 | 0.919265 |
| **Kwara** | 1 | 270 | 270 | 1 | 0.894118 | 0.799446 | 1 | 0.925291 | 0.792199 |
| **Kwara** | 12 | 1050 | 87.5 | 1 | 0.965686 | 0.93255 | 1 | 0.975789 | 0.92911 |
| **Kwara** | 3 | 5600 | 1866.667 | 1 | 0.267974 | 0.07181 | 1 | 0.48349 | 0.113022 |
| **Kwara** | 1 | 2500 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Kwara** | 2 | 1500 | 750 | 1 | 0.705882 | 0.49827 | 1 | 0.792474 | 0.497685 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Kwara** | 3 | 2100 | 700 | 1 | 0.72549 | 0.526336 | 1 | 0.806309 | 0.524209 |
| **Kwara** | 4 | 5500 | 1375 | 1 | 0.460784 | 0.212322 | 1 | 0.619535 | 0.237792 |
| **Kwara** | 5 | 1500 | 300 | 1 | 0.882353 | 0.778547 | 1 | 0.916989 | 0.771069 |
| **Kwara** | 6 | 760 | 126.6667 | 1 | 0.950327 | 0.903121 | 1 | 0.964951 | 0.898496 |
| **Kwara** | 3 | 2500 | 833.3333 | 1 | 0.673203 | 0.453202 | 1 | 0.769415 | 0.455494 |
| **Kwara** | 5 | 4060 | 812 | 1 | 0.681569 | 0.464536 | 1 | 0.775318 | 0.466058 |
| **Kwara** | 6 | 3500 | 583.3333 | 1 | 0.771242 | 0.594814 | 1 | 0.838591 | 0.589726 |
| **Kwara** | 1 | 2500 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Kwara** | 2 | 8300 | 4150 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kwara** | 3 | 8700 | 2900 | 0 | 0 | 0 | 1 | 0.197565 | 0.007711 |
| **Kwara** | 4 | 17000 | 4250 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kwara** | 1 | 6000 | 6000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 1 | 16500 | 16500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 2 | 4500 | 2250 | 1 | 0.117647 | 0.013841 | 1 | 0.377421 | 0.053762 |
| **Lagos** | 3 | 28000 | 9333.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 4 | 26000 | 6500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 1 | 8500 | 8500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 7 | 700 | 100 | 1 | 0.960784 | 0.923106 | 1 | 0.97233 | 0.919265 |
| **Lagos** | 3 | 11500 | 3833.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 1 | 4000 | 4000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 2 | 7500 | 3750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 3 | 1200 | 400 | 1 | 0.843137 | 0.71088 | 1 | 0.889319 | 0.703353 |
| **Lagos** | 4 | 200 | 50 | 1 | 0.980392 | 0.961169 | 1 | 0.986165 | 0.959066 |
| **Lagos** | 1 | 15000 | 15000 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Lagos** | 2 | 1500 | 750 | 1 | 0.705882 | 0.49827 | 1 | 0.792474 | 0.497685 |
| **Lagos** | 3 | 2000 | 666.6667 | 1 | 0.738562 | 0.545474 | 1 | 0.815532 | 0.542405 |
| **Lagos** | 4 | 3750 | 937.5 | 1 | 0.632353 | 0.39987 | 1 | 0.740592 | 0.406198 |
| **Lagos** | 5 | 19000 | 3800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 1 | 12000 | 12000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 2 | 12000 | 6000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 3 | 3 | 1 | 1 | 0.999608 | 0.999216 | 1 | 0.999723 | 0.99917 |
| **Lagos** | 1 | 24000 | 24000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 2 | 24000 | 12000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 3 | 32000 | 10666.67 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 4 | 38000 | 9500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 5 | 39500 | 7900 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 6 | 14200 | 2366.667 | 1 | 0.071895 | 0.005169 | 1 | 0.345139 | 0.041113 |
| **Lagos** | 1 | 15201 | 15201 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 2 | 22300 | 11150 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 3 | 29000 | 9666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 2 | 700 | 350 | 1 | 0.862745 | 0.744329 | 1 | 0.903154 | 0.736692 |
| **Lagos** | 3 | 7000 | 2333.333 | 1 | 0.084967 | 0.007219 | 1 | 0.354363 | 0.044498 |
| **Lagos** | 4 | 8300 | 2075 | 1 | 0.186275 | 0.034698 | 1 | 0.425844 | 0.077224 |
| **Lagos** | 5 | 25000 | 5000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 6 | 22000 | 3666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 7 | 12700 | 1814.286 | 1 | 0.288515 | 0.083241 | 1 | 0.497984 | 0.123494 |
| **Lagos** | 1 | 21000 | 21000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 1 | 14000 | 14000 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Lagos** | 2 | 32000 | 16000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 3 | 53500 | 17833.33 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 4 | 13600 | 3400 | 0 | 0 | 0 | 1 | 0.059214 | 0.000208 |
| **Lagos** | 5 | 7500 | 1500 | 1 | 0.411765 | 0.16955 | 1 | 0.584947 | 0.200148 |
| **Lagos** | 1 | 23000 | 23000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lagos** | 2 | 6000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Nassarawa** | 2 | 6000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Nassarawa** | 3 | 7800 | 2600 | 0 | 0 | 0 | 1 | 0.280576 | 0.022088 |
| **Nassarawa** | 4 | 3700 | 925 | 1 | 0.637255 | 0.406094 | 1 | 0.744051 | 0.411915 |
| **Nassarawa** | 1 | 6500 | 6500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Nassarawa** | 2 | 4500 | 2250 | 1 | 0.117647 | 0.013841 | 1 | 0.377421 | 0.053762 |
| **Nassarawa** | 3 | 10560 | 3520 | 0 | 0 | 0 | 1 | 0.02601 | 1.76E-05 |
| **Nassarawa** | 4 | 9500 | 2375 | 1 | 0.068627 | 0.00471 | 1 | 0.342833 | 0.040295 |
| **Nassarawa** | 5 | 12000 | 2400 | 1 | 0.058824 | 0.00346 | 1 | 0.335916 | 0.037905 |
| **Nassarawa** | 6 | 9000 | 1500 | 1 | 0.411765 | 0.16955 | 1 | 0.584947 | 0.200148 |
| **Nassarawa** | 1 | 4100 | 4100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Nassarawa** | 2 | 4000 | 2000 | 1 | 0.215686 | 0.046521 | 1 | 0.446597 | 0.089073 |
| **Nassarawa** | 19 | 6200 | 326.3158 | 1 | 0.872033 | 0.760442 | 1 | 0.909708 | 0.752845 |
| **Nassarawa** | 6 | 6700 | 1116.667 | 1 | 0.562092 | 0.315947 | 1 | 0.691016 | 0.329963 |
| **Nassarawa** | 7 | 2850 | 407.1429 | 1 | 0.840336 | 0.706165 | 1 | 0.887343 | 0.698674 |
| **Nassarawa** | 8 | 3200 | 400 | 1 | 0.843137 | 0.71088 | 1 | 0.889319 | 0.703353 |
| **Nassarawa** | 9 | 8200 | 911.1111 | 1 | 0.642702 | 0.413065 | 1 | 0.747894 | 0.418331 |
| **Nassarawa** | 10 | 9500 | 950 | 1 | 0.627451 | 0.393695 | 1 | 0.737133 | 0.400533 |
| **Nassarawa** | 1 | 5450 | 5450 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Nassarawa** | 2 | 16800 | 8400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Nassarawa** | 3 | 24400 | 8133.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Nassarawa** | 4 | 9100 | 2275 | 1 | 0.107843 | 0.01163 | 1 | 0.370504 | 0.05086 |
| **Nassarawa** | 5 | 19700 | 3940 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Nassarawa** | 6 | 10600 | 1766.667 | 1 | 0.30719 | 0.094365 | 1 | 0.51116 | 0.133558 |
| **Nassarawa** | 7 | 11600 | 1657.143 | 1 | 0.35014 | 0.122598 | 1 | 0.541466 | 0.15875 |
