DEVELOPMENT OF MEMBERSHIP FUNCTION SCHEMES AND ASSESSMENT CRITERIA IN MULTIDIMENSIONAL POVERTY ANALYSIS

BY

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ABSTRACT

Recent trends in poverty analysis have focused more on multidimensional poverty measures such as the Fuzzy Set Schemes (FSSs) rather than the unidimensional approaches. A major criticism of the unidimensional approaches is its restrictive scope on the nature and cause of poverty. The FSSs have been restricted by their lack of computational uniqueness in the determination of the Membership Functions (MFs) with no assessment criteria. Therefore, this study was aimed at developing Fuzzy Set Membership Function Schemes (FSMFSs) with assessment criteria.

Fuzzy set membership function schemes were developed from the mean, geometric mean and modified harmonic mean of the levels of eight Deprivation Attributes (DAs). These DAs, namely source of water for drinking and cooking, energy source for cooking, energy source for lighting, toilet facilities by type, refuse disposal by method, material used for dwelling floor, type of housing unit, and distance to toilet were obtained from the 2010 Harmonised National Living Standard Survey of the National Bureau of Statistics. These were used in the determination of MFs of the FSMFSs. Assessment criteria, namely, Quasi Mean Absolute Deviation (QMAD), Quasi Mean Percentage Error (QMPE) and Quasi Mean Square Deviation (QMSD), of the form $\left(\frac{m_i(x_i)}{m_2}\right)$, where $m_i(x_i)$ and m_2 are functions of the poverty ratio per household and attribute space, respectively were further developed to assess the performances of the schemes. These were then compared with the performances of two existing FSMFSs of Cerioli and Zani (CZ) as well as Cheli and Lemmi (CL). The estimates from the developed assessment criteria were ranked for the schemes considered and the scheme with the least rank was adjudged the best.

The developed FSMFSs were Varying Mean Fuzzy Set Membership Function Scheme (VMFSMFS), Varying Geometric Mean Fuzzy Set Membership Function Scheme (VGMFSMFS) and Varying Reciprocal Mean Fuzzy Set Membership Function Scheme (VRMFSMFS). The MFs of the developed FSMFSs ranged from 0 to 1 for all the eight DAs as expected for any multidimensional poverty fuzzy set scheme. The VMFSMFS, VGMFSMFS, VRMFSMFS and CL indicated least deprivation in type of housing with weights 1.32846, 1.32127, 1.26052 and 1.28632, respectively. The CZ indicated least deprivation in distance to toilet with weight 1.54860. The QMAD, QMPE and QMSD were 0.00952, 0.06980 and 0.03494 for VMFSMF; 0.00934, 0.00105 and 0.03159, for VGMFSMF; 0.00931, 0.06406 and 0.06680 for VRMFSMF; 0.01109, 0.00153 and 0.03302 for CZ; and 0.01195, 0.00714 and 0.07005 for CL, respectively. The estimates of the assessment criteria for the developed FSMFSs were lower than estimates from the two existing FSMFSs. The VGMFSMF performed best among the developed FSMFSs, while CZ performed better than CL.

This study has established that varying geometric mean fuzzy set membership function scheme gave wider inference on the nature and scope of poverty and the assessment criteria provided basis for the statistical evaluation of current and future membership function schemes in multidimensional poverty analysis.

Keywords: Fuzzy set, Varying schemes, Deprivation attributes, Type of housing unit, Distance to toilet

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LIST OF TABLES

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TABLE OF CONTENTS

CERTIFICATION

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

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DEDICATION

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

CHAPTER ONE

INTRODUCTION

1.0 Background of the study

Poverty has persisted in many years and tends to occur in severalnations around the world. Poverty is one of today's major issues facing emerging nations (Boateng et al 2000) andhas drawn much more publicity amongNigerian analysts over the centuries.

For several reasons, measuring and analyzing poverty, deprivation, inequality and vulnerability is essential. Firstly, understanding what the situation is,is important for cognitive purposes, in other words, who is impoverished and where the countriesimpoverished dwells.Secondly, it is helpful for analytical purposes to understand the factors at play leading to poverty.Thirdly, it isalso essential that the situation be assessed and evaluated for policy purposes in order to support the appropriate parties in adopting measures to enhance the quality of life of people and families hit by deprivation. Lastly, measurement and analysis are required for monitoring and assessment purposes to evaluate the performance of the strategies selected to eradicate poverty.

Poverty is profoundly prevalent in many nations, particularly in the less developed countries. There has been several accounts on poverty patterns in Nigeria, i.e. variations in the occurrence, depth as well asextent of poverty over certain time. For example, poverty rate increased from 46.3% in 1985 to 65.6% in 1996 (Federal Office of Statistics (FOS), 1999. Although the poverty incidence dropped further to 54.4% in 2004 (NBS, 2006), the number of people living in poverty is still above 70 million. In fact,Nigeria ranks 158th among 177 countries among the poorest countries in the world with a Human Development Index (HDI) of 0.470 (UNDP, 2006).Therefore, poverty is certainly one of the top-ranking problems in Nigeria's national strategies and the most potent issue in the current international development agenda. It is manifested in the Millennium Development Goal (MDG), the vision pronouncement of most bi- and

multilateral donor agencies and on poverty reduction policy proposals of most developing countries, such as the Nigeria National Economic Empowerment and Development Strategy, NEEDS.

In order to design policies for poverty reduction, it is important to understand its magnitude and processes that cause and deepen it. Hence, at the heart of poverty reduction policies is the question of what indicatorsare being considered for its measurement. Poverty measurement is an empirical evaluation of individual or aggregate level and depth of poverty for a group or area, nation or worldwide. It can also be viewed as an index that synthesizes all accessible data on the impoverished (Dercon 2005). Given a distribution of one or several indicators of individual's welfare and poverty line (suitably adjusted, if need be, for differences in individual needs, family composition and prices faced), such a measure provides a single index summarizing the full scope of poverty generated by the distribution. Poverty measurement is veryimportant in poverty alleviation/poverty reduction targeting. For example, defining the concept of poverty theoretically is not enough, but identifying the poor and measuring the magnitude of poverty. Measuring welfare and poverty plays a key role in the ongoing dialogue on poverty-fighting mechanisms.This measurement will make it possible, along with other things; distinguish between the impoverished as well as the completely non-poor, to introduce efficient approaches to poverty reduction or to measure the inaccuracies of inclusion or exemption of the poor population. In the same vein, measuring poverty allows comparisons of poverty in time and space enables us to detect the primary correlates of deprivation.in the same sense.

Overtime, varying approaches to measuring the severity of poverty have developed. These approaches to poverty assessment require the traditional or conventional method to poverty measurement that is monetary and utilizes income and/or expenditure information and a number of alternative methods to evaluate poverty and inequality using numerous other socio-economic indicators. The income or consumption method uses a defined amount of earnings from subsistence,called the poverty line.If his / her earnings dropunderneath the poverty threshold, a person/ individual is said to be impoverished. There are presently two primary approaches in the conventional money-metric method for setting poverty threshold, i.e. the Cost of Basic

Needs (CBN) method and the Food-Energy-Intake (FEI) method.The CBN approach sees poverty as a lack of control over primary consumption demands, and poverty line as the value of those demands, while the FEI approach defines poverty line by identifying the consumption or earnings level at which a person's typical intake of food energy is adequate to satisfy a predetermined necessity for food energy.

These methods described above are objective measures of poverty (quantitative) from which the absolute and relative poverty lines can be derived. Poverty can also be measured (qualitatively). This is a self-professed poverty measure basedon questions to households about their perceived situation.

Though the money-metric measure of poverty has achieved tremendous progress over the decades, a population's well-being and hence its poverty, which is a subjective expression of inadequate well-being, depends on both monetary and non-monetary variables. The Human Development Report published by the United Nations Development Programme (1997) states that a lack of income only provides part of the picture in terms of the many factors that impact on individuals' level of welfare (e.g. longevity, good health, good nutrition, education, etc.). This re-echoed the multidimensionality of poverty and gave further impetus to the importance of the multidimensional approach to poverty measurement - integrating both monetary and non-monetary approach in poverty measurement or at best, measuring poverty with the aid of money and non-money metric attributes.

Subjective poverty, according to Ogwumike (2002), demands the person to define what is deemed to be a minimum living standard or a level of income / expenditure that they personally consider to be absolute minimum.

Earnings or consumption per individual are traditionally measured by poverty. Earnings or consumption per person is determined by the cut-off values, and if a person is below the cut-off value, that person is considered poor.

1.1 Aim and Objectives of the study

The aim of this study is to develop multidimensional approaches for the determination of membership functions in a fuzzy set framework for poverty analysis. The specific objectives are:

1) To reduce the level of subjectivity in the membership function
2) Determine membership functions for the selected multidimensional poverty proxies using existing membership function schemes as well as the proposed membership function schemes
3) Developevaluation criteria: Quasi Mean Absolute Deviation (QMAD), Quasi Mean Percentage Error (QMPE) and Quasi Mean Square Deviation (QMSD) for assessing membership function schemes.
4) Assessment of the fuzzy membership schemes subject to the criteria above

1.2 Justification of the study

This research is inspired by Giordani and Giorgi (2010), who observed that the difference between poor and non-poor is an open problem in one-dimensional poverty assessment. They further observed that money metric single-proxy based poverty analysis should be complemented with living condition attributes. The implication here is that approaches that avoid the setting of poverty lines, which has been criticized to be arbitrary by Filipone et al (2001) should be sought to capture the vagueness in the definition of poverty. An example of such approach is the fuzzy set theoretical approach, an approach that allows households to be described as beingpartially poor.

Cerioli and Zani (1990) observed in the fuzzy set framework that "the fundamental issue of this strategy is to provide an adequate description of the membership function.”. This problem was also observed by Miceli(1998), who opined that "The major problem is to designate a satisfactory membership function for each deprivation determinant". The issue surrounding the appropriate determination of the membership function in a fuzzy set framework is further highlighted by Foster and Sen(1997) and Belhadj(2012). Foster and Sen (1997) remarked that it is difficult to identify a unique scheme for the determination of the membership function, while Belhadj(2012) noted that there is no universally accepted scheme for the determination

of membership function for different attributes/indicators in a fuzzy set framework.In the light of the foregoing, this study proposes three alternative membership function schemes; namely Varying Mean Fuzzy Set Membership Function Scheme (VMFSMFS), Varying reciprocal Mean Fuzzy Set Membership Function Scheme(VRMFSMFS) and Varying Geometric Mean Fuzzy Set Membership Function Scheme(VGMFSMFS), respectively as well as develop a new evaluation criterion for assessing membership function schemes. It is hoped that these schemes when developed, will be insensitive to addition/deletion of observations in a dataset and independent of changes in location.

1.3 Scope of the study

This study focusses on fuzzy set approach to multidimensional poverty measurement. The study also focused on the qualitative measures of standard of living dimensions of poverty in the multidimensional poverty framework. It essentially dwells on the determination of membership functions in the fuzzy set analytical framework.

16830 households across the 36 states and FCT, Abuja were sampled from the 2009/2010 Harmonized National Living Standard Survey (HNLSS) that was conducted by theNational Bureau of Statistics (NBS), Nigeria.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Works and results of other poverty-related scientists and writers will be reviewed in this section, as well as the concept,significance, measurement and causes of poverty.

2.1 Concept and Meaning of Poverty

It's quite complex to define poverty. A description is complex to establish since poverty implies different things to distinct individuals. Most people might regard poverty as a absence of earnings leading to lack of a house as well as fridge, whereas others define poverty as just a lack of personal accommodation, essential items, or chances for education and employment. The term "poor" implies "lacking sufficient funds or means to live happily," As shown in the Oxford English Dictionary (1989). The word "poverty" is depicted as "bad state" and "the desire for life's necessities." Other definitions of poverty include terms such as "defect in," "absence of," "scantiness," "inadequacy," "need of," "leanliness or vulnerability," Historically, a key element of poverty assessment has been the concept that several individuals are living in poverty whereas others have brief periods of poverty. France, in the eighteenth-century, social commentators differentiated between both the poor and also the needy (Hulme and Mckay 2005). The poor encountered auras of poverty when agriculture failed, such as from seasonal variations poverty and/or low request for low key farm work.Due to health issues (mentally and physically), the outcomes of a mishap, old age or disease, thus the poor and needy were trapped in poverty and remained forever impoverished. The policy's main objective then was to assist the impoverished in possible ways that would prevent an individual from becoming too indigent.

It's evident in the above, First, poverty as well as the impoverished are linked to the condition of need and hardship and, furthermore, to basic life's necessities. From its everyday usage, the term "poverty" means a distinction between, on one hand, a

household or a person's situation and, from the other, the view of the person talking or writing about what is needed to maintain life.

Poverty experiences vary from individual to individual, from region to region, as well as over time period. Poverty experience in India is distinct from poverty experience of England, and also the poverty experience of England presently is also quite distinct from poverty experience of England fifty decades ago (Qizilbash, 2002). Qizilbash also thinks that, with hardly a single definition, poverty is a vague idea. One way to try to discover an actual definition is to ask people to describe poverty in order to have an understanding of what is poverty. That's what the Participatory Poverty Assessment of South Africa (SA-PPA) has done. From their 1998 study, the SA-PPA discovered that poverty definitions provided by the impoverished vary from those provided by non-poor individuals. Impoverished people described poverty as detachment from the society, absence of safety, poor salaries, absence of job prospects, malnutrition, bad supplies of clean water, so many kids, bad educational possibilities and abuse of assets. Individuals that are not impoverished view poverty as revenue shortage and the poor as a consequence of poor decisions. Therefore, an accurate definition of poverty that will fit every scenario is not easy and straightforward to obtain (May, 1998).

Godard (1892) describes poverty thus: Approximately, we can describe poverty as ' Inadequacy of necessities; ' or more thoroughly, ' Inadequate supply of items that are necessary for an individual to sustain himself as well as those relying on him in health and motivation. Poverty is defined in several ways. There has been significant discussion so much on either poverty should really be considered relative or absolute, or otherwise whether it should be judged as basic needs, capacities or features, or that all of this is merely an economic event/ occurrence.

Poverty is starvation, and can be viewed as a household deficiency. Poverty is ill but can not see a physician. Poverty can't go to school and also don't know how to read. Poverty seems to have no work, it's paranoia of the years ahead,it'strying to live one day at a moment. Global poverty caused by poor sanitation is the vulnerability of a kid to disease. Poverty is dysfunction, suppression of recognition and independence (World Bank, 2001).

The definition of poverty by the World Bank has so far not significantly changed the 19th century Godard's (1892) interpretation of poverty. Poverty is seen as a measure of well-being and deprivation in the recent findings, that is, the more vulnerable a family is, the worse off the family is.

The presumption of poverty is described by the perception of distinct conditions by people. As shown by Ajakaiye (1998), a study on the huge writings on poverty demonstrates that due to its multidimensional nature and vibrant characteristics, a conventional notion of poverty remains elusive.It is figuratively regarded as alion and complicated to describe as Aboyade (1975) pointed out that poverty, like alion, is perceived much more readily than described. Accordingly, poverty is viewed by relatively poor Africans to include community marginalization, meal insecurity, populated housing, and the use of risky and unreliable types of electricity, absence of properly paid and/or safe employment, and family fragmentation.