| **Nassarawa** | 8 | 8050 | 1006.25 | 1 | 0.605392 | 0.3665 | 1 | 0.721569 | 0.375693 |
| **Nassarawa** | 1 | 29000 | 29000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Nassarawa** | 2 | 2390 | 1195 | 1 | 0.531373 | 0.282357 | 1 | 0.669341 | 0.299877 |
| **Nassarawa** | 3 | 1600 | 533.3333 | 1 | 0.79085 | 0.625443 | 1 | 0.852426 | 0.619398 |
| **Nassarawa** | 4 | 7800 | 1950 | 1 | 0.235294 | 0.055363 | 1 | 0.460432 | 0.09761 |
| **Nassarawa** | 5 | 10500 | 2100 | 1 | 0.176471 | 0.031142 | 1 | 0.418926 | 0.073521 |
| **Nassarawa** | 6 | 13700 | 2283.333 | 1 | 0.104575 | 0.010936 | 1 | 0.368198 | 0.049916 |
| **Nassarawa** | 7 | 11100 | 1585.714 | 1 | 0.378151 | 0.142998 | 1 | 0.56123 | 0.176776 |
| **Nassarawa** | 8 | 10200 | 1275 | 1 | 0.5 | 0.25 | 1 | 0.647205 | 0.271098 |
| **Nassarawa** | 9 | 9400 | 1044.444 | 1 | 0.590414 | 0.348589 | 1 | 0.711 | 0.359426 |
| **Nassarawa** | 10 | 10200 | 1020 | 1 | 0.6 | 0.36 | 1 | 0.717764 | 0.369782 |
| **Nassarawa** | 1 | 6800 | 6800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Nassarawa** | 2 | 7000 | 3500 | 0 | 0 | 0 | 1 | 0.031544 | 3.14E-05 |
| **Nassarawa** | 3 | 5000 | 1666.667 | 1 | 0.346405 | 0.119997 | 1 | 0.53883 | 0.156443 |
| **Nassarawa** | 4 | 21900 | 5475 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Nassarawa** | 5 | 3500 | 700 | 1 | 0.72549 | 0.526336 | 1 | 0.806309 | 0.524209 |
| **Nassarawa** | 1 | 2900 | 2900 | 0 | 0 | 0 | 1 | 0.197565 | 0.007711 |
| **Nassarawa** | 3 | 6757 | 2252.333 | 1 | 0.116732 | 0.013626 | 1 | 0.376776 | 0.053487 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Nassarawa** | 4 | 4400 | 1100 | 1 | 0.568627 | 0.323337 | 1 | 0.695628 | 0.336613 |
| **Nassarawa** | 5 | 3900 | 780 | 1 | 0.694118 | 0.481799 | 1 | 0.784173 | 0.482209 |
| **Nassarawa** | 6 | 4100 | 683.3333 | 1 | 0.732026 | 0.535862 | 1 | 0.81092 | 0.533255 |
| **Nassarawa** | 7 | 8000 | 1142.857 | 1 | 0.551821 | 0.304506 | 1 | 0.683769 | 0.31969 |
| **Nassarawa** | 8 | 6500 | 812.5 | 1 | 0.681373 | 0.464269 | 1 | 0.77518 | 0.465809 |
| **Nassarawa** | 9 | 15500 | 1722.222 | 1 | 0.324619 | 0.105377 | 1 | 0.523458 | 0.143432 |
| **Nassarawa** | 10 | 5000 | 500 | 1 | 0.803922 | 0.64629 | 1 | 0.861649 | 0.639722 |
| **Nassarawa** | 11 | 14500 | 1318.182 | 1 | 0.483066 | 0.233353 | 1 | 0.635257 | 0.256359 |
| **Nassarawa** | 12 | 57500 | 4791.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Nassarawa** | 14 | 6500 | 464.2857 | 1 | 0.817927 | 0.669005 | 1 | 0.871531 | 0.661986 |
| **Nassarawa** | 15 | 4700 | 313.3333 | 1 | 0.877124 | 0.769347 | 1 | 0.9133 | 0.761799 |
| **Nassarawa** | 16 | 14000 | 875 | 1 | 0.656863 | 0.431469 | 1 | 0.757886 | 0.435323 |
| **Nassarawa** | 1 | 15700 | 15700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Nassarawa** | 2 | 18500 | 9250 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Nassarawa** | 1 | 12700 | 12700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 5 | 6000 | 1200 | 1 | 0.529412 | 0.280277 | 1 | 0.667958 | 0.298021 |
| **Niger** | 6 | 13700 | 2283.333 | 1 | 0.104575 | 0.010936 | 1 | 0.368198 | 0.049916 |
| **Niger** | 1 | 20000 | 20000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 2 | 9600 | 4800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 3 | 12800 | 4266.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 4 | 10000 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Niger** | 5 | 11600 | 2320 | 1 | 0.090196 | 0.008135 | 1 | 0.358052 | 0.045903 |
| **Niger** | 1 | 9600 | 9600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 2 | 10360 | 5180 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Niger** | 3 | 12200 | 4066.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 4 | 30000 | 7500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 5 | 28000 | 5600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 6 | 40000 | 6666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 7 | 28000 | 4000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 1 | 24000 | 24000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 2 | 26400 | 13200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 3 | 21800 | 7266.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 1 | 12400 | 12400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 2 | 19200 | 9600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 3 | 13600 | 4533.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 4 | 22600 | 5650 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 5 | 30000 | 6000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 6 | 14800 | 2466.667 | 1 | 0.03268 | 0.001068 | 1 | 0.317469 | 0.031997 |
| **Niger** | 7 | 11750 | 1678.571 | 1 | 0.341737 | 0.116784 | 1 | 0.535536 | 0.153591 |
| **Niger** | 8 | 16700 | 2087.5 | 1 | 0.181373 | 0.032896 | 1 | 0.422385 | 0.075357 |
| **Niger** | 1 | 21500 | 21500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 1 | 11100 | 11100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 2 | 13900 | 6950 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 1 | 7500 | 7500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 1 | 11500 | 11500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Niger** | 1 | 28000 | 28000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ogun** | 3 | 6300 | 2100 | 1 | 0.176471 | 0.031142 | 1 | 0.418926 | 0.073521 |
| **Ogun** | 4 | 3800 | 950 | 1 | 0.627451 | 0.393695 | 1 | 0.737133 | 0.400533 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Ogun** | 1 | 5200 | 5200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ogun** | 2 | 6100 | 3050 | 0 | 0 | 0 | 1 | 0.15606 | 0.003801 |
| **Ogun** | 3 | 5100 | 1700 | 1 | 0.333333 | 0.111111 | 1 | 0.529607 | 0.148546 |
| **Ogun** | 4 | 2900 | 725 | 1 | 0.715686 | 0.512207 | 1 | 0.799391 | 0.510832 |
| **Ogun** | 5 | 4900 | 980 | 1 | 0.615686 | 0.37907 | 1 | 0.728832 | 0.387153 |
| **Ogun** | 6 | 4100 | 683.3333 | 1 | 0.732026 | 0.535862 | 1 | 0.81092 | 0.533255 |
| **Ogun** | 7 | 4100 | 585.7143 | 1 | 0.770308 | 0.593375 | 1 | 0.837932 | 0.588337 |
| **Ogun** | 8 | 3500 | 437.5 | 1 | 0.828431 | 0.686299 | 1 | 0.878943 | 0.679019 |
| **Ogun** | 1 | 4500 | 4500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ogun** | 2 | 6110 | 3055 | 0 | 0 | 0 | 1 | 0.154676 | 0.003701 |
| **Ogun** | 3 | 4500 | 1500 | 1 | 0.411765 | 0.16955 | 1 | 0.584947 | 0.200148 |
| **Ogun** | 1 | 4400 | 4400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ogun** | 1 | 5300 | 5300 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ogun** | 2 | 6750 | 3375 | 0 | 0 | 0 | 1 | 0.066132 | 0.000289 |