Nigeria's patterns of growth incentive regimes, according to Odafalo (1981), continuously favored urban, contemporary sectors to the disadvantage of rural, deepening the latter's domestic trade conditions in some areas, more than others. The climate zones of the southern as well as middle agro are more equipped with facilities and socioeconomic services than the northern zone. More physicians, employees, and clinics in the southern and to a slightly lesser degree, also have more and better colleges in the middle area, and in the south. The southern area has also had a longer exposure to economic development and contemporary global connections given Nigeria's geography. However, poverty is widespread in all three areas and across all countries

A perspective of the impoverished is that demonstrated in 1997 by animpoverished person in Kenya as Narayan, et al. (2000) reported:” Don’t even query me on what deprivation is because you encountered it around my home. glance at the building and list the cracks.Look at even my own toolsand then the clothes and shoes i wear. Look at it all and note down everything you see. Poverty iswhat youare seeing. Blackwood and Lynch (1994) recognized the poor using the consumer and expense level criteria.

Sen (1976) conceptualized the issue of poverty measurement in a pioneering contribution to include two practices: (i),identify the deprived and (ii) analyzing the

characteristics of the deprived into a general measure assessing the magnitude of deprivation. The income / expenditure technique was mostly used in the literature to fix the first issue.This needs a poverty line specification which really reflects the income/expenditure expected for living standards of sustenance. When the income / expenditure drops just below poverty line, the person is shown to be poor. On the issue of analysis, Sen (1976) critiqued two simplistic indices of deprivation: the head-count index (the number of people only withearnings just underneath the poverty threshold) as well as the earnings / expenditure disparity index (the gap between both the poverty thresholdas well as the average earnings of the deprived, presented as a percentage of the poverty threshold),Since they stay static as a result of a redistribution of earning / expenditure among two deprived people and the previous, really,does not also alter if the deprived person gets more deprived because of a drop in earnings / expenditure.

Sen (1976) as well axiomatically defined a much more advanced poverty measure. Moreover, a population's well-being and therefore its widespread poverty, that is really a demonstration of inadequate well-being, is a multifaceted process and therefore should rely on both financial and anti-monetary characteristics and elements. It is undoubtedly true that a person can enhance the status of several of his non-monetary well-being features with a higher income / expenditure budget, but markets may not exist for certain non-monetary features. One such illustration is a government asset in an underdeveloped country such as water management or disease prevention program. Moreover, it has often been suggested that earnings are insufficient as the sole attribute of well-being and as such should be complemented by other characteristics such as accommodation, literacy, life expectancy at birth, dietary status, public goods provision, etc.

In addition, development is seen in the fundamental needs' strategy promoted by development economists as an enhancement in the set of human demands, not only as revenue growth alone (Streeten 1981). There is a discussion on the significance of low revenue as an under-nutrition determinant (Lipton and Ravallion 1995) The lack of a desirable dietary status by the population is often asserted as a poverty index (Osmani 1992).

Poverty is seen as a result of functioning dysfunction in the competence-functioning / participating methodology, in which a functioning/ participating is whatever an individual "decides to do at his command with the commodities and attributes" (Sen 1985, p.10) and competence imply the freedom of a person to function (Sen 1985, 1992). Functioning here has been closely associated with attributes such as education, lifespan, clothing, participation in cultural events, etc. The standard of living is being perceived in terms of the individual's ability to perform. An account of a multidimensional poverty index in terms of working error is the UNDP (1997) proposed human poverty index. It compiles the population-level deprivations for three fundamental areas of life in a population's living standard, namely better living standards, educational achievement rates, and infant mortality at birth.

Furthermore, Sen (1983), refers poverty to assumptions that are regarded as the multiple packages of products and services one has control over, bringing in to account, the mechanism through which such products are required and the accessibility of the products needed. There are basically two approaches to poverty definition: absolute poverty and relative poverty. Absolute poverty relates to an absence of human livelihood requirements, which SeebohmRowntree termed the lowest possible need for overall health and physical effectiveness to be maintained. Relative poverty expands the idea of poverty to include people as humans that have needs and wants requirements to engage in a community and transmit their customs and standards.

The 1995 World Summit on Social Development of the United Nations recognized absolute poverty as a phenomenon manifested by significant absence of essential requirements includingmeals, clean water, hygiene, hospitals, housing, schooling, and information. It also relies on access to fundamental amenities, not only on revenue. There have always been differences of views on the conceptual meaning of poverty, and even higher distinctions on how to measure it. These distinctions span a wide range of normative and ideological positions and pose a number of technical problems related to statistical poverty measurement. Some of the eminent social scientists have been trying to define poverty for more than 200 years.

World Bank (2000) describes absolute poverty as "the situation of existence devalued by disease, starvation, and misery." On the other side, in relative terms, the

essence of poverty is “deprivation". The above means that impoverishment can as well, be regarded as relative impairment.

However, Bradshaw (2006) and Rocha (1998) observed that The existence of prolonged deprivation of fundamental requirements makes absolute poverty an evident priority from an global perspective in terms of definition, measurement and political intervention..

Poverty can be widely conceptualized in four respects, according to Ajakaiye and Adeyeye (2002), due to the lack of exposure to fundamental requirements / commodities, absence of or limited access to economic resources, resulting from inadequate use of common resources, and resulting from exclusive processes. Poverty is fundamentally economic and consumer-oriented as a lack of fundamental needs / goods. It describes material poverty and specifically uses categories based on consumption to clarify the extent and depth of poverty and to determine whether someone is not poor. The poor are thus perceived in a particular community as those people or families, unable to buy specific fundamental products and services. Indeed,inhis research on how government in ten countries establishedminimum living standards, Professor John Veit Wilson described no less than seven separate methods of conceptualizing deprivation.

The UN World Summit, defining poverty as a whole, suggests that poverty has different manifestations, including absence of revenue and productive resources to guarantee viable living, starvation and malnourishment, ill health, restricted or insufficient educational opportunities and other fundamental facilities, enhanced risk of mortality from disease, destitution and insufficient housing, hazardous climate and social segregation and marginalization. It's often depicted by an absence of involvement in policy-making and human,cultural and societal life. It happens across all nations, including, widespread poverty across many developing nations, clusters of poverty and wealth inequality in developed nations,, lack of survival as a consequence of economic distress, abrupt poverty as a consequence of catastrophe or conflict, the Impoverishment of low-wage employees and complete misery of individuals outside the family support systems, organizations and security net World Bank, (2000).

Povertyis indeed a hugely complex idea, which, based on the disposition and extent of physical deprivation, manifests itself in different forms. In absolute terms, poverty indicates that fundamental necessities such as food, housing and medical care are inadequate or totally lacking. It encompasses the inadequacy of schooling and environmental services, consumer products, leisure possibilities, neighborhood amenitiesand transport facilities. Relatively speaking, when their earnings drop drastically below the community average, individuals are hit by poverty. This means that these individuals cannot have what the big economic system considers to be thelowest possible need for good living. The disadvantaged can be described in terms of accuracy like this:

i. There is no access to fundamental facilities, political contacts and other types of assistance for individuals and families.

ii Households with inadequate dietary requirements,

iiiMinority groups who are economically, socially, morally and politically disenfranchised, impoverished and intimidated.

iv Under the poverty threshold, individuals and families whose income is inadequate to meet their fundamental requirements. Bank of the World, (2001)

Atkinson and Bourguignon (1999) considered poverty to be an insufficient control over financial resources, but regarded it as an instant problem, the ultimate issue being capacity. The absolute set of abilities transforms into a number of requirements for products related to a specific community and its living standards.This enables them to develop and implement a definition in tune with the World Bank Development Reports (1990), which can be considered as a poverty line consisting two components: the spending needed to purchase minimum level of nutrition as well as other fundamental necessities, and an additional quantity that differs from nation to nation reflecting the price of engaging in society's everyday lives.

Therefore, Dreze and Sen (1990);Kannan (1995) Poverty status depends on insufficient natural functioning like starvation, absence of accommodation, absence of warmth and insufficient cognitive functioning like marginalization, disgrace as well as absence of regard for oneself.Capabilities are therefore linked to elements such as living standards and the wider aspects of the capacity to be useful economically and socially.

The entitlement and ability relationship mainly determine what individuals are doing and about what they are.

According to Ogwumike, (2001) a poor person can be described as one who does not contain any viable bundle meeting the necessary minimum standard of living due to the property he actually has.

William Beveridge (1942) stated that it is essential to remember that the commodity bundle refers to a minimum living standard. This could be different from culture to society. For example, what is a minimum standard if living in a developed country is going to differ substantially from living in a developing country?The starting point is therefore to establish this minimum living standard on the premises of which individuals or households can be evaluated. Considering the minimum income required for individuals of working age to survive during earnings disruption, Food, apparel, fuel, light and household sundries and rent are adequate to take into consideration, although some margins must be permitted for inefficiency in expenditure.

AmartyaSen, (1992) Poverty is indeed the consistent failure to achieve certain minimum required thresholds of fundamental skills. The appropriate processes to this may differ from that kind of basic observable accomplishments as to beexcellently-nourished, properly attired and safeguarded, minimizing risk of death, e.t.c. to more complicated societal accomplishments like participating in community activities,being able to show up in the crowd without shame and embarrassment, and so on. Persons, households and communities within the societyis seen as being in poverty if they have little or no funds to acquire the sort of diet, engage in the events andalso have the living circumstances and facilities that are usual, or at least commonly promoted or accepted in the communities they belong to (Peter Townsend, 1979).

Ravallion and Bidemi (1994) refer to poverty as absence of control over fundamental consumption requirements, a situation where the amount of consumption is inadequate, resulting in insufficient food, apparel and shelter.

Aluko N.L. (1951), Sen (1987) explained poverty as an absence of potential to engage in social activities with dignity.

The notion of all-pervasive poverty is explained by Gore (2002). Poverty is very much-widespread, according to him, in which thebulk of the population live at or less

than the level of earnings sufficient to meet satisfy their needs and the resources accessible, even if spread equally, are scarcely available to meet the fundamental needs, of the population.He as well reaffirms that widespread poverty leads to deterioration of the surroundings. This is because individuals consume to survive in the inventory of environmental resources. In turn, this undermines the productivity of the main resources on which survival depend on. It should also be observed that state capability is necessarily weak where extreme poverty is all-pervasive.

An Australian, Ronald Henderson (1975), said that in as much as poverty is described by a minimum acceptable quality of life, a comparative concept, it needs a value judgment to represent the economic productivity and attitudes of the society. Due to the variety of lifestyles and values in culture and the range of issues that need to be considered, such as food, shelter, apparel, health and education, the challenge of determining a minimum standard of living is hard.

Nigeria's primary problems, according to Garcia, Kohl, Ruengsorn and Zislin (2006), include decreasing poverty, trying to expand its economy from the oil and gas industry into more labor-intensive industries, and enhancing education and health. Oil has multiplied economic volatility and inflation while the most vulnerable to volatility and inflation are those living in poverty.Again, to add to this, public revenue instability and congesting out of agriculture (which offers the source of revenue for the poor) also made the condition worse. A significant number of unskilled employees are not employed by the oil industry, thus contributing little to poverty reduction.

Ford (2007) talks about the oil shock in Nigeria's oil and natural gas-producing region. He says poverty has been connected to elevated crime rates, particularly in the Delta region of Niger wherethe contrast between rich and poor is significant. The masses are causing social disturbances because their territory's fortune is not reaching them.The best way to acquire wealth in Nigerian society is to join the political mainstream. Political success is most of the time linked to illicit activity. He finally ended the article by stating that in order to make progress, the link between economic and political power must break.

Nnadi (2008) explores Nigerian economy's multiple effects of globalization. These effects have contributed in the country's social and economic issues such as

inequality, social underclass emergence and low growth. He also pointed out that globalization has influenced Nigeria's economic development by declining foreign direct investment and that the financial policies of Nigeria need to be altered in order to alleviate unemployment, poverty and inequality.

2.2 Measurement of Poverty

Poverty is measured to define and study a population's welfare of impoverished households. Income or consumption expenditure is often considered to be proxies of the economic welfare of families and is often measured over relatively brief periods of time. The welfare of a household relies not only on its average revenue or spending, but also on the danger it faces. This reliance is especially important for low-income households. The household with relatively low anticipated household expenses,though with a slight possibility of hunger may be regarded poor to consider an extreme situation, but may prefer not to negotiate spots with a family with greater anticipated intake and yet greater consumerrisk.Accordingly, household welfare measures should take into account both the average spending and the hazards confronting households.

Risk and poverty issues were discussed by Foster et al. (1984) estimating the expected values of the indices of poverty. While these indicators are helpful for assessing poverty, they have certain constraints particularly when considering the applications of policy. For example, policymakers who minimize the expected value of one of the indices of poverty that tends to assign too much risk to poorer households to assess the effect of hazard on welfare.

Earnings and consumption indicators reflecting material assets were often used as multidimensional poverty indices. However, these two indices may fail to capture other key dimensions of poverty in developing nations in particular. For example, people are impoverished in expenditure nearly somewhat like people who suffer from nutrient deficient, are poorly-educated or disabled. In addition, indices of monetary poverty often provide inadequate policy advice on other dimensions of deprivation. A good measure of poverty is indeed a difficult problem. The issue continues to be how

socioeconomic indicators can be condensed into flexible policies which can be more readily summarizedwell as helpful to policymakers as well.

Multidimensional poverty idea and methodology address some of the above-mentioned constraints of the indices of Foster et.al. (1984). The multidimensional methodology of Alkire and Foster (2011) recommends a dual cut-off for the poverty assessment identification phase. There are several desirable characteristics in this approach. First, because of its distinct sizes and indices, it can be embraced in distinct situations and for distinct reasons. Second, the methodology could also be used to examine a specific industry, such as the quality of education or health dimensions. Thirdly, it is possible to use ordinal, categorical and cardinal information. Fourth, this is an extremely decomposable measure. To define which deprivations drive multidimensional poverty in distinct areas or groups, can be subdivided into its various aspects. Finally, it is a strong instrument to guide policies to tackle deprivations in various communities in an efficient way. It's also an efficient targeting instrument.

2.3 One-Dimensional Approach to Poverty

The impoverished are described as every one of those people or families that drop below certain pivotal point needed to keep a minimum living standard in several aspect or for several measure of poverty in the unidimensional framework.

Unidimensional techniques can be introduced when selecting a well-defined single-dimensional resource variable, such as earnings, as the premise for measuring poverty. Typically, this component is presumed to be cardinal; nevertheless, in some situations the component may only have ordinal connotations (i.e. the path of change seems to be discernible, but not its extent). Measurement in poverty can always be divided further into two major stages: identification: which mostly defines the requirements for separating poor as well from non-poor, and aggregation: by which information on poor people are combined into a general poverty measure (Sen, 1976). Identification generally uses an earnings cutoff termed the poverty line as well as assesses how much an individual/person's revenue is working to attain that level. Typically, aggregation is achieved by choosing an index or measure of poverty.

In the unidimensional environment, identification usually takes place by establishing a poverty threshold that corresponds to a minimal point below which one is deemed poor. Unidimensional procedures involve a single dimensional variable as well as a single cutoff, and do not impose a priori constraints on how well the resource variable was formed. It could be a single resource variable added across all sources, like earnings. Total spending could also be added across various classifications reported in an expenditure study, or maybe drawn from consumption studies which necessitate people involved to actually remember quantities and prices. Of course, when using complete earnings or total spending, the understanding of the components and its baseline level is quite distinct, with the former indicating' what might be' and the latter indicating ' what really is' (Atkinson, 1989). The fundamental premise of grouping, however, will be the same: to add currency values in order to achieve a complete number of resources that can be compared with a monetary cutoff.

The easiest and most regularly utilizedmetric of welfare was the proportion of the head count, which is the proportion of the impoverished population. The second index: the poverty gap (per capita), defines s the overall average by which the poor fall below the revenue on the poverty threshold, evaluated in units on the poverty threshold and scored throughout the population. Both indices can then be viewed more as an average population, assigning the value 0, to all non-poor. The poverty headcount ratio also gives the value 1, to all impoverished people, whereas the poverty gap allocates the standardized deficit (the distinction between their revenue and the poverty line separated by the poverty line on its own) before taking the average population. The poverty gap, except for the headcount ratio, is vulnerable to revenue declines between many poor and increases as a poor person's shortfall increases.

For each person who is not poor, a third aggregation method recommended by Foster, Greer and Thorbecke (1984) continues as the one above, but somehow incorporates the standardized shortcomings of the poor through elevating each of them to a non-negative power α in order to achieve the relatedP_{α}or FGT measure. This strategy involves the two steps mentioned above.

Here, the parameters of interest are $z, y,$ and $f(z, y, \alpha)$where the z is perhaps the poverty line, $z > 0$, y is the per capita expenditure $y > 0$

$$P_\alpha = \frac{1}{N}\sum\left[\frac{z-y}{z}\right]^\alpha I(y \le z) \quad 2.1$$

Where $I(y \le z) = \int_{0,if\ y>z}^{1,if\ y\le z}$ 2.2

When α= 0, we would get the headcount ratio;

And when α= 1, we get a measure of margin of poverty.

Its score α= 2 gives rise to the well-known FGT index P, a straightforward and direct aggregate of standardized squared shortcomings across society. Trying to square the normalized gaps minimizes the relative significance of lesser gaps and improves impact of large gaps. Therefore, P emphasizes the situations of the society's poorest and most vulnerable.

The FGT measures, as is well known, fulfill a wide range of properties including symmetry, invariance of replication, consistency of categories and perhaps decomposability ; different groups fulfill monotonicity (α > 1) and axiom of transfer (α > 1)Other aggregate variables like those that were generated by integrating essentially separate components that have not been assessed in the same units, and may not have any true or empirical methods of transformation into a prevalent factor, could also be introduced to unidimensional instruments. One technique would be to provide a robust index that collates elements across multiple factors by multiplying everyone else by one factor and sums up; a further instance could be a conceptual model that collates parts in a spatial manner. With such an approach, though, there are several difficulties. The undertaking as a whole relies on the validity of the aggregate factor in depicting people's real resources or accomplishments and actual drawbacks between functional factors, but nevertheless, proof in such respect can be limited, providing little instruction on weight choice or appropriate functional type. One or more elements can only be ordinally relevant, excluding the usual types of aggregation across sets of elements (because each cardinal depiction is eligible for an ordinal factor). Or even the elements might still depict different categories of assets and needs that cannot be combined or traded freely for each other. Implementing unidimensional techniques to an overall composite measure indicates there is no specific concern about the existence or magnitude of deficiencies in component factors and therefore does not influence separately, if,

anindividual is impoverished, or the general standard of life. Exploring options that can complement unidimensional techniques may make sense for these reasons.

The poverty line is selected in a one-dimensional measure of poverty such that every individual whose earnings (spending) drop just below that line is deemed impoverished. The welfare threshold outlines the proportion of earnings / spending a person wants to get away from poverty. For instance, the poverty line could also be compared to the total population, describing each and every family below the population's 40th percentile of revenue as impoverished. In terms of living norms, an absolute poverty line is set and does not alter from year to year. In terms of prices for 1985, the World Bank had already set its abject poverty line just at $1a day as well as the poverty line at $2 a day.

The index of headcount is one of the poverty measures most commonly utilized, and it merely weighs the share of the population that is considered poor. This index of headcount is easy to build and easy to comprehend; it also has some constraints, obviously. The first constraint of the index of headcount remains that it wouldn't take into consideration the severity of poverty. Further the head count index doesn't really indicate how impoverished the elderly seem to be, and also if a family below the poverty line gets poorer it does not alter.

The poverty gap index summarizes the degree at which people drop below the poverty line as well as displays only as the proportion of the poverty threshold. Thus, the poverty disparity can also be described as the distinction between both the poverty threshold and the real earnings of people living in poverty, recognizing that the gap is considered to be zero for non-poor people. The index of poverty gaps is perhaps a representation of the population's average proportionate poverty gap. Each poverty indices is said to have distinct views as well as misjudgments, hence one possible way to highlight each of them is to determine the characteristics or propositions which the indices meets. Each proposition provides a fundamental component for a grouping technique and generally describes a sort of visually striking distributional adjustment which is supposed to have a prescribed effect on poverty measurement.

2.4 Absolute poverty measures

Odusola (1997) described absolute poverty as lack of adequate resources to acquire and consume some goods and services that are deemed to be basic, e.g. food, shelter and clothing.

Gordon et al (2013) observed that absolute poverty depends not only on earnings, but also on access to social services characterized by poor housing circumstances, insufficient health equipment, low life expectancy, elevated infant mortality, low revenue, unemployment, and joblessness (Olaniyan and Bankole, 2005).

The absolute poverty thresholds portray the relevance of the service required to sustain a minimum living standard. The goal is to assess the costs associated with the purchase of bundle of vital commodities (goods and services) that enable an individual/household to achieve lowest possible degree of satisfaction with regard to crucial needs. The goal is to assess the expenses connected with buying a bundle of essential commodities (goods and services) that allow an individual to attain the smallest degree of satisfaction with fundamental requirements.

. Another of the features of the absolute poverty lines is that outcomes that are vulnerable to economic development can be taken from them, although this is homogeneously shared between many populations. For example, if in a community there is an increase in income rates despite the homogeneous distribution of this increase among the Inhabitants. The proportion of the impoverished calculated on absolute poverty thresholds will reduce. A few of those absolute thresholds commonly in use, pegs a for every percentage of population per day as the worth of the lowest possible assets a individual needs not to be deemed in poverty. This threshold can therefore be used in global perspective with the assertion that any individual living on fewer than $1 per day is impoverished.

In 1901, Rowntree constructed instead a poverty line utilizing a product basket consisting of all the vital goods and services necessary to fulfill the minimum household support demands. The poverty threshold is set using this basket's purchasing power plus a fixed quantity of cash to cover other categories of spending, including fuel or leasing. Every other household whose earning is lower than that will be categorized as

impoverished. The Rowntree poverty line has gained a lot of criticism over the years as individuals have not decided on the other products and services included in the basket notwithstanding the lowest possible food requirements also being agreed. Product selection tends to rely on a specific society's lifestyle and thus gives some relativity to the alleged measure of absolute poverty.

Though there were several other lines of absolute poverty, such as the Mollie Orshanski line (1963-1965) that is presently being implemented with some modifications and adaptations in the United States. This method of assessing poverty involves taking into account that household food spending is a continuous percentage of overall spending. The poverty line is set by multiplying the worth of essential food products by inverse of the percentage of total food spending. For instance, this proportion was a third in the U.S. in the 1960s, and the poverty threshold was thus equivalent to the value of three times the basic food basket.

The above line, established relying on a philosophy of absolute poverty, also fails to satisfy the demands of a simple assessment of absolute poverty. It has also been criticized by statements saying that the biggest economic development of a country is decreasing the percentage of food spending from the total according to Engel's law. In some nations, this fact has been empirically evaluated. Again, we come back to showing that it's quite hard to build an absolute poverty threshold that is applicable to diverse cultures and time periods.

Several other absolute poverty lines sometimes used were all those built through setting the daily recommended score of proportion of meals spending towards the complete family earnings. Poor families are thus regarded as every family spending a greater proportion of their earnings than the maximum accepted for food. Absolute lines in developed countries have been of restricted concern. They are better recognized and used to a higher level in underdeveloped or developing nations.

2.5 Relative poverty measures

Relative poverty relates to a norm which is defined in terms of the environment in which the person resides and thus varies among nations and overtime (Guy Palmer, Social Exclusion- the Site of Poverty). Relative poverty prevails in a specified culture

(Olaniyan and Bankole, 2008), where families occur within a specified community on per capita earnings with less than one-third of that society's mean per capita (World Bank, 1997). Relative poverty lines classify individuals into two groups in the community being studied; the most disadvantaged, the poor, and the remainder. If a society has a homogeneous rise in income, such as a rise of 5 percent in all family income, Relative poverty lines offer similar pre-and post-poverty rates. Threshold of poverty will be higher, and yet the poverty ratio will stay just the same. Again, the percentage of impoverished individuals relies upon each family or person relative position in any nation. Whether or not these relative roles are retained, the relative threshold of poverty does not represent adjustments which might lead to similarly shared economic development. In order to reduce the percentages of poor individuals calculated using this sort of line, modifications in the distribution of revenue are required.

Relative poverty lines generally use monetary measures like earnings or expenditure-based indices. In each of these instances, a minimal parameter limit is set under which people are categorized as impoverished, and above which people are not impoverished. For example, however if we assume that perhaps, the variable selected is earnings, the extent would rely heavily on the dissemination of earnings of the population. This is generally set within a certain proportion of a measure of distribution usually the median or average.

Sen (1976) became the first to shift back from that usual method to measuring welfare. The introduction of the axiomatic method to measuring poverty was implemented. The method resulted in a number of mathematically advanced revenue or expenditure-based indices. Previously, the notion of income inequality dealt with poverty problems.Since then, poverty measurement has concentrated on developing characteristics that meet certain ethical requirements and, on thatgrounds, on deriving an index capable of capturing the concept of poverty. This strategy took great advantage of the well-known notion of social welfare functions, which in turn are functions of individual households ' indirect utility functions.Thistechnique is better known in the literature as the welfare approach to poverty measurement.

Ravallion (1998), who argued that "a reliable measure of poverty can be a strong tool to focus policymakers ' attention on the living conditions of the poor," can justify the need to assess poverty. Data on poverty may inform policies aimed at reducing poverty.

In such an effort to demonstrate a wider extensive perspective of poverty using multiple facets or characteristics of poverty, Sen (1980) also launched the functioning and capacity strategy. Sen's first implementation (1985), which used information from 1980 to 1982 data, revealed that the per capita classification of nations relying on just the Gross National Product (GNP) is rather distinct from theclassification based on anything other than the chosen operation.Brazil and Mexico's GNP per capita is more than seven parts that of India, China, and Sri Lanka's GNP per capita, but death rate performance, maternal deaths, and infant mortality levelsfor Sri Lanka as well as China were better than even those for Brazil or Mexico.

Unlike the technique of income / expenditure, it has often been presumed that each individual is described by a vector of fundamental imperative characteristics (Sen. 1987, 1992) ; and a specific way of identifying poor examineswhere the individual might have minimum reasonable concentrations" (Sen. 1992) of distinct fundamental requirements.However, from a multidimensional view, the direct method views poverty, more exactly, in lieu of shortcomings innumbers of attributes from the corresponding baseline levels. These threshold concentrations are determined regardless of the allocations of the attributes. It is said that a person is poor in terms of an attribute if their attribute utilization drops below their minimum acceptable level. "The immediate technique is, in an apparent sense, better compared to the income technique, because the former is not premised on specific consumer behavioral assumptions which may or may not be precise" (Sen 1981).When there is no specific data on distinct characteristics, the income technique can be adopted "such that the income technique is highest ranked at the most" (Sen 1981). Although in some ways, the techniques of specific and earnings vary significantly, they also have one characteristic in prevalent: each person in that nation must also be either regarded as impoverished or completely non-poor. They do not consider the possibility of an intermediate position.

However, it is often difficult to obtain adequately comprehensive data about income and consumption of distinct fundamental requirements, and therefore a person's poverty status is not always obviously defined. For example, respondents may not be willing to provide accurate information about levels of income and consumption. For fundamental requirements, there may be a broad variety of threshold boundaries that coexist in sensible harmony. The likelihood of missing relevant information suggests that the concept of poverty is somewhat ambiguous. Now, if an idea contains some ambiguity, "then an accurate depiction of that vague idea must maintain that vagueness" (Sen1997).

Second proposition by Sen (1985) examined gender differences in India and discovered proof of variations in sex. For a number ofoperational fields such as age-specific death rates, poor nutrition, and mortality.females have lower accomplishments than men. Thisform of quantitative evaluation relying on established records has now become common, particularly in sustainability interventions leading to the idea of human growththat has it's own conceptual foundation in just the capability methodology.

First to critically appraise the operational capabilityapproach using micro information were Schokkaert and Van Ootegem (1990). On 1979 reports on the unemployed in Belgium, they implemented the capability approach. They showed that material variables in determining the well-being of the unemployed are almost insignificant, thus offering assistance for a wide understanding of well-being.

Smeeding and et al (1993) contrasted the prevalence of poverty between manynations of the Organization for Economic Cooperation and Development, OECDthrough allocating monetary importance to every one of the features of dwellings, schooling as well as infrastructure. Assessing for every percentage of population expenses of elementary, secondary as well as tertiary education and assigning all such expenses to every other person in a family who obtainedsome certain standard of schooling enabled each of them to achieve distribution of education facilities across households.

World Bank (1996) reveals that poverty prevalence in Nigeria rose from 28.1% in 1980 to 46.3% in 1985. It has been observed that 34.7 million individuals were highly

impoverished in 1992. The problem of poverty worsened so much over the 1990s that around 65.6% of the populace was found to be impoverished in 1996. These scenarios portray Nigeria as one of the world's poorest countries and target poverty alleviation programs do not seem to have any significant impact. The economy of Nigeria is defined by a big rural, agricultural traditional industry approximately two-thirds of the total population residing in poverty and a lower, urban, capital-intensive industry that has profited from the utilization of the country's wealth and the service delivery supplied by successive governments. Like in many African countries, small-scale farmers, impoverished farmers, and casual traders characterize the traditional rural, mostly private agricultural industry. There are a few multinational firms in the official capital-intensive industry, a multitude of smaller local sectors, and a myriad of public parastatals operating in most fields of business. The structured, urban, capital-intensive employment in the industry are better paid and safer, but difficult to obtain. The duality emerged largely from national policies that guided most of the economy's investment-physical, human, and technology into some already capital-intensive industry.

Only relatively small strata of the population have reached the advantages of government and foreign investment, while most individuals have not gained from greater productivity or higher real wages (World Bank, 1996b).

Echebiri (1997) conducted a study in South East Nigeria on rural income poverty and inequality. In his research, for the time frame of November 1984 to December 1985, household research was conducted from seventeen villages of Abia, Anambra, Enugu and also Imo States.A total of 155 households have been surveyed. In order to capture income differences, homes became classified into low, medium and high earning groups. The analysis showed that the revenue of the household is better measured by using monthly spending and periodic visiting return-route methods. Earnings in survey areas were typically small and distribution was not especially skewed.

Rocha (1998) asserts that poverty measurement is indeed a simple case of defining perhaps the main conditions that cause deprivation in a particular community. Was it prevalent as well as directly impacts most of the citizenry or was it regionally widely dispersed? What are the foundations of it? Is it a conventional phenomenon or is it caused by changes in the economy and technologies? What are those primary

characteristics? And who are the impoverishedin respect of certain vital features? This general knowledge on deprivation disorders is the main component for implementing ideas and measuring tools that appear to be the most suitable in terms of social reality and data gathering opportunities for a particular context.