| **Ogun** | 3 | 11100 | 3700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ogun** | 1 | 7400 | 7400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ogun** | 2 | 7400 | 3700 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ogun** | 3 | 4500 | 1500 | 1 | 0.411765 | 0.16955 | 1 | 0.584947 | 0.200148 |
| **Ogun** | 4 | 7300 | 1825 | 1 | 0.284314 | 0.080834 | 1 | 0.495019 | 0.121302 |
| **Ogun** | 5 | 4400 | 880 | 1 | 0.654902 | 0.428897 | 1 | 0.756502 | 0.432943 |
| **Ondo** | 3 | 14000 | 4666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ondo** | 4 | 15400 | 3850 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ondo** | 1 | 16000 | 16000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ondo** | 1 | 9000 | 9000 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Ondo** | 1 | 12000 | 12000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ondo** | 2 | 14000 | 7000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ondo** | 1 | 1100 | 1100 | 1 | 0.568627 | 0.323337 | 1 | 0.695628 | 0.336613 |
| **Ondo** | 2 | 5000 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Ondo** | 4 | 450 | 112.5 | 1 | 0.955882 | 0.913711 | 1 | 0.968871 | 0.90949 |
| **Ondo** | 5 | 1100 | 220 | 1 | 0.913725 | 0.834894 | 1 | 0.939126 | 0.828268 |
| **Ondo** | 7 | 900 | 128.5714 | 1 | 0.94958 | 0.901702 | 1 | 0.964424 | 0.897024 |
| **Ondo** | 9 | 400 | 44.44444 | 1 | 0.982571 | 0.965445 | 1 | 0.987702 | 0.963558 |
| **Ondo** | 1 | 1700 | 1700 | 1 | 0.333333 | 0.111111 | 1 | 0.529607 | 0.148546 |
| **Ondo** | 2 | 11500 | 5750 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ondo** | 1 | 10900 | 10900 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ondo** | 3 | 8000 | 2666.667 | 0 | 0 | 0 | 1 | 0.262129 | 0.018011 |
| **Ondo** | 4 | 4000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Ondo** | 6 | 2400 | 400 | 1 | 0.843137 | 0.71088 | 1 | 0.889319 | 0.703353 |
| **Ondo** | 7 | 2400 | 342.8571 | 1 | 0.865546 | 0.74917 | 1 | 0.905131 | 0.741539 |
| **Ondo** | 1 | 4800 | 4800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ondo** | 2 | 8200 | 4100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ondo** | 3 | 6600 | 2200 | 1 | 0.137255 | 0.018839 | 1 | 0.391256 | 0.059894 |
| **Ondo** | 4 | 4400 | 1100 | 1 | 0.568627 | 0.323337 | 1 | 0.695628 | 0.336613 |
| **Ondo** | 5 | 7000 | 1400 | 1 | 0.45098 | 0.203383 | 1 | 0.612618 | 0.229916 |
| **Ondo** | 6 | 4600 | 766.6667 | 1 | 0.699346 | 0.489085 | 1 | 0.787862 | 0.489047 |
| **Ondo** | 1 | 4600 | 4600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ondo** | 2 | 5600 | 2800 | 0 | 0 | 0 | 1 | 0.225235 | 0.011426 |
| **Ondo** | 3 | 2800 | 933.3333 | 1 | 0.633987 | 0.401939 | 1 | 0.741745 | 0.408098 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Ondo** | 4 | 8800 | 2200 | 1 | 0.137255 | 0.018839 | 1 | 0.391256 | 0.059894 |
| **Osun** | 6 | 14700 | 2450 | 1 | 0.039216 | 0.001538 | 1 | 0.322081 | 0.033411 |
| **Osun** | 7 | 25000 | 3571.429 | 0 | 0 | 0 | 1 | 0.01178 | 1.63E-06 |
| **Osun** | 8 | 12000 | 1500 | 1 | 0.411765 | 0.16955 | 1 | 0.584947 | 0.200148 |
| **Osun** | 4 | 5000 | 1250 | 1 | 0.509804 | 0.2599 | 1 | 0.654123 | 0.279884 |
| **Osun** | 1 | 6000 | 6000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Osun** | 2 | 7000 | 3500 | 0 | 0 | 0 | 1 | 0.031544 | 3.14E-05 |
| **Osun** | 3 | 10500 | 3500 | 0 | 0 | 0 | 1 | 0.031544 | 3.14E-05 |
| **Osun** | 4 | 4500 | 1125 | 1 | 0.558824 | 0.312284 | 1 | 0.688711 | 0.326671 |
| **Osun** | 5 | 73000 | 14600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Osun** | 6 | 7300 | 1216.667 | 1 | 0.522876 | 0.273399 | 1 | 0.663346 | 0.291891 |
| **Osun** | 1 | 2100 | 2100 | 1 | 0.176471 | 0.031142 | 1 | 0.418926 | 0.073521 |
| **Osun** | 1 | 4500 | 4500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Osun** | 2 | 3400 | 1700 | 1 | 0.333333 | 0.111111 | 1 | 0.529607 | 0.148546 |
| **Osun** | 3 | 1800 | 600 | 1 | 0.764706 | 0.584775 | 1 | 0.833979 | 0.58005 |
| **Osun** | 1 | 1900 | 1900 | 1 | 0.254902 | 0.064975 | 1 | 0.474267 | 0.106676 |
| **Osun** | 2 | 1500 | 750 | 1 | 0.705882 | 0.49827 | 1 | 0.792474 | 0.497685 |
| **Osun** | 3 | 4000 | 1333.333 | 1 | 0.477124 | 0.227647 | 1 | 0.631064 | 0.251316 |
| **Osun** | 4 | 4000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Osun** | 5 | 2800 | 560 | 1 | 0.780392 | 0.609012 | 1 | 0.845047 | 0.603452 |
| **Oyo** | 4 | 13500 | 3375 | 0 | 0 | 0 | 1 | 0.066132 | 0.000289 |
| **Oyo** | 1 | 3500 | 3500 | 0 | 0 | 0 | 1 | 0.031544 | 3.14E-05 |
| **Oyo** | 2 | 45100 | 22550 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Oyo** | 3 | 53000 | 17666.67 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Oyo** | 4 | 73000 | 18250 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Oyo** | 1 | 69000 | 69000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Oyo** | 2 | 125000 | 62500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Oyo** | 3 | 57000 | 19000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Oyo** | 1 | 4500 | 4500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Oyo** | 2 | 5000 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Oyo** | 3 | 3000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Oyo** | 4 | 3800 | 950 | 1 | 0.627451 | 0.393695 | 1 | 0.737133 | 0.400533 |
| **Oyo** | 5 | 3000 | 600 | 1 | 0.764706 | 0.584775 | 1 | 0.833979 | 0.58005 |
| **Oyo** | 1 | 3000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Oyo** | 2 | 6000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Oyo** | 3 | 1900 | 633.3333 | 1 | 0.751634 | 0.564954 | 1 | 0.824756 | 0.561017 |
| **Oyo** | 4 | 11000 | 2750 | 0 | 0 | 0 | 1 | 0.23907 | 0.013664 |
| **Oyo** | 5 | 48000 | 9600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Oyo** | 6 | 22000 | 3666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Oyo** | 1 | 22000 | 22000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Oyo** | 2 | 2400 | 1200 | 1 | 0.529412 | 0.280277 | 1 | 0.667958 | 0.298021 |
| **Oyo** | 3 | 9600 | 3200 | 0 | 0 | 0 | 1 | 0.114555 | 0.001503 |
| **Plateau** | 3 | 2900 | 966.6667 | 1 | 0.620915 | 0.385535 | 1 | 0.732522 | 0.393062 |
| **Plateau** | 4 | 18700 | 4675 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Plateau** | 5 | 59200 | 11840 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Plateau** | 6 | 1700 | 283.3333 | 1 | 0.888889 | 0.790123 | 1 | 0.921601 | 0.782761 |
| **Plateau** | 7 | 5700 | 814.2857 | 1 | 0.680672 | 0.463315 | 1 | 0.774686 | 0.464918 |
| **Plateau** | 1 | 11600 | 11600 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Plateau** | 2 | 10000 | 5000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Plateau** | 3 | 7100 | 2366.667 | 1 | 0.071895 | 0.005169 | 1 | 0.345139 | 0.041113 |
| **Plateau** | 4 | 1800 | 450 | 1 | 0.823529 | 0.678201 | 1 | 0.875484 | 0.671035 |