Using national household income survey information, Aigbokhan (2000) discovered that poverty tends to be smaller in southern areas than in northern areas. Nevertheless, the occurrence of poverty within the areas is not uniform. There was more poverty in the southern states of AkwaIbom, Delta, and Edo, and in the northern countries of Bauchi, Jigawa, and Yobe.

Cushing and Zheng (2000) and Jollife (2003) used a sensitive Foster, Greer and Thorbecke poverty index to examine the occurrence, depth and severity of urban and rural poverty variations. Both find in conclusion that rural poverty is higher and that the rural deprivation is not favored if one applies distribution sensitive procedures. For instance, Jollife discovered that even though the conventional poverty occurrence procedures weregreater in rural areas in the 1990s, neither the poverty disparity / depth nor the severity of deprivation in rural areas was consistently higher. In addition, the average gap in poverty (short earnings relative to the poverty threshold) is lower in rural areas and the rural poor are less likely to be living in extreme deprivation.

Nwaobi (2003) reports that there is a paradox in Nigeria. The nation is wealthy, but it's poor members of society. As Omotola (2008) stated, Nigeria has been abundantly blessed with the potential of the country's riches in the aspects of geographical, physical, as well as social and economic variables. With this state of situation, Nigeria should grade even among the world's wealthiest nations with no extreme poverty.Okpe and Abu (2009) however, insightfully point out that Nigeria has experienced a massive rise in poverty levels. According to them, the rate of poverty in 2000 stood at 74.2%.

Jollife (2004) discovers that even if the formal poverty criterion is modified for variations in temporal living costs, both three deprivation policies in metropolitan regions in the 1990s are worse.

Ulimwengu and Kraybill (2004) utilize information from the National Longitudinal Survey of Youth (NLSY1979) to produce anestimate of true financial

well-being for families living in poverty at least once during the research period (a "living standard" defined as income separated by an adjusted poverty threshold for living costs). They discover that the anticipated living standards of the poor are greater for the control of household demographics and the local financial context.

Fisher and Weber (2005) used the income dynamics panel survey to create urban and rural asset poverty measurement. They discover that urban residents are much more likely to be in poverty in contexts of aggregate value, but in terms of liquid assets, rural residents are more likely to be poor. In moments of financial distress, rural individuals tend to have non-liquid assets such as households that they may not be willing to turn to money. On the other side, urban individuals do not seem willing to acquire non-liquid assets, but may be adequately prepared to cope with short-term financial setbacks.

Oni and Yusuf (2007) used three phase Feasible Generalized Least Square, FGLS to examine the determinants of anticipated poverty among rural families in Nigeria. Results indicated that farming households have reduced mean per capita consumption relative to their non-farming homes.

Etim and Ukoha (2010) used FGT weighted poverty index and investigated poverty among rural farming household, Farm level study information from 150 farm homes by multi-stage sampling. They obtained a poverty threshold of ₦ 1,101.88 and poverty incidence of 0.57. The study showed that occurrence of poverty, poverty scope and intensity of poverty rose with an rise in the age of heads of households, but the occurrence and the severity of poverty increases with rise in household size.

The incidence of poverty, depth and severity in Ekiti State were studied by Akinlere and Adewuyi (2011) using a multi-stage sampling strategy with a total of 80 chosen homes. Their findings showed that 38.3% of homes were poor with a depth of poverty of 41.8%. The result also showed that female headed households were more vulnerable to income poverty. Poverty was also highest among households with large household size.

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

PudjiIsmartini et al (2011) advocated the development of a hierarchical system for estimating household spending in an effort to assess the impact of regional diversity by taking into account neighborhood features and household attributes using a Bayesian method. The model was created on the basis of LN3 distribution due to the variability of household expenditure information recorded by the three parameters of Log-Normal (LN3) distribution. Data used in this research were in Central Java, Indonesia, household spending information. Since information were unbalanced and hierarchical models that worked well for balanced information using a classical strategy, the estimation process was performed using MCMC and Gibbs sampling from Bayesian method. Using district features and household attributes, the hierarchical Bayesian model based on LN3 distribution could be introduced to explain the variability in household spending.The model demonstrates that district features that include district demographic and economic circumstances and the accessibility of government services that are heavily linked to the human development index dimension, i.e. economic, educational and health, influence family spending through their family attributes.

Adeyonu et al (2012) used multi-stage sampling method to obtain information mostly from 180 small farmers during dry and wet seasons to examine farmers ' poverty rates in rural regions of the state of Oyo, Nigeria. The result showed higher incidence of poverty of 40.6 percent during dry season than rainy season with poverty incidence of 32.7 percent. The result also showed that rates was much higher among older farmers with low educational level and larger family size and have had no access to food preparation and modern agricultural technology.

In welfare assessment, Ogunsakin and Iyaniwura (2012) introduced canonical correlation assessment to determine the extent to which factors linked to chosen poverty and the pattern of correlation. The outcome showed a important beneficial correlation between poverty rates and literacy rates.

Ogwumike and Akinnibosun (2013) used logistic regression model to study the determinant of poverty among farming households in Nigeria. The study showed aincreased prevalence of poverty between and within farming families with age, income, household size, and number of farms as the key determinant of poverty.

Olawuyi and Adetunji (2013) studied the occurrence, intensity and also determinant of family deprivations in Ogbomoso State Agricultural Area of Oyo, Nigeria. They used a multi-stage sampling method to sample 120 homes. The study revealed that showed that poverty rises with a rise in the size of the familywhile it decreases with a rise in educational level, farmland size and involvement in non -farm employments as a viable option to source of livelihood. The study also showed that gender, year spent in school, farm size, household size and non -farm jobs are important factors to determine poverty.

In the Isoko Local Government Area of Delta State, Onyemauwa et al (2013), using the FGT weighted poverty index, explored the impact of household poverty rates on child labor involvement among families. They randomly sampled 60 households. They obtained a poverty line of ₦4296.89 and poverty incidence of 27 percent. The research disclosed that the level of poverty and exposure to formal schooling was the main determinant of child labor involvement in the region.

2.6 Poverty correlates

This is often determined using the logistic model. In order to model binary choices, the Logit model implements the logistic function. Models for mutually exclusive binary results concentrate on probability determinants, p of one outcome occurring rather than an alternative outcome occurring with a 1-p probability.

Suppose one of two binary values is taken by the result variable, y is defined by:

$$y = \begin{cases} 1 & poor \\ 0 & non\ poor \end{cases} \qquad 2.3$$

Where result 1 occurs with probability p and outcome 0, with probability 1-p occurs. The primary goal is to properly assess p as a function of regressors, x. The probability P_i of a specified household i becoming poor is:

$$P_i = \frac{1}{1+e^{-\beta x_i}} \qquad 2.4$$

The logistic transformation maps βx_i from $-\infty$ to ∞ enabling one to interpret as probabilities the matched values.If $y_i = 1$, the observation has probability, P_i ; if y=0

the probability is $1 - p_i$. The probability mass function for the observed result, y is provided by:

$$p_i^{y_i}(1 - p_i)^{(1-y_i)} \quad 2.5$$

with and $E(y) = p$and $Var(y) = p(1 - p)$

Its conditional probability has the following form:

$$p_i = Pr(y_i = 1/x) = F(x_i'\beta)$$

Where$F(.)$is a given parametric function of $x'\beta$. The density can be efficiently written for a single observation as:

$$p_i^{y_i}(1 - p_i)^{1-y_i} \text{Where} p_i = F\left(x_i^{'}\beta\right) \quad 2.6$$

The likelihood function is the joint probability

$$l(\beta; y) = \prod_{i=1}^{n} p_i^{y_i}\,(1 - p_i)^{(1-y_i)} \quad 2.7$$

And

$$L(\beta; y) = \sum_{i=1}^{n}[y_i ln\, p_i + ln(1 - p_i)] = \sum_{i=1}^{n}\left[y_i ln\,\left(\frac{p_i}{1-p_i}\right) + ln(1 - p_i)\right] =$$

$$\sum_{i=1}^{n}\left[y_i(\beta' x_i) - ln\left(1 + e^{\beta' x_i}\right)\right] \quad 2.8$$

The first order condition$\frac{\partial L(\beta;y)}{\partial \beta} = 0$produces a set of equations defining the estimator, β of Maximum Likelihood (ML). The MLE is acquired through iterative techniques and is usually distributed asymptotically.

2.7 Concept of Multidimensional Poverty

Researchers and policymakers have gained attention in the concept of multidimensional poverty. Amartya Sen's extensive writings on Collaborative poverty in several countries, and the Millennium Development Goals, MDGs all bring attention to the various difficulties experienced faced by most of the impoverished and the interconnections among these difficulties. Sen's (1985, 1987, 1992, and 1993) had been pivotal in developing and promoting multidimensional analysis of poverty. Sen (1987) argued that income alone cannot capture all sorts of dimensions of well-being. Markets are reported to be imperfect, particularly in developing nations and many goods and services, such as schooling and hospital care, along with concepts of fundamental human rights for people are sometimes ordered beyond the market place. Consequently, earnings and/or intake per individual doesn't really depict many significant features that are likely to result to poverty, which include accommodation, educational attainment, lifespan, etc. Multidimensional measurement of poverty involves two steps: the identification and aggregation steps. (Sen, 1976).Multidimensional poverty focuses on deprivation of the living standards of a populace when it comes to working defects of varying living standards characteristics such as real GDP per capita, death lifespan and poor academic performance. More importantly, for each attribute a threshold level is defined and inadequacies of levels of distinct features from the various thresholds for distinct group are aggregated into a general poverty indicator.

Reasons for multidimensional poverty measures need not be overemphasized:

i) They may be used to substitute, complement or combine with the official income poverty measures reported annually, thereby providing an annual overview of all suitable objectives at a period. This would reinterpret who is poor and have direct impact public facilities, whether for targeting or other reasons, to alleviate poverty or various kinds of vulnerability.

ii) Monitoring over time the proportion and structure of poverty and poverty reduction. This means that the measure not only modifies the index, and can also be split by dimension.

iii) To perceive the dimensions of the most significantly reduced deprivations. This would result in a stronger knowledge as to what strategies are working as well as what practical applications ought to be adjusted.

iv) The multidimensional measure will also provide a review of trend analysis across distinct project fields for the selected dimensions and the description measure could be readily decomposed again. This would result in improved assessment of the outcomes of the program.

v) More efficiently targeting the poorest. The new multidimensional measures are very well intended to target families suffering various deprivations with social protection systems. This is done by recognizing families in multiple deprivations. Because data are sometimes of bad standard, such techniques can become more precise than current techniques, and furthermore the measure's breakdown offers helpful policy information.

vi) Identifying the pitfalls of poverty and severe deprivation. Meaning, to define people, families, or groups with particular deprivation trend. In a broad sense, similar measurement methods are used to detect positive deviance cases or early adopters. Multidimensional methods may also identify those who really suffer various hardships over several times to evaluate poverty structure in different locations or for different languages and cultures, areas, and types of households, or for males and females, if data warrants. It might be that a specific cohort, such as an indigenous group or females, is particularly deprived. This can be recognized by breaking down the measure of poverty and comparing groups.

Human development, whether it is understood as well-being, satisfaction, widening privileges, or achieving the MDGs, includes various elements of life such as being learned, worked, and very well-fed. Earning and spending indices measure material resources essential to the practice of many capabilities by individuals. However, using monetary indices on its own always highlights the hypothesis that such indices are excellent intermediaries for multidimensional poverty: individuals who seem to be poor in consumption are almost are much like the individuals who are

malnourished, are poorly-educated or handicapped. However monetary poverty sometimes does not provide adequate policy advice on deprivations in other dimensions.

Ruggeri-Laderchi, Saith, and Stewart (2003) observed that in India, 43% of kids as well as more than half of adults with poor potential (utilizing schooling or wellness as an indicator) were never in financial deprivation; likewise, far more than half of children with poor diet weren't in financial poverty. Therefore, financial poverty seems to portray deprivations in several other aspects considerably. Multidimensional poverty multidimensional poverty assessments will be needed in such circumstances to have a much more precise account of the various hardships suffered by individuals.

A significant benefit of multidimensional assessment of deprivation over one-dimensional / traditional measures is however that this not only accurately reflects individuals living conditions but also reflects their overall life situation. Moreover, as shown by Whelan (1993), a world poverty index relying on a variety of indicators of deprivation appears more suitable than earnings or expenditure-only indexes to evaluate a condition of continuous poverty. Ideally, such an index should take the fundamental requirements into consideration, including food, apparel, housing and household appliances. It may also contain information on other factors mostly linked to social life and sometimes limiting it. Some examples of such factors are working situations, recreation, wellness, schooling, ecosystem, social and family activities.

Several authors have attempted to highlight other components of poverty when measuring poverty than just financial considerations. Townsend (1979), for instance, chose 60 indices to summarize prevalent social practices in the global community. He then obtained an index of deprivation relying on twelve of the indices. Mack and Lansley (1985) suggested another interesting approach. They created and also modified the conceptual as well as qualitative study of Townsend and further suggested an assessment of welfare that is based on the social understanding of wants. This implies that products categorized as needed are characterized as necessities by more than 50 percent of the population. Halleröd (1994) proposed a comparable strategy except that in the poverty measure to some extent all goods are established as necessities. Each item has a rating which is centered on the percentage of the population that considers it a priority.

This re-echoed the multidimensionality of poverty. The Human Development Report released by the UN Development Program (1997) asserts that absence of earnings is only component of the illustration and gave further impetus to the importance of the multidimensional technique in poverty measurement, integrating both financial and non-monetary approach to poverty measurement or at best, measuring poverty with the aid of money and non-money metric attributes. Measuring and characterizing poverty using various dimensions of deprivation offers a more comprehensive view of poverty as the impoverished are not only those who lack income, but also those who do not have minimum acceptable norms in a number of aspects of economic well-being. Unlike the conventional income/consumption measures, multidimensional poverty measurement does not only view poverty as insufficient income or consumption but however still sees poverty as inadequate outcome with respect to inadequate wellness, diet and educational attainment, etc. Multidimensional measurement of poverty and inequality sees poverty in terms of the functioning and capabilities of individuals as espoused by Sen (1985). Multidimensional measurement of poverty involves a broader measurement of poverty that goes beyond just income measures. In fact, it entails the measurement of poverty using such indicators as health, education, life expectancy, household assets which have been acknowledged as a better measure of poverty since meaningful poverty reduction is predicated on the individual's ability to accumulate productive assets. The importance of multidimensional poverty measure cannot be overemphasized. This is because the broader definitions of poverty do allow a better characterization of poverty and they therefore increase our understanding of poverty and the poor.