| **Plateau** | 1 | 3200 | 3200 | 0 | 0 | 0 | 1 | 0.114555 | 0.001503 |
| **Plateau** | 2 | 18000 | 9000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Plateau** | 3 | 720 | 240 | 1 | 0.905882 | 0.820623 | 1 | 0.933592 | 0.813712 |
| **Plateau** | 1 | 3300 | 3300 | 0 | 0 | 0 | 1 | 0.086884 | 0.000656 |
| **Plateau** | 2 | 750 | 375 | 1 | 0.852941 | 0.727509 | 1 | 0.896237 | 0.719894 |
| **Plateau** | 3 | 4300 | 1433.333 | 1 | 0.437908 | 0.191764 | 1 | 0.603394 | 0.219687 |
| **Plateau** | 4 | 2200 | 550 | 1 | 0.784314 | 0.615148 | 1 | 0.847814 | 0.609399 |
| **Plateau** | 5 | 6900 | 1380 | 1 | 0.458824 | 0.210519 | 1 | 0.618152 | 0.236203 |
| **Plateau** | 1 | 1650 | 1650 | 1 | 0.352941 | 0.124567 | 1 | 0.543442 | 0.160494 |
| **Plateau** | 2 | 260 | 130 | 1 | 0.94902 | 0.900638 | 1 | 0.964029 | 0.895922 |
| **Plateau** | 3 | 1200 | 400 | 1 | 0.843137 | 0.71088 | 1 | 0.889319 | 0.703353 |
| **Plateau** | 4 | 2700 | 675 | 1 | 0.735294 | 0.540657 | 1 | 0.813226 | 0.537817 |
| **Plateau** | 5 | 700 | 140 | 1 | 0.945098 | 0.89321 | 1 | 0.961262 | 0.888229 |
| **Plateau** | 6 | 4300 | 716.6667 | 1 | 0.718954 | 0.516895 | 1 | 0.801697 | 0.515265 |
| **Plateau** | 7 | 8000 | 1142.857 | 1 | 0.551821 | 0.304506 | 1 | 0.683769 | 0.31969 |
| **Plateau** | 1 | 9400 | 9400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Plateau** | 2 | 4700 | 2350 | 1 | 0.078431 | 0.006151 | 1 | 0.349751 | 0.042784 |
| **Plateau** | 3 | 10200 | 3400 | 0 | 0 | 0 | 1 | 0.059214 | 0.000208 |
| **Rivers** | 3 | 500 | 166.6667 | 1 | 0.934641 | 0.873553 | 1 | 0.953883 | 0.867931 |
| **Rivers** | 4 | 10500 | 2625 | 0 | 0 | 0 | 1 | 0.273658 | 0.020494 |
| **Rivers** | 5 | 11380 | 2276 | 1 | 0.107451 | 0.011546 | 1 | 0.370227 | 0.050746 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Rivers** | 1 | 11250 | 11250 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 2 | 12700 | 6350 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 3 | 17000 | 5666.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 4 | 14000 | 3500 | 0 | 0 | 0 | 1 | 0.031544 | 3.14E-05 |
| **Rivers** | 1 | 26500 | 26500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 2 | 6500 | 3250 | 0 | 0 | 0 | 1 | 0.100719 | 0.001022 |
| **Rivers** | 3 | 8000 | 2666.667 | 0 | 0 | 0 | 1 | 0.262129 | 0.018011 |
| **Rivers** | 1 | 23000 | 23000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 2 | 16000 | 8000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 3 | 12500 | 4166.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 1 | 18000 | 18000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 2 | 11600 | 5800 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 1 | 7500 | 7500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 2 | 5500 | 2750 | 0 | 0 | 0 | 1 | 0.23907 | 0.013664 |
| **Rivers** | 3 | 16000 | 5333.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 4 | 30600 | 7650 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 5 | 6500 | 1300 | 1 | 0.490196 | 0.240292 | 1 | 0.640288 | 0.262498 |
| **Rivers** | 6 | 14000 | 2333.333 | 1 | 0.084967 | 0.007219 | 1 | 0.354363 | 0.044498 |
| **Rivers** | 1 | 11500 | 11500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 2 | 6000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Rivers** | 3 | 5000 | 1666.667 | 1 | 0.346405 | 0.119997 | 1 | 0.53883 | 0.156443 |
| **Rivers** | 4 | 11000 | 2750 | 0 | 0 | 0 | 1 | 0.23907 | 0.013664 |
| **Rivers** | 1 | 2500 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Rivers** | 2 | 10000 | 5000 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Rivers** | 1 | 5000 | 5000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 2 | 15000 | 7500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 3 | 22000 | 7333.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 4 | 22600 | 5650 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 5 | 75100 | 15020 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 1 | 8000 | 8000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 2 | 11000 | 5500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rivers** | 3 | 25000 | 8333.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Sokoto** | 4 | 3400 | 850 | 1 | 0.666667 | 0.444444 | 1 | 0.764804 | 0.447352 |
| **Sokoto** | 5 | 4100 | 820 | 1 | 0.678431 | 0.460269 | 1 | 0.773105 | 0.462077 |
| **Sokoto** | 1 | 4500 | 4500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Sokoto** | 2 | 3500 | 1750 | 1 | 0.313725 | 0.098424 | 1 | 0.515772 | 0.137206 |
| **Sokoto** | 1 | 14000 | 14000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Sokoto** | 2 | 7000 | 3500 | 0 | 0 | 0 | 1 | 0.031544 | 3.14E-05 |
| **Sokoto** | 3 | 9000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Sokoto** | 4 | 5700 | 1425 | 1 | 0.441176 | 0.194637 | 1 | 0.6057 | 0.222215 |
| **Sokoto** | 1 | 9500 | 9500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Sokoto** | 1 | 7000 | 7000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Sokoto** | 2 | 6000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Sokoto** | 3 | 6500 | 2166.667 | 1 | 0.150327 | 0.022598 | 1 | 0.40048 | 0.06423 |
| **Sokoto** | 4 | 5200 | 1300 | 1 | 0.490196 | 0.240292 | 1 | 0.640288 | 0.262498 |
| **Sokoto** | 5 | 3600 | 720 | 1 | 0.717647 | 0.515017 | 1 | 0.800775 | 0.513489 |
| **Sokoto** | 1 | 3500 | 3500 | 0 | 0 | 0 | 1 | 0.031544 | 3.14E-05 |
| **Sokoto** | 2 | 3500 | 1750 | 1 | 0.313725 | 0.098424 | 1 | 0.515772 | 0.137206 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Sokoto** | 3 | 5300 | 1766.667 | 1 | 0.30719 | 0.094365 | 1 | 0.51116 | 0.133558 |
| **Sokoto** | 4 | 7100 | 1775 | 1 | 0.303922 | 0.092368 | 1 | 0.508854 | 0.131759 |
| **Sokoto** | 5 | 6000 | 1200 | 1 | 0.529412 | 0.280277 | 1 | 0.667958 | 0.298021 |
| **Taraba** | 6 | 2500 | 416.6667 | 1 | 0.836601 | 0.699902 | 1 | 0.884708 | 0.692467 |
| **Taraba** | 7 | 15000 | 2142.857 | 1 | 0.159664 | 0.025493 | 1 | 0.407068 | 0.067453 |
| **Taraba** | 8 | 3000 | 375 | 1 | 0.852941 | 0.727509 | 1 | 0.896237 | 0.719894 |
| **Taraba** | 10 | 5000 | 500 | 1 | 0.803922 | 0.64629 | 1 | 0.861649 | 0.639722 |
| **Taraba** | 11 | 7000 | 636.3636 | 1 | 0.750446 | 0.563169 | 1 | 0.823917 | 0.559307 |
| **Taraba** | 12 | 16000 | 1333.333 | 1 | 0.477124 | 0.227647 | 1 | 0.631064 | 0.251316 |
| **Taraba** | 14 | 8900 | 635.7143 | 1 | 0.7507 | 0.563551 | 1 | 0.824097 | 0.559673 |
| **Taraba** | 15 | 8200 | 546.6667 | 1 | 0.785621 | 0.6172 | 1 | 0.848736 | 0.61139 |
| **Taraba** | 16 | 3200 | 200 | 1 | 0.921569 | 0.849289 | 1 | 0.94466 | 0.842997 |
| **Taraba** | 28 | 5800 | 207.1429 | 1 | 0.918768 | 0.844134 | 1 | 0.942683 | 0.837717 |
| **Taraba** | 1 | 7600 | 7600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Taraba** | 2 | 6300 | 3150 | 0 | 0 | 0 | 1 | 0.12839 | 0.002116 |
| **Taraba** | 5 | 6500 | 1300 | 1 | 0.490196 | 0.240292 | 1 | 0.640288 | 0.262498 |
| **Taraba** | 4 | 5600 | 1400 | 1 | 0.45098 | 0.203383 | 1 | 0.612618 | 0.229916 |
| **Taraba** | 5 | 6800 | 1360 | 1 | 0.466667 | 0.217778 | 1 | 0.623686 | 0.242604 |
| **Taraba** | 1 | 3200 | 3200 | 0 | 0 | 0 | 1 | 0.114555 | 0.001503 |
| **Taraba** | 2 | 12400 | 6200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Taraba** | 3 | 10400 | 3466.667 | 0 | 0 | 0 | 1 | 0.040767 | 6.78E-05 |
| **Taraba** | 4 | 12400 | 3100 | 0 | 0 | 0 | 1 | 0.142225 | 0.002877 |
| **Taraba** | 1 | 8400 | 8400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Taraba** | 2 | 8400 | 4200 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Taraba** | 3 | 8000 | 2666.667 | 0 | 0 | 0 | 1 | 0.262129 | 0.018011 |
| **Taraba** | 4 | 10400 | 2600 | 0 | 0 | 0 | 1 | 0.280576 | 0.022088 |
| **Taraba** | 5 | 5450 | 1090 | 1 | 0.572549 | 0.327812 | 1 | 0.698395 | 0.340646 |
| **Taraba** | 6 | 6200 | 1033.333 | 1 | 0.594771 | 0.353753 | 1 | 0.714075 | 0.364109 |
| **Taraba** | 1 | 6900 | 6900 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Taraba** | 2 | 7950 | 3975 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Taraba** | 3 | 12200 | 4066.667 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Taraba** | 4 | 11620 | 2905 | 0 | 0 | 0 | 1 | 0.196182 | 0.00755 |
| **Taraba** | 5 | 12550 | 2510 | 1 | 0.015686 | 0.000246 | 1 | 0.305479 | 0.028506 |
| **Taraba** | 1 | 6350 | 6350 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Taraba** | 2 | 8960 | 4480 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Taraba** | 3 | 4700 | 1566.667 | 1 | 0.385621 | 0.148703 | 1 | 0.566501 | 0.181803 |
| **Taraba** | 4 | 7000 | 1750 | 1 | 0.313725 | 0.098424 | 1 | 0.515772 | 0.137206 |
| **Taraba** | 5 | 9000 | 1800 | 1 | 0.294118 | 0.086505 | 1 | 0.501937 | 0.126458 |
| **Taraba** | 6 | 5000 | 833.3333 | 1 | 0.673203 | 0.453202 | 1 | 0.769415 | 0.455494 |
| **Taraba** | 1 | 7000 | 7000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Taraba** | 2 | 5000 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Taraba** | 3 | 4900 | 1633.333 | 1 | 0.359477 | 0.129224 | 1 | 0.548054 | 0.164615 |
| **Taraba** | 4 | 5200 | 1300 | 1 | 0.490196 | 0.240292 | 1 | 0.640288 | 0.262498 |
| **Taraba** | 5 | 12300 | 2460 | 1 | 0.035294 | 0.001246 | 1 | 0.319314 | 0.032558 |
| **Taraba** | 1 | 3000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Yobe** | 1 | 1700 | 1700 | 1 | 0.333333 | 0.111111 | 1 | 0.529607 | 0.148546 |
| **Yobe** | 1 | 6200 | 6200 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Yobe** | 2 | 5400 | 2700 | 0 | 0 | 0 | 1 | 0.252905 | 0.016176 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Yobe** | 3 | 10200 | 3400 | 0 | 0 | 0 | 1 | 0.059214 | 0.000208 |
| **Yobe** | 4 | 8900 | 2225 | 1 | 0.127451 | 0.016244 | 1 | 0.384339 | 0.056773 |
| **Yobe** | 5 | 10700 | 2140 | 1 | 0.160784 | 0.025852 | 1 | 0.407858 | 0.067847 |
| **Yobe** | 6 | 5600 | 933.3333 | 1 | 0.633987 | 0.401939 | 1 | 0.741745 | 0.408098 |
| **Yobe** | 1 | 3900 | 3900 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Yobe** | 1 | 2500 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **Yobe** | 2 | 6000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Yobe** | 3 | 1600 | 533.3333 | 1 | 0.79085 | 0.625443 | 1 | 0.852426 | 0.619398 |
| **Yobe** | 4 | 7800 | 1950 | 1 | 0.235294 | 0.055363 | 1 | 0.460432 | 0.09761 |
| **Yobe** | 8 | 5000 | 625 | 1 | 0.754902 | 0.569877 | 1 | 0.827061 | 0.565735 |
| **Yobe** | 6 | 9700 | 1616.667 | 1 | 0.366013 | 0.133966 | 1 | 0.552666 | 0.168806 |
| **Yobe** | 7 | 10800 | 1542.857 | 1 | 0.394958 | 0.155992 | 1 | 0.573089 | 0.18822 |
| **Yobe** | 8 | 12800 | 1600 | 1 | 0.372549 | 0.138793 | 1 | 0.557277 | 0.173067 |
| **Yobe** | 1 | 11400 | 11400 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Yobe** | 2 | 4100 | 2050 | 1 | 0.196078 | 0.038447 | 1 | 0.432761 | 0.081049 |
| **Yobe** | 3 | 4500 | 1500 | 1 | 0.411765 | 0.16955 | 1 | 0.584947 | 0.200148 |
| **Yobe** | 1 | 5300 | 5300 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Yobe** | 1 | 37100 | 37100 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Zamfara** | 3 | 10600 | 3533.333 | 0 | 0 | 0 | 1 | 0.022321 | 1.11E-05 |
| **Zamfara** | 4 | 34000 | 8500 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Zamfara** | 5 | 7900 | 1580 | 1 | 0.380392 | 0.144698 | 1 | 0.562811 | 0.178274 |
| **Zamfara** | 6 | 10800 | 1800 | 1 | 0.294118 | 0.086505 | 1 | 0.501937 | 0.126458 |
| **Zamfara** | 1 | 12300 | 12300 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Zamfara** | 2 | 16500 | 8250 | 0 | 0 | 0 | 0 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Zamfara** | 3 | 13600 | 4533.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Zamfara** | 4 | 9200 | 2300 | 1 | 0.098039 | 0.009612 | 1 | 0.363586 | 0.048064 |
| **Zamfara** | 1 | 3190 | 3190 | 0 | 0 | 0 | 1 | 0.117322 | 0.001615 |
| **Zamfara** | 2 | 2700 | 1350 | 1 | 0.470588 | 0.221453 | 1 | 0.626453 | 0.245847 |
| **Zamfara** | 2 | 2000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Zamfara** | 4 | 4200 | 1050 | 1 | 0.588235 | 0.346021 | 1 | 0.709463 | 0.3571 |
| **Zamfara** | 5 | 2800 | 560 | 1 | 0.780392 | 0.609012 | 1 | 0.845047 | 0.603452 |
| **Zamfara** | 6 | 3300 | 550 | 1 | 0.784314 | 0.615148 | 1 | 0.847814 | 0.609399 |
| **Zamfara** | 1 | 6000 | 6000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Zamfara** | 2 | 9200 | 4600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Zamfara** | 3 | 2900 | 966.6667 | 1 | 0.620915 | 0.385535 | 1 | 0.732522 | 0.393062 |
| **Zamfara** | 4 | 3600 | 900 | 1 | 0.647059 | 0.418685 | 1 | 0.750968 | 0.423511 |
| **Zamfara** | 1 | 3000 | 3000 | 0 | 0 | 0 | 1 | 0.169895 | 0.004904 |
| **Zamfara** | 2 | 6300 | 3150 | 0 | 0 | 0 | 1 | 0.12839 | 0.002116 |
| **Zamfara** | 3 | 1500 | 500 | 1 | 0.803922 | 0.64629 | 1 | 0.861649 | 0.639722 |
| **Zamfara** | 4 | 1950 | 487.5 | 1 | 0.808824 | 0.654196 | 1 | 0.865108 | 0.647457 |
| **Zamfara** | 5 | 6800 | 1360 | 1 | 0.466667 | 0.217778 | 1 | 0.623686 | 0.242604 |
| **Zamfara** | 1 | 2800 | 2800 | 0 | 0 | 0 | 1 | 0.225235 | 0.011426 |
| **Zamfara** | 2 | 6100 | 3050 | 0 | 0 | 0 | 1 | 0.15606 | 0.003801 |
| **Zamfara** | 3 | 3000 | 1000 | 1 | 0.607843 | 0.369473 | 1 | 0.723298 | 0.378401 |
| **Zamfara** | 1 | 2200 | 2200 | 1 | 0.137255 | 0.018839 | 1 | 0.391256 | 0.059894 |
| **Zamfara** | 2 | 5900 | 2950 | 0 | 0 | 0 | 1 | 0.18373 | 0.006202 |
| **Zamfara** | 3 | 28540 | 9513.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Zamfara** | 5 | 14400 | 2880 | 0 | 0 | 0 | 1 | 0.203099 | 0.008378 |