The recent practice of evaluating poverty in a one-dimensional context is based on the premise that a poverty line can identify the poor. However, as it is readily guessed, just as the many suggestions even in the literature also seemed to suggest, it is hard to reach broad terms of setting such a threshold. Just as Cerioli and Zani (1990) and Cheli et al. (1994) have pointed out among other things, that the issue is partly because it is unrealistic to divide the complete country among impoverished and non-poor. With the exception of some considerations of societal macroeconomic policy, it canot perfectly just asserted that, of the two persons or families with similar earnings or

expenses that with only a few percent, although on distinct perspectivesof the poverty threshold., one should be classified as impoverished while the other is not impoverished. It is usually assumed on the contrary, that the shift from a state of total deprivation to a favorable position takes place rather gradually. Mack and Lansley (1985, p. 41) pointed out that a path of standard of living from the impoverished to the affluent is likely to exist which also renders every cutoff point rather arbitrary. One alternative to take this into consideration is to use the procedures given here by the fuzzy set theory. It seems highly appropriate for modeling weird ideas like as poverty. This article agrees with those writers who unanimously agree that the degree of ambiguity they carry should not be removed if a concept is not true by nature.

2.8 Fuzzy set approach

Zadeh (1965) launched the concept of infinite value logic in 1965. The fundamental assumption is that the main component of human thinking is indeed not real figures, but really the marks of a fuzzy set. The "group of wealthy individuals" or "grade of poor individuals" does not depict groups in the conventional mathematical sense; being wealthy or being poor is of unclear status. The shift of these classes from membership to non-member is gradual. A fresh idea has been implemented to cope with these kinds of features. It was referred to as a fuzzy set, a continuum class of membership grades.

The fuzzy sets allow vague ideas such as poverty to be treated and are perfect for addressing the vertical poverty vagueness and horizontal poverty vagueness by enabling each family to deprive itself of some degree in just about every aspect of poverty. Zadeh (1965). You can use fuzzy sets define households that have been extremely disadvantaged as well as utterly Underprivileged and slightly less wealthy households, i.e., the poverty threshold for households.

Zadeh (1965, p. 338) stated in his job on fuzzy sets that some ' classes of objects found do not have precise membership requirements. They are not classes or sets as in mathematics

Suppose X is a set, and also that x denotes certain dimensions of X, a fuzzy set A of X is then described as the collection pairs:

$$A = \{x, \mu_A(x)/x \in X\}, \quad 2.9$$

Where$\mu_A(x)$, referred to as the membership function, is a submission from X in [0,1].

The concept of fuzzy sets provides an ideal framework for dealing with issues where a specific basis for ascertaining which components belong or do not belong to a given set does not exist. This is therefore a very appealing concept to solve the issue of defining the deprived. With the above type of methodology, a poverty line should not be specified.

The set of poor household is a crisp set according to the traditional approach, i.e. either that a household belong to the poor household, or not, predicted on a vital point, e.g. poverty line. No households exist that are partly poor. The Fuzzy Frame Strategy seems to have two sensitive rates rather than a baseline level, under which a family moves completely to the poor as well as a highest level, beyond which an individual would not belong to the poor household set. If there is a household between these two rates, that household is set of the poor household. Fuzzy sets make it much easier to use more than one aspect of poverty to assess a typical household welfare status, since the assessment criterion is merely the level of membership of the group of disadvantaged across each of the dimensions. The general membership scheme operates like an index of inequality depicting the general vulnerability of each household subject to their environment.

Naidoo, (2005), Law of Excluded Middle is one of Aristotle's legislation of thought that exempts the chances of non-real or false logical value. Heraclitus pointed out here that at the same time, that things can never be true and also not real. Plato basically set the roots of what subsequently became a fuzzy logic afterward, suggesting out that between true and false there is a third region. Lukasiewicz defined as feasible a third valued logic many years later, Gutierrez (2002).Unfortunately, none of this logic would portray ideas as strong, skinny or impoverished satisfactorily The fuzzy set theory seeks to overcome the crisp set theory's rigid assignment requirements in instances Where it is impossible to ascertain which components belong to a set and just not belonging to it(Deutsch and Silber, 2005). This is done by allocating each component a worth that represents a degree of membership through some kind of widespread feature called $\mu_A(i)$membership function.

Let's have a set of X formally, and let i also be any component of X. A fuzzy subset A of $X$is represented by the membership function $\mu_A(i)$designating a value to i in just the restricted range, [0, 1], portraying the degree of membership of the component i of the subgroup,A.The nearer the score of A to 1, the higher the membership level of $i$to A.If the element $i \in X$ doesn't quite belong to the subgroup, A, the membership function $\mu_A(i)$ becomes equivalent to 0. If $\mu_A(i)$completely belongs to the subgroup,A,$\mu_A(i)$becomes equivalent to 1. In certain cases where i belongs just partly to subgroup A, its membership function presumes a value falling within the interval of 0 to 1 ,$(0 < \mu_A(i) < 1)$.When considering the fuzzy set method for the assessment of poverty, we say that μ A I differs from 0 to 1 based on the degree in which person i belong to set A, of impoverished persons. 0 and 1 encompass a non-member state and a complete-member state, respectively.

Among the two ends, there's also a continuum of transitional situations that match those people for whom the status is such that they definitely ought not be regarded as impoverished, but who also in some respects also encounter poverty. It is possible to construct membership functions using distinct techniques. For example, they can be selected by the researcher on the basis of theoretical or underlying value judgments:

The literature presents several definitions for the membership function. The first definition was suggested by Cerioli and Zani (1990). They stated that there is a lowest salient point for which a household/person must be deemed totally impoverished as well as a higher salient point beyond which a household/person must also be deemed to not be impoverished. The membership function could also be a vertical function between the sensitive minimal level as well as the sensitive optimum level if the deprivation of a household was to lie between these two points.

Cheli and Lemmi (1995) criticized two elements of Cerioli and Zani's (1990) definition. The first is that it is very arbitrary to decide on the critical lowest and highest levels, and opening up that same criticism as the traditional strategy to poverty measures. They suggested that perhaps the sensitive concentrations overlap with the lowest and highest category scores in each aspect to overcome this critique. Secondly, that linear strategy might offer quite so much significance to a certain unusual

classification in such a component, resulting to an overestimation and sometimes undervaluation of real poverty. The proposition in the above technique has been to determine the poverty ranking for each classification in each aspect by the proportion of people facing just the same amount of deprivations; therefore, the technique has been termed Totally Fuzzy and Relative Approach, TFR.

Cheli (1995) claims that deprivation is definitely never a discreet characteristic defined by presence or lack, but instead an ambiguous antecedent which appears in various kinds and grades. In the framework of the fuzzy set methodology, the fundamental tools are:

(i) The set *B* of deprived families

(ii) The extent of belonging to the set *B* of the *i*-th family;

(iii) The *i*-th family's poverty ratio; as well as

(iv) Thedemographic poverty ratio.

Two primary reasons why Fuzzy Sets methodology was especially suitable in a multidimensional space for analyzing poverty and social phenomena were identified by Chiappero, M and Von, J(2012).First, the notion of graduality transmitted by this fuzzy set strategy is completely compatible with how achievements generally manifest themselves in particular areas of well-being. Conditions such as being healthy or getting appropriate accommodation are not merely met or not met: they are conditions that can normally be fully accomplished, only partially accomplished or not at all accomplished. Second, the Fuzzy set logic is appropriate for interpreting data on living circumstances expressed by ordinary quantitative and qualitative factors. Value judgments and psychological or physical statements as well as welfare levels are sometimes illustrated ordinary or empirical factors which are readily depicted by suitable membership functions reflecting marginal levels between the two severe situations,0 and 1. It should also be noted that another benefit provided by the Fuzzy Set method is that it does not really involve a poverty reduction. Therefore, it prevents the population being investigated from unacceptable, random dichotomization into poor and rich. The functioning of the fuzzy set theory, on the other hand, is subject to the functional form

of $\mu_A(i)$the specification of which depends on the gradual shift from extreme case to serious condition.

Chiappero-Martinetti (1994) outlined three fundamental steps in the definition of functioning's in fuzzy set theory: first, the description of an appropriate range of methods affiliated set of modalities associated with the varying grades of deprivation displayed, together with the allocation to each one of them in order to fully understand their corresponding roles on the defined scale.; Secondly, Defining the two extreme cases allowing persons to be categorized as classified as people who belong$(\mu_A)(i) = 1$just not belonging $(\mu_A)(i) = 1$ to the set A of deprived people ; and thirdly, the membership specification features for all other intermediate positions.

Maasoumi (1986) employed data theoryin the framework of multidimensional povertyassessment, both in the grouping between characteristics (to achieve an index of well-being for every person) and in the aggregation between people (to obtain the measure of inequality). The distance function $D_r(\cdot)$is described as the weighted average of the relative divergences of entropy among both $f_i = \{f_1(z,X), f_2(z,X), \dots, f_n(z,X)\}$and $= \{f(z^1, x_i^1), f(z^2 x_i^2), \dots, f(z^m x_i^m)\}$,in which z is the cumulative poverty line consistent with aggregator function,$f_i(z,X)$.

The distance function $D_r(\cdot)$ is thus formulated as:

$$D_\gamma(f_i//X;\lambda) = \sum_{j=1}^{m} \lambda_j \frac{1}{\gamma(1-\gamma)} \sum_{i=1}^{n} f_i(z,X) \left[1 - \left(\frac{f_i(z,X)}{f\left(z^j, x_i^j\right)}\right)^\gamma\right] \qquad 2.10$$

where$\lambda_j$is the weight ofeach attribute connected with the generalized entropy range.

Zadeh (1965) initially created the theory of fuzzy sets based on the concept that some classes of entities couldnever be characterized by somewhat accurate membership parameters but instead adopted a grade with a relative scale of membership.Zadeh (1965) initiated concept of "fuzzy set" with a perspective of addressing issues where indefinity resulting from some kind uncertainty plays a key role. Therefore, given that a person's very notion of poverty is vague, a person's poverty status is inherently unclear. In this strategy, a person's poverty is defined by the degree to which he belongs to the fuzzy sets, and also to each of the of thedeprivation characteristics (Costa 2002). The level of affiliation is decided perhaps by the attribute's level of ownership, that could take one, zero or interval values[0,1]. This methodology enables us to pinpoint the

prevalent features of poverty and also to generate the essential components for social and economic policy growth to reduce this condition.

Cerioli and Zani (1990) introduced the 1st multidimensional methodology rooted in the concept of fuzzy sets facilitating the development of an index that includes poverty characteristics.Their technique is termed the Totally Fuzzy Method, taking into consideration an entire sequence of factors which are meant to assess a specific facet of impoverishment. This strategy applies to factors of dichotomy, polytomyand continuous variables.

For 126 nations, Slottje (1991) had to use 20 predictors to determine an index of well-being. The research revealed that the quality of life index world rankings differs by aggregating data from multiple indices of economic well-being into one summary index.

Cheli and Lemmi (1995) transformed Cerioli and Zani's Totally Fuzzy Approach (1990) and called the Totally Fuzzy and Relative Approach. In the distribution of a particular deprivation indicator, Cheli and Lemmi(1995) present a cumulative membership scheme which provides intermediate results based on the relative position across each individual.In this sense as Chiappero-M.and Von J. (2012) also pointed out, cumulative functions operate properly as ' comparative modification ' by generating the person's degree of membership from the narrative sample distribution in the framework studied. This approach has the advantage of taking some dimension of a relative approach to poverty, where one is usually poor with respect to some other person.

Vero and Werquin (1997) proposed a different fuzzy initiative to measuring welfare. The technique adapts some indices which can be remarkably associated with multidimensional poverty measurement. Let $\boldsymbol{k}$ be all the components and let n be the proportion of persons. Let $f_{i\,vi}$be the proportion of individualswho are generally as impoverished as people, $i$consideration all indicators. For people i, the deprivation identifier, m p(i)will be:

$$m_p(i) = \frac{ln\left(\frac{1}{f_i}\right)}{\sum_{i=1}^{n} ln\left(\left(\frac{1}{f_i}\right)\right)} \qquad 2.11$$

Individual,i membership function $m_p(i)$can then be defined as:

$$m_p(i) = \frac{m_p(i) - Min[m_p(i)]}{Max m_p(i) - Min[m_p(i)]} \quad 2.12$$

Balestrino (1996) assessed how a survey of supposedly poorindividuals showed they were poor at work poor, poor at revenue, maybe both. From the 281 Italian homes in his sample, 73 were poorly developing (i.e. lacking schooling, diet or some health deterioration), 71 were poor in pure earnings and 137 were poor in both.The assessment proposed however, that in wealthy societies, a significant part of the deprived is not actuallydeprived in terms of earnings.

Ruggeri-Laderchi (1997) evaluated the extent to which an earnings predictor could Detectseveral of the important functions ((literacy, diet and health for children). He used information from Chile in 1992. The study found that the income component tends to be a negligible factor in shortcomings in the three operating areas chosen. Welfare assessment therefore depends heavily on the indices selected and therefore "the strategy should therefore be retained as extensive as permitted in order to cover even much more thoroughly the multifaceted reality of any such dynamic occurence" (Ruggeri-Laderchi 1997:345).

The Human Poverty Index, HPI, was established by UNDP (1997), like an instance of a multi-dimensional deprivationindicator in aspects of working performance. The Human Poverty Index, HPI analyzes the national-standard deprivations for the fundamental aspects of life in a person's living standards, namely good living standards, academic achievement rates, and infant and birth mortality.

Brandolini and D'Alessio (1998) had to use the household study conducted by the Bank of Italy in 1995, covering six working fields (health, education, jobs, housing, social relations and financial assets). This practice gave an interesting image of how accomplishments were distributed and how functioning was deprived. A number of methods that can be used, such as sequential dominance assessment and multi-dimensional indices of poverty were also explored and discussed.

Klasen (2000) analyzed and contrasted South Africa's poverty expenditure and working poor.He used information from the Living Standards and Development Statistics Project, built an aggregate index of poverty consisting of 14 functioning fields

(education, revenue, wealth, housing, water, sanitation, power, jobs, transportation, business services, diet, hygiene, safety and presumed welfare).

Adams and Page (2001) had to use World Bank demographic information to compare the performance Observed for numerous Middle East and North America welfare variables. The comparison found no clear connection between currency poverty reduction and enhancement in other indices of welfare.

Balestrino and Sciclone (2001) evaluated the influence of the earnings tofunction effects on a regional well-being comparison in Italy. Their research showed a strong correlation between the functioning-based ranking and income-based rankings.

Lelli (2001) conducted a qualitative research on the Belgian Households Panel Study and discovered that if the same variables are chosen, there is little distinction in analyzing with fuzzy sets or factor analysis.

Robeyns (2003) used the British Household Panel Study to evaluate discrimination against women in Western societies in terms of operations as well as capability toimplement objectively. This research discovered that females are more vulnerable than males in terms of sizes, but have stronger social relationships than males.

Arnand and Sen (1997)proposed and formulated composite poverty measurement, HPI.The Human Poverty Index (HPI) is a weighted average that measures deprivations well into the threebasic parameters recorded by the human development index (PNUD, 1990–2006) HPI_1, HPI_2 and HPI_3, respectively. Health deficiencies (percentage of people with a lifespan that is less than 40 yrs.), educational inadequacies (percentage of the adult illiterates in the population) and living conditions inadequacies (proportion of the citizenry with exposure to healthcare, clean and safe drinking water, and fraction of kids below the age of five who are malnourished) as follows:

HPI $=HPI = \left(\lambda_1 HPI_1^{\gamma} + \lambda_2 HPI_2^{\gamma} + \lambda_3 HPI_3^{\gamma}\right)^{1/\gamma}$ 2.13

with$\lambda_1 + \lambda_2 + \lambda_3$ = 1 and $\gamma \geq 11$ becoming a variable. For γ= 1, thosethree aspects ofHuman Poverty Indexare ideal replacements. However, when$y \to \infty$, the above index tends to max(HPI_1, HPI_2, HPI_3,HPI2,HPI3). In such a case, only if its highest-valued component declines will the Human Poverty Index decrease.