|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EXCEL COMPUTATION OF PROPORTIONS,DEPTH AND SEVERITY OF POVERTY USING TMPCE AND MPCE METHODS RESPECTIVELY CONT.** | | | | | | | | | |
| **Zamfara** | 6 | 29700 | 4950 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Zamfara** | 1 | 21420 | 21420 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Zamfara** | 2 | 37800 | 18900 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Zamfara** | 3 | 26200 | 8733.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Zamfara** | 1 | 19820 | 19820 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Zamfara** | 2 | 11200 | 5600 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Zamfara** | 3 | 42170 | 14056.67 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Zamfara** | 4 | 6500 | 1625 | 1 | 0.362745 | 0.131584 | 1 | 0.55036 | 0.166702 |
| **Zamfara** | 5 | 3700 | 740 | 1 | 0.709804 | 0.503822 | 1 | 0.795241 | 0.502916 |
| **FCT** | 1 | 8000 | 8000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **FCT** | 2 | 2400 | 1200 | 1 | 0.529412 | 0.280277 | 1 | 0.667958 | 0.298021 |
| **FCT** | 3 | 7500 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |
| **FCT** | 4 | 5000 | 1250 | 1 | 0.509804 | 0.2599 | 1 | 0.654123 | 0.279884 |
| **FCT** | 6 | 7600 | 1266.667 | 1 | 0.503268 | 0.253279 | 1 | 0.649511 | 0.274006 |
| **FCT** | 7 | 5000 | 714.2857 | 1 | 0.719888 | 0.518239 | 1 | 0.802356 | 0.516537 |
| **FCT** | 1 | 5000 | 5000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **FCT** | 1 | 15000 | 15000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **FCT** | 2 | 8000 | 4000 | 0 | 0 | 0 | 0 | 0 | 0 |
| **FCT** | 3 | 13000 | 4333.333 | 0 | 0 | 0 | 0 | 0 | 0 |
| **FCT** | 4 | 10000 | 2500 | 1 | 0.019608 | 0.000384 | 1 | 0.308246 | 0.029288 |