The 1994 Italian household survey was used by Chiappero-Martinetti (2000) to support the methodological advancement of the fuzzy set theoryto evaluate functional well-being and space capacities. The research evaluated five working regions at three aggregation rates (fitness, schooling, understanding, socialization, and mental circumstances). This research discovered that older females residing on their own, stay at home moms, and blue-collar workers had reduced performance.

For some impoverished nations in the Middle East and North Africa, Collicelli,C. and Valerii, M. (2000) had to use Principal Component Analysis PCA, to measure multidimensional indices of poverty. A few of the indices included were infant average lifespan, adult education, real per capita gdp, higher education expenditure, human health spending and low birth weight for infants. Three indices of poverty recognized were synthesis of fundamental social circumstances and quality of life, structure of society, safety and social advancement reforms, and progress levels. These accounted for 71 percent of the variability in multidimensional indices of povertyand low birth weight for children

Ayoola et al (2000) performed a multidimensional Poverty Analysis for Nigeria. They used concentrated group conversations to determine the perception of families in some rural and urban regions of Nigeria about poverty and wealth. It was discovered that the wealthy had cash and lived in lovely, solidified residences with boreholes or spring water in urban regions. They eat healthy food, they wore clothes and shoes, have access to health care and physically active.Similar opinions for rural regions have been held. Also, individuals with potentials were defined as the wealthy, both for themselves and their kids. By having successful companies and owning land and assets, the urban wealthy attain a healthy quality of life.They are able to professionally raise their kids, who will then be successful in turn.Richness could be defined in rural regions in terms of land property and inputs of constructive capital such as fertilizer and market links.

Filmer and Pritchett (2001) also developed a symmetricwealthcoefficient based on variables of asset ownership indicators. They used PCA to obtain for the asset indices the uniform primary element of the variance-covariance matrix of the family assets observed.They found that the application of Principal Component Analysis to calculate

asset indices is a consistent and stable alternative in the lack of information on consumption expenditure.

Adams and Page (2001) used multidimensional approach to analyze World Bank information for certain Middle East and North African nations. They noted that there is no clear connection between currency poverty reduction and enhancement in other indices of welfare. It was reported that the composite welfare indices recognized need to be applied, to accurately measure an aggregate index of multidimensional deprivation.

Bourguignon (2002) suggested an econometric view to multidimensional scheduling of poverty, claiming that it will be necessary to assess poverty from a multi dimensional viewpointsince other characteristics such as education as well as rights to medical care can measure the standard of financial well-being in relation to inadequate revenue. It was stressed that both financial and non-monetary characteristics should be the basis for a real measure of poverty.

Mehta et al (2002) adopted the multidimensional poverty measurement experimental perceptual method in India. They observed that perceptual measurements at completely separate rates show deprivation polarization in multifaceted or multi dimensional poverty. Those living below the poverty line are also uneven dispersedthroughout India,with prevalence of poverty also being discovered mainly too in States. Welfare statistics of 59 areas of 16 big countries indicate that serious poverty affects between 20% or even 43% of both the population residing in 12 remote rural areas and 21 metropolitanregions. Incidence of child death, educational achievement, access to facilities such as energy, sewage and mail services were indicators that contributed most to multidimensional poverty.

Dagum (2002) used the 1993, 1995, 1998 and 2000 Bank of Italy survey information to compare one-dimensional and multi-dimensional estimate of poverty indices. The multidimensional analysis found the academic level of the family and father, the housing condition, and the academic level of the spouse as the primary cause of poverty. The supremacy of the multidimensional process over the one-dimensional method was assessed by the small coefficient of correlation, which implies that the two methods vary in those categorized as poor.

In terms of economic and human poverty, Qizilbash (2002) classified South African provinces by using fuzzy theoretical procedures. The criterion of human deprivation contained some dimensions of capability and several resources that were used as intermediaries for efficiency. He indicated that regional rankings shiftedsignificantly, relying on whether you focus on family spending or the capability-oriented multi dimensional poverty assessment. The research found among other things that it can be extremely misleading to see the image obtained from looking at household spending alone.

Costa (2003) also compared 12 Eu countries unidimensional and multi-dimensional welfare indices.With the application of the rank indices of Kendall, Spearman, Bravais-Person, and Gini, theyobserved that the relationship between the two was minimal. It was found that any socio-economic policy established on the grounds of revenue data to decrease poverty is probably not to attain the objectives laid without taking into account the multidimensional element of poverty.

Bibi (2003) contrasted Egypt and Tunisia's multidimensional poverty and discovered that Egypt's poverty was more than Tunisia. It was found that descriptive and normative multidimensional deprivation measures are needed to formulate policy.

A family of multidimensional indicators of poverty was suggested by Bourguignon and Chakravarty (2003). They identified aggregate shortcomings across dimensions for each person using a steady substitution function elasticity that enables the incorporation of distinct degrees of substitution, and then aggregates multidimensional deprivations across people utilizing the conventional FGT formula. The index of family is then provided by:

$$P_\theta^\alpha(X;z) = \frac{1}{n}\sum_{i=1}^{n}\left[\sum_{j=1}^{d}\left(\frac{w_j}{d}\right)\left(g_{ij}(1)\right)^\theta\right]^{\alpha/\theta} \qquad 2.14$$

With$\theta \geq 0\ and \theta \geq 1$, where $g_{ij}(1)$ denotes the censored poverty gap of individual$i$ in dimension j, using a break-off score of $k = 1$ and also when $w_j$and $d$are identified as in equation 14, above. The component, α also estimates the degree of affinity to multidimensional poverty here, with greater importance assigning a greater weight to people with greater multidimensional dysfunction.The parameter θ measures the degree

of replaceability in the sense of the Hicks between dimensional shortcomings; the greater the level, the lesser the replaceability between dimensions.The score of $\theta$is assumed to be equivalent to or greater than 1 in other that the standard convex – diminishing returns – is met with the hypothesis between dimensions. Dimensions are ideal replacements if $\theta = 1$. At the point of absurdity, i.e for $\theta \to \infty$, dimensions is ideal complements and people are assessed in every single dimension relative to their worst performance.

Dagum and Costa (2004) adopted the unidimensional indices to assess the deprivation status of each attribute for the entire population, aiding to assess each dimension's contribution to general poverty.

Qizilbash (2004) described multidimensional poverty indices such as jobs, hygiene, safe drinking water, housing, expertise, power use, and community life involvement. The multidimensional analysis of poverty combinesthese aggregate indicators into simplevariables for understanding the population's poverty profile.

With sub-sectional data gathered inUnited Kingdom between 1991 and 2000, Maggio (2004) presented additional information on income poverty and lifestyle deprivation. It was deduced that earnings shouldn't be the only measure to analyze poverty, and that parametric assessment appears to be the most appropriate option to investigate poverty and deprivation across a society.

Duclos et al (2005) assessed further themultidimensional deprivation of certain families in Madagascar, Uganda, and Ghana, and thought it hard to establish that deprivation in urban regions seems to be smaller than those in rural regions, contrary to what a one-dimensional method has provided.

Mussard and Pi Alperin (2005) introduced a synthetic approach which mixes the function of demographic groups with the dimensions of poverty in explaining general poverty using fuzzy set theory and focusing on the Gini Poverty Index.

Naidoo (2005) reviewed the prospective contribution of multidimensional analysis with regard to poverty definition and measurement. The study applied the existing methods in fuzzy set approach as well as other multidimensional poverty approaches in South Africa.

Chakravarty and Majumder (2005) used failures in an arbitrary number of life variables to axiomatize a universal interpretation of the human poverty index.

Deutsch and Silber (2005) recommended a measure of the living average coefficient based on observations the possession of sustainable products. Let $x = (r_1, r_2, \ldots . r_N) \in R_+^N$ be the resources vector and $u = (u_1 . u_2, \ldots, u_m) \in \mathbb{R}_+^M$ the functioning vector. After which, the pair (r^1, r^2), $i \in I$ represents every individual. The index of standard of living, SL can be estimated as follows:

$$SL(u, r^1, r^2) = \frac{D_{in}(u, r^s)}{D_{in}(u, r^t)} \qquad 2.15$$

Where $r^s \; and r^t$ are two different information vectors and D_{in} is a distance input feature, $D_{in}(x, y) = max\left\{r: \left(\frac{x}{r}\right) \in L(y)\right\}$

2.16

Deutsch and Silber (2005) also contrasted quantitative methods for multidimensional deprivation assessment with the use of the fuzzy set theory, information theory approach, evaluation of effectiveness and empirical analysis of measures ofdeprivation. With the use of Israeli information from 1995, a reasonable degree of agreement was discovered between the methods to identify the impoverished.The methods indicated that multidimensional poverty declines mostly with household head academic attainment, rises with maturity and size of household, is not a Christian, relocated heads of households, as well as solitary heads of households.

Betti and Verma (2006a and 2008) suggest an estimate of the extent of interaction which is the proportion of actual poverty to residualpoverty or the actual index of poverty as a percentage of the residual index value of deprivation. Such a percentage ranges from 0 to 1, with 0 implying no interference, or sometimes just one poverty dimensionmembership set, and 1 indicating equivalent membership in both categories. One restriction of such a proportion as described by above researchers is that it doesn't represent the dimensions of the membership scoresthat were used to compute it as a proportion, but just represents their interaction. For instance, a person with an extensive (manifest) result of 0.4 and a large (residual) value of 0.8 would have a 0.5 interference level as a person with an extensive (count) result of 0.2 and a large (residual) result of 0.4. Although both persons have the same overlap ratios between the

two sets, one has a greater degree of impoverishment than the other. That connection as well as its path strengthens the knowledge and awareness of poverty as a multidimensional condition. It is a combination of what Totally Fuzzy and Relative and Lemmi (1995) (Betti and Verma, Betti and Verma (1999).

Chakravarty (2006) carefully analyzed the axioms to be met by a fuzzy multidimensional index of poverty. He showed that Chakravarty et al's (1998) suggested multidimensional indicators of poverty; Chakravarty also indicated that dynamic indices of multidimensional poverty obtained from decomposability into subgroups which satisfy a number of propositions including continuity, symmetry or anonymity, population principle, monotonicity and, in certain cases, invariance of the values of scale and transfer

In the fuzzy setting, Chiappero-Marinetti(2006) noted that the standard difficult limit, that clearly distinguishes among impoverished as well as not impoverished, would be supplemented by a smooth limit that represents an optimal, stepwise depiction of healthy and unhealthy living standards or appropriate and insufficient standards of well-being without establishing a specific sharp cut-off boundary. Usually the fuzzy membership feature depicts this stepwise membership. This substitutes the conventional identification of poverty line feature that only provides zero (non-poor) and one (poor) value. This feature assigns each person his or her level of membership in poverty, which is an interval number[0; 1].

Silber and Sorin (2006) had to use information from that of the 1992-1993 Israeli Consumer Spending Survey and hence tried to check the outcomes using direct consumption or income data based on a fuzzy method with the more conventional method. The factors considered for the fuzzy approach included non-ownership of an oven or microwave oven, non-ownership of a refrigerator, non-ownership of a television set, non-ownership of at least two of the following durables: washing machine, vacuum cleaner, air conditioning, videotape, stereo and telephone, non-ownership of a vehicle, non-ownership of an apartment (house) and adverse savings. They also calculated the proportion of the poor using either revenue or expenditure as a welfare indicator based on a one-dimensional strategy. In calculating the percentage of the poor, they used five distinct methods.Only 2% of families were found to be deprived according to all five

methodologies, more than 25% (in reality 28.9%) of families were deprived according to at least one of the five assessment techniques.

Alkire and Foster (2007), using dual cut-off method, suggested size-adjusted FGT measures:

$$M_{\alpha}(X;z) = \frac{1}{nd}\sum_{j=1}^{n}\sum_{j=1}^{d} w_j \left(g_{ij}(k)\right)^{\alpha}, \alpha \geq 0 \qquad 2.17$$

Where $g_{ij}(k)$is individual's, i censored poverty disparity,in dimension,j

$w_j$is the weight allotted to element j, such that $\sum_{j=1}^{d} w_j = d$and $\alpha$is the parameter dimension-specific poverty aversion. Equal weights were assigned to all the dimensions, j for all, $j = 1,2, \ldots k$

Booysen et al (2007) used multiple correspondence analyzes in designated African nations to study multidimensional poverty utilizing asset index strategy citing information gathered in both the late 1980s and early 2000. The satisfaction measure was estimated by loudspeaker, media, fridge, motorcycle, toilet type and supply of water. Improvements in the asset index were discovered to be mainly driven by advances in personal asset accumulation, even as access to public services had worsened.In particular, deprivation in Kenya,Senegal, Ghana, Zimbabwe, and Mali decreased, while in Tanzania and Zambia, it intensified.

Coromaldi, M. and Zoli, M. (2007) assess welfare of Italy through adding non-monetary indicators to income data. To disclose fundamental unexpressed characteristics to be considered as deprivation indices, a non-linear main factor assessment was used to identify items. They examined how to combine such measures with income measures in order better assess the impoverished. They looked at the overlap between impoverished and low revenue and had an assessment of the scores of poverty. The outcome disclosed that for a broader extensive measure of deprivation, merging criteria for deprivation with income poverty, poor individuals are identified differently from analysis based solely on income measures.

In analyzing the dynamics of poverty in Algeria, Benhabib A., Ziani T., Bettahar S., and Maliki S. (2007), used logit-probit in addition to fuzzy set methods. Their findings indicated that in capturing different graded characteristics of poverty, the fuzzy set strategy is more relevant than the others. Also, the research disclosed that earnings is not the only measure of well-being and should be complemented with other

attributes such as accommodation, comfort level and political influence. Also, it was obvious from the finding that deprivation and poverty affected rural regions the most.

Lugo and Maasoumi (2008) suggested two alternative solutions to deriving multidimensional indicators of poverty using information theory techniques: the aggregate poverty line approach and the component poverty line approach.

The aggregate poverty line z is defined by:

$$z = \left(\sum_{j=1}^{m} \lambda_j \left(z^j\right)^{\gamma}\right)^{1/\gamma}, \text{when} \gamma \neq 0 \qquad 2.18$$

$$z = \prod_{j=1}^{m} \left(z^j\right)^{\lambda_j}, \text{when } \gamma = 0 \qquad 2.19$$

Each attribute z^j of the poverty line in defines a multi-attribute povertyline $f_i(z, X)$, This encompasses the very same weights for each individual's characteristics. The multidimensional poverty measure, F for Aggregate Poverty Line (APL) is therefore described by equation:

$$P(z, X) = \frac{1}{n} \sum_{j=1}^{n} \left[max \left\{ \frac{z - f_i(z,X)}{z}; 0 \right\} \right]^{\gamma} \mathrm{I}\left(z > f_i(z, X)\right) \qquad 2.20$$

The component poverty line (CPL) multidimensional poverty measure is thus given by:

$$P_{dur}(z, X) = \frac{1}{n} \sum_{i=1}^{n} \left[\sum_{j=1}^{m} \lambda_j max \left\{ \frac{z^j - f\left(z^j, x_i^j\right)}{z^j}; 0 \right\}^{\gamma} \right]^{\frac{\alpha}{\gamma}} \mathrm{I}(g_i(z, X) > 0) \qquad 2.21$$

and $P_{dur}(z, X) = \frac{1}{n} \sum_{i=1}^{m} \left[\prod_{j=1}^{m} max \left\{ \frac{z^j - f\left(z^j, x_i^j\right)}{z^j}; 0 \right\}^{\lambda_j} \right]^{\alpha} I(g_i(z, X) > 0) \qquad 2.22$

This method creates an aggregate of relative deprivations that incorporates weight with each deprivation and enables trade-offs in different attributes between these relative deprivations. Replacement is only permitted among characteristics below the poverty threshold.