APPENDIX B : RESAMPLING STAT EXCEL BOOTSTRAP SIMULATION ON POVERTY HEAD COUNT USING MPCE AND TMPCE

|  |  |  |  |
| --- | --- | --- | --- |
| **TMPCE** | | **MPCE** | |
| **Per capita expenditure** | **Simulated per capita expenditure** | **Per capita expenditure** | **Simulated per capita**  **expenditure** |
| 68500 | 3500 | 68500 | 783.3333 |
| 54000 | 666.6667 | 54000 | 16500 |
| 40000 | 4800 | 40000 | 17300 |
| 36500 | 1600 | 36500 | 650 |
| 31800 | 314.2857 | 31800 | 3666.667 |
| 29600 | 9200 | 29600 | 4900 |
| 29450 | 12700 | 29450 | 3550 |
| 29000 | 3400 | 29000 | 485.7143 |
| 27500 | 3500 | 27500 | 2033.333 |
| 27000 | 21100 | 27000 | 3000 |
| 26000 | 12200 | 26000 | 7333.333 |
| 25100 | 49733.33 | 25100 | 1000 |
| 25000 | 1650 | 25000 | 36500 |
| 24668 | 800 | 24668 | 11000 |
| 24000 | 5900 | 24000 | 5200 |
| 23666.67 | 1700 | 23666.67 | 3500 |
| 23500 | 875 | 23500 | 16250 |
| 23000 | 200 | 23000 | 11000 |
| 22500 | 571.4286 | 22500 | 140 |
| 22000 | 3600 | 22000 | 3600 |
| 21000 | 10950 | 21000 | 6805 |
| 21000 | 1000 | 21000 | 80 |
| 20000 | 1333.333 | 20000 | 7500 |
| 19500 | 1225 | 19500 | 566.6667 |
| 19400 | 2260 | 19400 | 5000 |
| 19300 | 1000 | 19300 | 1666.667 |
| 19250 | 2800 | 19250 | 2163.636 |
| 19000 | 11000 | 19000 | 1566.667 |
| 19000 | 1000 | 19000 | 114.2857 |
| 18700 | 20555.56 | 18700 | 30000 |
| 18600 | 3500 | 18600 | 562.5 |
| 18500 | 50 | 18500 | 9250 |
| 18300 | 1000 | 18300 | 6600 |
| 18000 | 2150 | 18000 | 29000 |
| 18000 | 14400 | 18000 | 4050 |
| 17500 | 1733.333 | 17500 | 2800 |
| 16800 | 10800 | 16800 | 700 |
| 16650 | 1926.667 | 16650 | 2300 |

|  |  |  |  |
| --- | --- | --- | --- |
| **RESAMPLING STAT EXCEL BOOTSTRAP SIMULATION ON POVERTY HEAD COUNT USING MPCE AND TMPCE CONT.** | | | |
| **TMPCE** | | **MPCE** | |
| **Per capita expenditure** | **Simulated**  **per capita expenditure** | **Per capita expenditure** | **Simulated per capita**  **expenditure** |
|  | 10600 | 16350 | 10883.33 |
| 16300 | 1800 | 16300 | 2400 |
| 16050 | 2200 | 16050 | 1120 |
| 16000 | 16350 | 16000 | 6333.333 |
| 15500 | 6400 | 15500 | 5466.667 |
| 15100 | 1483.333 | 15100 | 3666.667 |
| 15000 | 2200 | 15000 | 2080 |
| 14700 | 11600 | 14700 | 2500 |
| 14600 | 3900 | 14600 | 980 |
| 14000 | 48000 | 14000 | 8500 |
| 14000 | 4400 | 14000 | 11070 |
| 13650 | 800 | 13650 | 16600 |
| 13600 | 257.1429 | 13600 | 957.1429 |
| 13500 | 3800 | 13500 | 2550 |
| 13000 | 157.1429 | 13000 | 0 |
| 13000 | 314.2857 | 13000 | 5000 |
| 13000 | 1500 | 13000 | 2850 |
| 12950 | 6666.667 | 12950 | 3500 |
| 12500 | 2333.333 | 12500 | 2375 |
| 12500 | 3500 | 12500 | 4000 |
| 11625 | 333.3333 | 11625 | 483.3333 |
| 11500 | 1995 | 11500 | 3166.667 |
| 11500 | 30000 | 11500 | 1450 |
| 11350 | 379.0909 | 11350 | 3500 |
| 11000 | 1500 | 11000 | 5000 |
| 10910 | 1875 | 10910 | 6000 |
| 10600 | 2800 | 10600 | 2500 |
| 10150 | 17500 | 10150 | 7533.333 |
| 10000 | 1833.333 | 10000 | 3250 |
| 9920 | 3880 | 9920 | 1233.333 |
| 9833.333 | 4000 | 9833.333 | 1000 |
| 9566.667 | 1360 | 9566.667 | 337.5 |
| 9500 | 1400 | 9500 | 30100 |
| 9500 | 14000 | 9500 | 1710 |
| 9333.333 | 6.5 | 9333.333 | 1025 |
| 9300 | 3700 | 9300 | 1350 |
| 9100 | 14300 | 9100 | 29600 |
| 9000 | 1750 | 9000 | 6750 |



|  |  |  |  |
| --- | --- | --- | --- |
| **RESAMPLING STAT EXCEL BOOTSTRAP SIMULATION ON POVERTY HEAD COUNT USING MPCE AND TMPCE CONT.** | | | |
| **TMPCE** | | **TMPCE** | |
| **Per capita expenditure** | **Simulated**  **Per capita expenditure** | **Per capita expenditure** | **Simulated Per capita**  **expenditure** |
| 9000 | 317.1429 | 9000 | 4833.333 |
| 9000 | 5500 | 9000 | 416.6667 |
| 9000 | 1133.333 | 9000 | 2640 |
| 9000 | 6000 | 9000 | 1120 |
| 9000 | 1875 | 9000 | 1750 |
| 8600 | 3644.444 | 8600 | 312.5 |
| 10150 | 1700 | 10150 | 19500 |
| 10100 | 11700 | 10100 | 2800 |
| 10000 | 8100 | 10000 | 31600 |
| 9860 | 2000 | 9860 | 1655 |
| 9625 | 1212.5 | 9625 | 3008.333 |
| 9575 | 4300 | 9575 | 125 |
| 9500 | 10050 | 9500 | 40000 |
| 9500 | 1466.667 | 9500 | 6000 |
| 2225 | 200 | 2225 | 1516.667 |
| 2216.667 | 2700 | 2216.667 | 764 |
| 2200 | 190 | 2200 | 11900 |
| 2166.667 | 13200 | 2166.667 | 3825 |
| 2142.857 | 2566.667 | 2142.857 | 13834.17 |
| 2120 | 18000 | 2120 | 4300 |
| 2100 | 650 | 2100 | 1740 |
| 2100 | 55.55556 | 2100 | 5880 |
| 2100 | 8766.667 | 2100 | 4166.667 |
| 2100 | 4200 | 2100 | 14000 |
| 2080 | 916.6667 | 2080 | 6500 |
| 2071.429 | 2750 | 2071.429 | 260.4 |
| 2071.429 | 8125 | 2071.429 | 3680 |
| 2066.667 | 8500 | 2066.667 | 380 |
| 2050 | 477.5 | 2050 | 3600 |
| 2050 | 253.3333 | 2050 | 26000 |
| 2033.333 | 3500 | 2033.333 | 1183.333 |
| 2000 | 1160 | 2000 | 6166.667 |
| 2000 | 24180 | 2000 | 3700 |
| 2000 | 825 | 2000 | 9100 |
| 2000 | 600 | 2000 | 1066.667 |
| 2000 | 5177.188 | 2000 | 2600 |
| 2000 | 0.517719 | 2000 | 0.26 |