Using fuzzy set theory, Costa, L. De Angelis (2008) developed a set of indices for multidimensional poverty assessment and applied the indices to Italian households. They assessed and compared the various dimensions of poverty. For Italian homes, this article acquired a set of 11 composite indicators. These indices identify the primary

causes of poverty in the education and activity of the head of the family and in the dimension of the family residence

Oyekale et al (2008) used data from the 2006 Core Welfare Indicator Survey (CWIQ) to analyze multidimensional poverty in Nigeria. The Fuzzy set method has been used to evaluate the rural households ' poverty profile in Nigeria. The research broke down multidimensional poverty across rural households ' in the sectors, states, and social-economic groups. Further, it broke down the welfare indicator's relative and absolute contributions to multidimensional. However, not much has been achieved from these indices to calculate the multidimensional poverty index.

Asselin (2009) proposed and developed a composite welfare index, CWI using multiple correspondence analysis. The functional form is defined as:

$$C_i = \frac{\sum_{K=1}^{K} \sum_{j_k=1}^{JK} W_{jk}^{k} I_{i,J_k}^{k}}{K:} \qquad 2.23$$

For which K is really the range of variables in the ordinal form, $J_k$is the range of indicator forms, and K, $W_{jk}^{k}$is the measurement parameter equivalent to the normalized value on the modality's first factor axis,J_k score /$\sqrt{\lambda_1}$, λ_1 is the eigenvalue of the first factor, I_{i,J_k}^{k} is the binary variable taking the value1, if the household has the modality, p and 0, otherwise.

Alkire and Foster (2010) suggested a multidimensional poverty measurement methodology composed of a method of identification P_k, which expands conventional intersection and union methods and the class of poverty measures $FGT_{\propto}$.In the identification phase, two types of thresholds were used: one within every category to establish if or not a individual is deprived in that category, and the other across category to identify the deprived by considering the circumstances in which a individual is excluded. Theyused the FGT measures at the aggregation step, with appropriate adjustment to account for multidimensionality. They further introduced a variety of propositions as well as demonstrate thattheir technique meets a variety of desirable characteristics such as decomposability.

Oni O. A. and Adepoju, T. A. (2011) used 2006 survey questionnaires from the Nigerian Core WelfareIndices to provide information suitable to the dimensions of capability well-being. The dimensions include Home ownership, wellness, diet,

schooling, property / economic ownership, dissemination of information, and safety. The very first part of the research involves the development of well-being indices using the fuzzy set to produce an index of composite well-being by the basic indices of well-being variables. A logistic regression was used in the second portion of the research to investigate the variability by a set of conversion factors in attaining the composite well-being index value.

In his research, Oyekale (2011) used the 2006 Core Welfare Indicator Survey (CWIQ) data to examine the effect of public programs on rural Nigeria's multidimensional poverty. Fuzzy set method has been used to calculate rural Nigeria's multidimensional poverty index. Tobit regression was used to investigate the effect of poverty alleviation programs on rural Nigeria's multidimensional poverty index. Findings showed that rural Nigeria's multidimensional poverty index was 0.3796. It was 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

Gianni et al 2013, suggested Fuzzy monetary index defined as a mixture of the index$(1 - F_M, i)$, i.e. the proportion of persons that are poorer than a specific individual, suggested by Chelli and Lemmi (1995), and the percentage$(1 - L_M, i)$, suggested by Betti and Verma (1999), i.e. the proportion of complete equivalent revenue earned by all persons who are poorer than a specificindividual.

Thus:$\mu_i = FM_i = \left(1 - F_{(M),i}\right)^{\alpha-1}\left(1 - L_{(M),i}\right)$ 2.24

$= \left(\frac{\sum_{y=i+1}^{n} W_y/Y_y>Y_i}{\sum_{y=2}^{n} W_y/Y_y>Y_i}\right)^{\alpha-1}\left(\frac{\sum_{y=i+1}^{n} W_y/Y_y>Y_i}{\sum_{y=2}^{n} W_y/Y_y>Y_i}\right)$ 2.25

Where Y_y is the equivalentrevenue, $F_{(M),i}$is therevenue distribution function, W_y is the sample weight of individual of rank $y(y = 1, \dots, n)$ in the upwardrevenue distribution, $L_{(M),i}$denotes the value of the Lorenz curve of revenue distribution for individual i.

Ojo and Chuffor (2013) used primary data form randomly selected households to determine the accessibility of domestic energy among households with the objective of analyzing the accessibility of rural households to firewood.

Oyekale and Oyekale (2013) analyzed multidimensional poverty spatial distribution of Nigeria and used the 1999, 2003 and 2008 DHS Demographic Health Survey. They constructed composite welfare indices using Fuzzy set. The fuzzy set was subjected to descriptive assessment and the result showed that access to source of safe drinking water declined between 1999and 2008accross the various wealth quartiles and deprived homes deteriorated more significantly. Also, there was increase in national access to electricity from 45.82% in 1999 to 51.41% in 2003 and dropped to 45.58% in 2008.

Edoumiekama and Karimo (2014) determined the multidimensional deprivation as well as its impacts to sustainable development using 2009/2010 National Living Standard Survey data. The result showedhowever that 96 percent of the population is suffering from energy deprivation and are deprived of 82 percent of the indices with highest deprivation in the rural areas.

Osowole et al (2015) in their research work aimed at analyzing poverty in Oyo State using a Q^2-approach. Their approach combined both quantitative and qualitative aspects of poverty. The quantitative aspect was based on the per capita expenditure head count index while the qualitative aspect was based on fuzzy set poverty index derived from pre- selected indicators. The qualitative estimateindicated that more than 50% of the households lacked access to the pre-selected deprivation indicators with lack of access to quality water ranking highest. The Q^2 Approach has therefore provided better insight into the nature of poverty in Oyo State.

Antoanneta, P, A., Guista, C., D'A. And Linda, P. (2015) embraced capability and fuzzy methods in the research of living conditions of children and capability deprivation. The two methods were merged by three social financial variables at the analysis disaggregation stage, namely: single parent household, family education, and macro-residential region.

Betti et al, (2015) introduced the concept of fuzzy set in quality of life measurement. A new methodology for evaluating composite quality of life indices was

outlined in the research. It has been shown to be extremely effective and consistent in empirical implementation

By using information from the Eritrean Household Income and Expenditure Survey 1996/97, EyobFissuhand Mark Harris(2015) used the Fry and Harris (2002) DOGEV model to model poverty determinants in Eritrea. DOGEV model nests as its variant the DOGIT and OGEV models. The Dogit discrete choice model takes the form:

$$P_{ij}^{DOGIT} = \frac{exp(V_{ij})+\theta_j \sum_{k=1}^{j} exp(V_{ij})}{\left(1+\sum_{k=1}^{j}\theta_k\right)\sum_{k=1}^{j} exp(V_{ik})} \quad 2.26$$

$$\text{or} P_{ij}^{DOGIT} = \frac{\theta_j}{\left(1+\sum_{k=1}^{j}\theta_k\right)} + \frac{1}{\left(1+\sum_{k=1}^{j}\theta_k\right)} \times P_{ij}^{MNL} \quad 2.27$$

where is $P_{ij}$the probability of i^{th}individual choosing alternative *j*.

$\theta_j$isdefined as the parameter associated with alternative; $\theta_j \geq 0$

V_{ij}isdenoted as the function of k independent attributesX_{ij} of the j^{th}alternative, i.e,$X_{ij} = x_i'\beta_j$

$$P_{ij}^{MNL} = \frac{exp(V_{ij})}{\sum_{k=1}^{j} exp(V_{ik})} \quad 2.28$$

In the above equation we can see that there are no two independent alternatives other than in specific situations in which all $j_\theta$are equal to zero in which case the model is minimized to the ordinary MNL model.

The standard OGEV probabilities are given by

$$P_{ij}^{OGEV} = \frac{exp(p^{-1}V_{ij})}{\sum_{r=1}^{J+1}(exp(p^{-1}V_{ir-1})+exp(p^{-1}V_{ir}))^{\overline{p}}} \times \left[\left(exp\left(\rho^{-1}V_{ij-1}\right) + exp\left(\rho^{-1}|V_{ij}|\right)\right)^{p-1}\right] +$$

$$\left(exp\left(\rho^{-1}V_{ij}\right) + exp\left(\rho^{-1}V_{y+1}\right)\right)^{\rho-1} \quad 2.29$$

With the convention that$exp(p^{-1}V_{i0}) = exp\left(\rho^{-1}V_{ij+1}\right) = 0$and $0 < \rho < 1$.

The correlation variableρ is an inverse metric of the neighboring results correlation. However, in this specification it does not have a closed formula. The above OGEV model collapses into an normal MNL model in the limit as ρ approaches to 1. Thus we can put OGEV versus MNL as a theory.

Ogwumike and Ozughalu (2016) use three power deprivation indices: cooking fuel, indoor pollution and generator, access to primary electricity and/or electricity, analyzing energy poverty and its sustainable development implications. The results

showed, among other things, that 75.5 percent of Nigerians are energy poor, the North East has the largest power poverty, and the South West has the least.

Amoji Nene (2017) used data from the 2013 General household survey to assess the occurrence of multidimensional poverty and poverty determinants using Alkire – Foster methodology and Logit methodology. The study showed that income less than a minimum wage, Education and spending are the important determinants of poverty and deprivation. The result also showed that for correlates of multidimensional poverty, among other things, that rural areas, large household size and female-headed households are the significant factors that predict multidimensional poverty.

NitinTanwar, B.K Hoods (2017) applied multidimensional poverty classification utilizing dual cut-off method based on the counting approach to estimate aspect based multidimensional poverty in rural India

Anderson, S.S., and Patrick, F.K. (2017) Fuzzy applied to analyze poverty in Cote d'Voire and found that poverty reduction cannot depend on a single tool or cover a single region, but must use a series of measures influencing its various sizes.

Francesca, G., Martina, C., Samuele, R. And Gianni, B. (2018) introduced a Fuzzy Multidimensional Poverty Measurement Approach for the period from 2007 to 2015, taking into consideration the effects of the 2008 economic and financial crisis. The result showed among others that deprivation in various dimensions was centered on the same people, boosting the intensity of the fuzzy set multidimensional poverty rate, particularly in comparison to the one-dimensional poverty rate, secondly, that the seven specific-dimensional indicators seemed to be divided into factions with quite distinct levels of poverty, compared to the general fuzzy set multidimensional index, and lastly, the existence of a powerful correlation between the Mediterranean countries ' rankings on the basis of the general and dimensional deprivation indices.

NitinTanwar (2018) Applied Totally fuzzy and relative approach as well as Poverty Index (MPI) suggested by Alkire& Foster (2011) in measuring multidimensional poverty in Haryana Using data from NSSO's 2012 consumer spending study on drinking water, sanitation, hygiene and accommodation circumstances, rural and urban poverty was estimated from the Multidimensional Poverty Index, MPI introduced by Alkire& Foster (2011) using a double counting approach cut-off

technique. They also used Totally Fuzzy and Relative Approach to measure multidimensional poverty in Haryana owing to Costa and Angelis (2008). Based on the aspects of Haryana's drinking water services, sanitation facilities and residential circumstances, the fuzzy MPI stated that 33.28 percent of Haryana's families are multidimensionally poor with 36.64 percent of rural families and 30.46 percent of metropolitan Haryana. The index values ranged between the social groups from 30.49 to 34.24 percent. Using the MPI-based aspect of Alkire-Foster, it was noted that rural households in Mewat, Panipat, Mahendragarh, Rohtak, Gurgaon and Palwal counties have elevated MPI values showing elevated levels of poverty or deprivation in these counties. Similarly, households in Mewat, Panipat, Jhajjar, Rohtak and Mahendragarh district metropolitan regions were discovered to be multidimensionally poor as indicated by high MPI values.

2.9 Causes of Poverty

There are several variables contributing to poverty, meaning that there is no single cause or determinant of poverty. The variables include low or negative economic growth, inadequate macroeconomic policies, labor market deficiencies arising in restricted work growth, low productivity and low salaries in the informal sector, and a delay in the development of human resources. Other structural causes or factors that led to poverty also exist. They include: increased crime and violence, degradation of the environment, reduction of employees, a decline in the true value of safety nets, and changes in family structures.

Low Economic Growth: Economic growth is trying to reduce poverty. In developing nations like Nigeria, growth that generates employment opportunities and is based on exports is desirable in order to attain development that reduces poverty with equity; However, growth rates have been low or negative since the 1980s owing to adverse trade-related modifications in several nations, changes in global export demand and changes in global interest rates on external debt in developing nations. On the other side, all of these are accountable for increasing the incidence of poverty in different nations around the globe. The significance of economic growth is linked to poverty

reduction (World Bank, 1990). Growth can lower poverty by increasing jobs, greater productivity of labour, and greater real wages.

Macro-economic shocks and policy failure: Since many countries around the globe confronted macroeconomic imbalance, mostly in the equilibrium of payments due to expansive aggregate demand strategies, trade terms shocks, and natural disasters, significant policy reform became essential. Such economies have become susceptible to poverty in the process. Macro-economic shocks and political failure account for poverty mainly because they restrict the poor from using their largest "labor" assets. Monetary policies that adversely influence poor people's costs and access to credit, fiscal policies that lead to reduction, lay-off and factor replacement: Policy on exchange rates raising national manufacturing costs in an import-dependent manufacturing scheme will have a negative impact on the poor. But a policy of exchange rates that boosts exports, especially those where the poor are predominantly involved like agriculture, will assist decrease poverty. Because of policy failure, urban poor people are susceptible to job losses arising from job losses in the public sector or the decrease of industries adversely impacted by relative price shifts. Devaluation has adverse as well as beneficial impacts on the incidence of equity and poverty.On the adverse hand, greater production, input expenses, particularly in input-dependent economies, generally lead in lower rates of capital usage in manufacturing, and private-sector lay-offs and decreases, all of which worsen poverty.

Labour market deficiencies: The most abundant resources of the poor are labour. Most poor families engage in the labour market in one manner and another in most nations of the globe, and thus poverty is an issue of low salaries, low labour yields to rural self-employment, underemployment and, in some instances, prolonged unemployment. These issues are influenced by labour market deficiencies in various respects. Relatively elevated labour costs in the formal sector also contribute to an increase in the low productivity of the informal sector, thus placing downward pressure on salaries in the formal sector, where many of the disadvantaged work, and restricted possibilities for unskilled young people to gain vocational training and abilities can promulgate a cycle of poverty.