**APPENDIX E: RESAMPLE AND SCORE OF POVERTY HEADCOUNT**

|  |  |  |  |
| --- | --- | --- | --- |
| MPCE | | TMPE | |
| 0.255 | 115 | 0.526418 | 1 |
| 0.25 | 206 | 0.512356 | 1 |
| 0.254 | 11 | 0.538306 | 1 |
| 0.253667 | 2 | 0.541514 | 1 |
| 0.2625 | 31 | 0.533629 | 1 |
| 0.256 | 27 | 0.524675 | 1 |
| 0.26 | 207 | 0.527469 | 1 |
| 0.257143 | 12 | 0.528393 | 1 |
| 0.250363 | 1 | 0.554658 | 1 |
| 0.256667 | 80 | 0.525186 | 1 |
| 0.2575 | 19 | 0.507604 | 1 |
| 0.257321 | 7 | 0.529688 | 1 |
| 0.258667 | 2 | 0.52702 | 1 |
| 0.258333 | 9 | 0.541096 | 1 |
| 0.246667 | 1 | 0.544858 | 1 |
| 0.251548 | 3 | 0.551278 | 1 |
| 0.2545 | 1 | 0.533066 | 1 |
| 0.258367 | 2 | 0.52161 | 1 |
| 0.2555 | 6 | 0.521983 | 1 |
| 0.250013 | 7 | 0.520019 | 1 |
| 0.256905 | 8 | 0.524232 | 1 |
| 0.266667 | 7 | 0.529117 | 1 |
| 0.258575 | 2 | 0.520486 | 1 |
| 0.2525 | 26 | 0.515296 | 1 |
| 0.2605 | 1 | 0.539155 | 1 |
| 0.26315 | 1 | 0.543697 | 1 |
| 0.259667 | 2 | 0.524346 | 1 |
| 0.253333 | 43 | 0.529691 | 1 |
| 0.2501 | 1 | 0.540134 | 1 |
| 0.261056 | 1 | 0.548735 | 1 |
| 0.250513 | 1 | 0.539512 | 1 |
| 0.258 | 8 | 0.546071 | 1 |
| 0.25775 | 5 | 0.523049 | 1 |
| 0.250208 | 2 | 0.535349 | 1 |
| 0.26225 | 4 | 0.529131 | 1 |
| 0.264286 | 1 | 0.541931 | 1 |
| 0.26431 | 2 | 0.531856 | 1 |
| 0.263625 | 1 | 0.506083 | 1 |
| 0.257917 | 2 | 0.52836 | 1 |
| 0.263542 | 1 | 0.536579 | 1 |
| 0.253485 | 3 | 0.526491 | 1 |
| 0.251083 | 1 | 0.531318 | 1 |

|  |  |  |  |
| --- | --- | --- | --- |
| **RESAMPLE AND SCORE OF POVERTY HEADCOUNT CONT.** | | | |
| 0.256333 | 3 | 0.537305 | 1 |
| 0.254083 | 3 | 0.526869 | 1 |
| 0.250063 | 2 | 0.528532 | 1 |
| 0.262679 | 2 | 0.548566 | 1 |
| 0.251833 | 4 | 0.537085 | 1 |
| 0.25015 | 1 | 0.529929 | 1 |
| 0.252917 | 8 | 0.516225 | 1 |
| 0.258167 | 8 | 0.538828 | 1 |
| 0.250108 | 1 | 0.534409 | 1 |
| 0.265 | 8 | 0.531294 | 1 |
| 0.2655 | 1 | 0.538139 | 1 |
| 0.262 | 2 | 0.5382 | 1 |
| 0.259167 | 3 | 0.526227 | 1 |
| 0.261548 | 2 | 0.511494 | 1 |
| 0.254583 | 1 | 0.516139 | 1 |
| 0.253693 | 1 | 0.524426 | 1 |
| 0.25075 | 2 | 0.538008 | 1 |
| 0.254226 | 3 | 0.534986 | 1 |
| 0.251714 | 2 | 0.512494 | 1 |
| 0.25225 | 5 | 0.519377 | 1 |
| 0.25005 | 2 | 0.528041 | 1 |
| 0.2595 | 3 | 0.528876 | 1 |
| 0.251667 | 1 | 0.518073 | 1 |
| 0.259 | 3 | 0.518032 | 1 |
| 0.253875 | 1 | 0.543613 | 1 |
| 0.263333 | 3 | 0.517542 | 1 |
| 0.261 | 1 | 0.550434 | 1 |
| 0.2502 | 1 | 0.526312 | 1 |
| 0.259833 | 5 | 0.52161 | 1 |
| 0.251214 | 1 | 0.514969 | 1 |
| 0.258833 | 2 | 0.527531 | 1 |
| 0.263 | 2 | 0.52927 | 1 |
| 0.258875 | 4 | 0.552779 | 1 |
| 0.252 | 1 | 0.52345 | 1 |
| 0.254306 | 2 | 0.528767 | 1 |
| 0.25016 | 2 | 0.536206 | 1 |
| 0.253818 | 2 | 0.529806 | 1 |
| 0.26127 | 1 | 0.536936 | 1 |
| 0.26275 | 1 | 0.523684 | 1 |
| 0.259375 | 1 | 0.528297 | 1 |
| 0.252125 | 1 | 0.532273 | 1 |
| 0.27 | 1 | 0.534058 | 1 |
| 0.250263 | 1 | 0.52626 | 1 |

|  |  |  |  |
| --- | --- | --- | --- |
| **RESAMPLE AND SCORE OF POVERTY HEADCOUNT CONT.** | | | |
| 0.250358 | 1 | 0.537307 | 1 |
| 0.251 | 1 | 0.506464 | 1 |
| 0.252375 | 2 | 0.523641 | 1 |
| 0.252792 | 1 | 0.525802 | 1 |
| 0.252083 | 1 | 0.52718 | 1 |
| 0.259667 | 3 | 0.534123 | 1 |
| 0.258867 | 1 | 0.525382 | 1 |
| 0.250608 | 1 | 0.526773 | 1 |
| 0.250942 | 1 | 0.521714 | 1 |
| 0.263167 | 1 | 0.514323 | 1 |
| 0.261667 | 1 | 0.545366 | 1 |
| 0.250221 | 1 | 0.53935 | 1 |
| 0.253542 | 1 | 0.522835 | 1 |
| 0.254143 | 1 | 0.531903 | 1 |
| 0.262857 | 1 | 0.530966 | 1 |
| 0.250613 | 1 | 0.539983 | 1 |
| 0.2584 | 1 | 0.524228 | 1 |
| 0.250833 | 1 | 0.527508 | 1 |
| 0.250217 | 1 | 0.521483 | 1 |
| 0.254444 | 1 | 0.533163 | 1 |
| 0.259042 | 1 | 0.52772 | 1 |



**Figure 4.6 : POVERTY LINES USING MPCE**



**povline**

7000

6000

5000

4000

povline

3000

2000

1000

0

**Figure 4.7 : PROPORTION OF POVERTY (P0)**



**p(0)**

0.6

0.5

0.4

0.3

p(0)

0.2

0.1

0

**Figure 4.8: DEPTH OF POVERTY (P1) USING MPCE**

**p(1)**



0.5

0.45

0.4

0.35

0.3

0.25

p(1)

0.2

0.15

0.1

0.05

0

**Figure 4.9: SEVERITY OF POVERTY (P2) USING MPCE**



0

0.05

0.1

p(2)

0.15

0.2

0.25

0.3

0.35

**p(2)**

**Figure 4.10: Poverty lines using TMPCE**



0

1000

2000

3000

povline

4000

5000

6000

7000

8000

9000

**povline**

**Figure 4.11: PROPORTION OF POVERTY (P0 USING TMPCE**



**p(0)**

0.8

0.7

0.6

0.5

0.4

0.3

0.2

0.1

0

**Figure 4.12: DEPTH OF POVERTY (P1) USING TMPCE**



**p(1)**

0.6

0.5

0.4

0.3

0.2

0.1

0

**Figure 4.13: SEVERITY OF POVERTY (P2) USING TMPCE**



**p(2)**

0.4

0.35

0.3

0.25

0.2

p(2)

0.15

0.1

0.05

0