Employment and Underemployment: Employment is poverty's primary determinant. For individuals to gain earnings and escape earnings poverty, gainful employment is essential. While non-poor people usually suffer from temporary or involuntary unemployment in nations around the globe, Poor people face structural unemployment issues owing to absence of abilities or exceptionally low levels of education, medical issues, geographical isolation affecting some rural bad people in particular and urban poor people owing to the marginalization of people residing in high-crime neighborhoods and in some nations, discrimination based on ethnicity, tribal and other characteristics. Underemployment usually occurs in the informal sectors, resulting in low incomes, especially in rural regions, for a significant section of labour force.

Human resource development: This is the key to the growth of human capital and the ability to escape poverty. Constant development in human capital with improved effectiveness is needed to maintain economic development in labour market modifications. It can increase household living standards by extending possibilities, improving productivity, promoting investment in capital, and enhancing earning potential.

Health and diseases: Good health is a fundamental goal of social and economic development for human welfare. Poor health constrains human capital, decreases learning yields, hinders entrepreneurial activity, and hinders growth and economic development. Poverty is caused by disease and vice versa.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

First, the methodology will concentrate on offering a clear overview of the data set used for the study as well as presenting some data set constraints. The methodology used to develop the suggested fuzzy membership schemes will then be displayed alongside the existing schemes and the new evaluation criteria.

3.1 Data collection

The data used in the research work were data from the 2009/2010 Harmonized Nigeria Living Standard Survey (HNLSS) undertaken by Nigeria's National Statistics Bureau.

3.2 Harmonized Living Standard Survey

History and Background

Nigeria's attempts to monitor and evaluate domestic programs and policies began with a series of National Consumer Expenditure Surveys being analyzed. This effort resulted to Nigeria's poverty evaluation over a sixteen-year period from 1980-1996. In 1974, the first National was undertaken to provide information on the Consumer Survey (NCS).Annual surveys were conducted from 1980 to 1985. Thereafter, NCS was not performed until the rounds of 1992 and 1996. The NCS was household consumption spending pattern. However, a new dimension arose in 1992 when the World Bank suggested an assessment of poverty for Nigeria using consumer spending surveys. This resulted to the assessment of the 1980, 1985, 1992 and 1996 NCS data sets. The assessment resulted to the publishing of the "Poverty Profile for Nigeria 1980-1996" report on poverty patterns in Nigeria. In April 1999, the report was officially introduced. Since then, this study has served as a significant document on surveillance and assessment at different levels of Nigerian government.

The 2009/2010 Harmonized Nigeria Living Standard Survey (HNLSS) was an extended scope of earlier National Consumer Surveys as well as a follow-up to the 2003/2004 Nigeria Living Standard Survey (NLSS). The scope of the 2009/2010 NLSS has been expanded to include: demographics, health, and fertility behavior, education and skills / training, condition of housing and housing, social capital, agriculture, household income, consumption and expenditure. In addition to updating the early round results, the study also gave information on the performance of multiple government programs / policies, which include the National Economic Empowerment and Development Strategy, NEEDS the National Poverty Eradication Program, NAPEP as well as the Millennium Development Goals, MDG in fields of poverty reduction and standard of living enhancement.

The NLSS was combined to form what is now the Harmonized Nigeria Living Standard Survey (HNLSS) with the Core Welfare Indicators Questionnaire. The 2009/2010 HNLSS provides information about the livelihood of the average Nigerian household for that period. It provides an account of householdssocial and economic variables across the country, and in some cases provides gender-based information. Only information on welfare indices is provided in this study.The HNLSS 2009/10 was funded by the World Bank and the International Development Department of the United Kingdom (DFID). The study was carried out by the Nigerian Federal Government, represented by the National Statistics Bureau, by offering competent leadership.

3.3 Coverage of the HNLS Survey

The study covered the Federal Capital Territory (FCT) and all 36 states. Welfare approach, which is also regarded as Part A, was performed in 77,400 households, which was an average of one hundred homes for every local government, whereas the consumption approach (Part B) comprised 50 homes from each ofthe local government.

3.4 Sample Design

The sample examined was intended to have LGA as a reporting domain for the Harmonized Nigeria Living Standard. However, the study sample design also facilitated assessments at national and sub-national (National, Zone and State) levels. The

sampling frame of all the country's 774 LGAs used the 2006 Housing and Population Census Enumeration Areas demarcated by the National Population Commission (NPopC). The frame has also been built into replicates so that each LGA has 3 replicates and 10 EAs are serially numbered 01-10 in each replicate. In each of the EAs, comprehensive collection of residential units and households was conducted just before the main survey began. The study introduced a two-stage sample design from which the choice of Enumeration Areas (EAs) was the first stage / Primary Sampling Units (PSUs), while the choice of Houses (HHs) constituted the second stage / Secondary or Ultimate Sampling Units (USUs).

3.5 Ordinary Set Principle

Any subset B of X, based on a set of X components $x \in X$, will then be specifically defined.:

$$x \in B \quad \leftrightarrow \quad f_B(x) = 1 \tag{3.1}$$

$$x \notin B \quad \leftrightarrow \quad f_B(x) = 0 \tag{3.2}$$

Where

$f_B(x)$denotes the membership function of set B.

Suppose we have n household in population A, $A = \{a_1, a_2, \dots, a_n\}$. The traditional approach to poverty measurement is that any householda_i is categorizedas impoverished or not impoverished: by the following features:

$$a_i \in B \quad if \quad y_i < z \tag{3.3}$$

$$a_i \notin B \quad if \quad y_i \geq z \tag{3.4}$$

Where B is the category of the impoverished,

$y_i$denotes the household earnings, and z also, denotes the poverty threshold.

3.6 The Fuzzy Set Principle

An item is either completely included or totally excluded in classical set theory, with none of it in, for both, for instance, day may either pertain to either month or otherwise not pertain to month (Naidoo,2005). The theory of fuzzy set enables an object to be part of a collection. Fuzzy sets can as well be further regardedhere as assertions of

conventional sets, because they are mostly categories where the shift mostly from membership to non-membership is gradually taking place.

Any fuzzy subset B of X will be described as follows, given a set of X elements x ∈X:

B = $\{x, f_B(x)\}$ 3.5

where $f_B(x)$: X →[0,1] is called the fuzzy set B's membership function (m.f.). The value illustrates the degree of membership between x and A..

Thus,

$$f_g(x) = \begin{cases} 0 \ if \notin B \\ 1 \ if \in B \end{cases} \quad 3.6$$

where 0 <$f_B(x)$< 1, and then x partly belongsalso to B and therefore, thedegree of membership thus risesin the nearest proportionwith$f_B(x)$ to 1 (Cheli 1995).

Assume there is a range of k characteristics for each family,(X_1, X_2,…, X_k).

In a population A of n households, A = $\{a_1, a_2, \ldots, a_n\}$., the subset of deprived households B includes any household a^i∈Bthat has some degree of impoverishment in at least one of k characteristics of X.

The membership level offuzzy set B of the i^{th} household, (i=1, 2... n), with regard to the jthattribute, (j=1, 2,..., m), is described as follows:

$$\mu_B\left(X_j(a_i)\right) = X_{ij} \quad 3.7$$

$$0 \leq X_{ij} \leq 1$$

Following the above definition,

X_{ij}= 1 1 if there is no jth attribute in the household,

X_{ij}= 0 if the household has the jth attribute,

and0 ≤ X_{ij} ≤ 11 If the i^{th} household has an attribute of j^{th} with the intensity of the open interval (0,1).

The membership function of the i^{th} family of the poor's fuzzy subset B can therefore be described as follows (Cerioli and Zani 1990):

$$f(x_i) = \frac{\sum_{j=1}^{k} \mu(x_{ij}) w_j}{\sum_{j=1}^{k} w_j} \quad 3.8$$

i =1, 2... n

where $w_1, w_2, .., w_k$ is a generic weight scheme,

$f(x_i)$ is a Global Poverty Index (GPI)

$\mu(x_{ij})$ is a precise deprivation measure for element j.

Zadeh (1965) initiated the current fuzzy sets theory relying on the notion that some classes of entities cannot be identified by exact membership standards, that is, cases in which one cannotestablish which components correspond to a specified group and which don't.

Let's have a set of X and then let x be another X component.A fuzzy subset A of X is defined as the set of pairs $A= \{x, \mu A(x)\}$ for all $x \in X$ where $\mu A$is an assignment of set X to the closed interval [0, 1], which is called themembership function Fuzzy Subset A. In certain words, the fuzzy set or subset A of X is described by a membership function that connects any point of X to a real number in the interval [0, 1], the membership function estimate indicating the membership degree of component x to set A.

$$\mu_A(X) = \begin{cases} 1 & if\ X\ belongs\ to\ subset\ A \\ 0 & if\ X\ does\ not\ belong\ to\ subset\ A \end{cases} \quad 3.9$$

When A becomes a fuzzy subset, we can write its membership function as:

$$\mu_A(X) = 0 \text{ if x isnotmemberof subset}$$

$\mu_A(X)$= 1if x is member of subset A,

$0 < \mu_A(X) < 1$ if x seems to be member of subset,A.

The nearer the membership value to 1, the higher the membership degree from x to A.
In the particular instance of continuous variables such as income, Cerioli and Zani (1990) described two baseline values, Xmin or Xmax,so that when the value x taken for a given individual by the continuous indicator is lower than Xmin, the household will be categorized as impoverished, while when it is greater than Xmax, the household shouldn't be regarded impoverished. Let k become the sub-set of typical family in an unfavorable position for attribute $j, (j = 1, 2, ., ., ., k)$.You can present the membership function as follows:

$$\mu_x(i) = \begin{cases} 1 & if\ 0 < X_{ij} < X_{jmin} \\ \frac{X_{jmax} - X_{ij}}{X_{jmax} - X_{jmin}} & if\ X_{ij} \in [X_{jmin}, X_{jmax}] \\ 0 & if\ X_{ij} > X_{jmax} \end{cases} \quad 3.10$$

The TFR,Totally Fuzzy and Relative method requires an inclusive view to poverty, according to whether one may be impoverished compared to several other households, emphasizing if the incidence of poverty is very small, therefore a large percentage of people would not be deemed impoverished, since the value derived from poverty the poverty measure in the TFR might be too great for all those who turn out to be not impoverished.

In the Totally Fuzzy and Relative, TFR procedure suggested by Cheli and Lemmi (1995), $\mu(X_{ij})$ is described as the distribution function, X_{ij}as follows: function, F (.) of X_{ij}as follows:

$$\mu(X_{ij}) = \begin{cases} F(X_{ij}) & if\ j\ \text{increases as}\ X_j\ increases \\ 1 - F(X_{ij}) & if\ j\ increases\ as\ X_j\ drcreases \end{cases} \quad 3.11$$

The normalized form is given by

$$\mu(X_{ij}) = \begin{cases} 0 & if\ \ X_{ij} = X_j^{(1)} \\ \mu\left(X_j^{(k-1)}\right) + \frac{F\left(X_j^{(k)}\right) - F\left(X_j^{(k-1)}\right)}{1 - F\left(X_j^{(1)}\right)} & if\ X_{ij} = X_j^{(k)},\ (k > 1) \end{cases} \quad 3.12$$

where

$X_j^{(1)}, X_j^{(2)}, \ldots, X_j^{(m)}$, are indeed the categories of the variable X_j,organized in ascending order with regard to poverty risk, and F(x) is X j's distribution function.

The categories were structured in ascending order so $X_j^{(1)}$represents minimal risk and $X_j^{(m)}$impliesoptimum risk.

This guarantees that membership functions value equal to null will always be strongly linked to the minimum poverty threat class and the membership function value

equivalent to one is strongly linked with the maximum poverty risk group.In other to know how representative the indicator is of the community, i.e obtain the poverty ratios, we thus define the weight,w_j,as a declining fraction of the percentage of the impoverished.

$$w_i = -ln\left\{\left(\frac{1}{n}\right)\sum_{j=1}^{k}\mu\left(x_{ij}\right)\right\} \quad 3.13$$

Where $\frac{1}{n}\sum_{j=1}^{k}\mu\left(x_{ij}\right)$ is the fuzzy representation of the poor in relation toX_j

Natural logarithm was taken to eliminateunnecessary significance from the elite goods.

The study also adopted overall index of poverty, P, suggested by Cerioli and Zani (1990) for the entire population: Hence, the computed average of indicators of individual poverty is written as follows:

$$P = \frac{1}{n}\sum_{i=1}^{k} f(X_i) \quad 3.14$$

Where P denotesthe share of persons belonging to the fuzzy subset of the poor, $f(X_i)$ assumes only values (0,1) in special case i.e , when it is not a fuzzy set

3.7 Proposed fuzzy set membership function schemes

This research acknowledges that every household is subject to multiple deprivation characteristics / categories as well as that different degrees or shades of deprivation exist within each deprivation characteristics.

Table 3.1: Table of the deprivation attributes and their various levels

Attributes	Levels
Water source for cooking and drinking	Treated Tap Water Untreated Tap Water Bore hole / Hand Pump Protected Well / Spring Rainwater Stream / Pond / River Tanker / Truck / Seller Other Sources
Toilet facilities by type	VIP Toilet, Covered Pit Toilet, Uncovered Pit Toilet, Pail/Bucket, Flush to septic tank, Flush to sewage, Toilet on water, Other types, None
Refuse removal/disposal by method	HH Bin from the Govt Agency, HH Bin from Private Agency, Government Bin or Shed, Disposal within Compound, Unauthorized refuse heap, Other Types
Energy source for cooking	Electricity, Gas, Kerosine, Wood, Coal

Attributes	Levels
Energy source for lighting	Solar Pannels, IPP / generator / rural electrification, PHCN (NEPA)/Generator, Private Generator only, IPP/Rural Electrification only, PHCN (NEPA) only, None
Material used for dwelling floor	Wood/Tile, Plank/Concrete, Dirt/Straw/Without concrete, Other types of floor
Type of housing unit	Whole Building, Duplex, Flat, Single room, Other Types
Distance to toilet	Inside Dwelling, Within 500m, 500m - 1km, 1km or more

Suppose that we have K attributes where i =1, 2… K. Also, suppose that for any attribute i, there are j levels, then membership function:

i) Varying Mean Fuzzy Set Membership Function becomes:

$$VMFSMF = \frac{j}{\frac{\sum_{j=2}^{maxj} x_{ij}}{n^*}} \quad 3.15$$

ii) Varying Geometric Mean Fuzzy Set Membership Function

$$VGMFSMF = \frac{j}{\sqrt[n^*]{x_1 \cdot x_{1,j+1} \cdots x_{1,maxj}}} \quad 3.16$$

iii) Varying Reciprocal Mean Fuzzy Set Membership Function:

$$VRMFSMF = j\left(\sum_{j=2}^{maxj} \frac{1}{\frac{x_{ij}}{n^*}}\right) \quad 3.17$$

$where\ 1 < j \leq \max(j)$. this implies that $2 \leq j \leq \max(j)$ and n^* is the number of countable levels for attributes i, and x_{ij}denotes the household's attributes.

3.8 Proposed assessment Criteria

The proposed assessment criteria is of the form $\left(\frac{m_i(x_i)}{m_2}\right)$, where $m_i(x_i)$ and m_2 are functions of the poverty ratio per household and attribute space. Hence;

i) Quasi Mean Absolute Deviation (QMAD)

$$QMAD = \frac{\sum|x_i^* - p|}{p^*} \quad 3.18$$

wherex_i^* is the poverty ratio per household, p is the multidimensional poverty ratio and p^* = n X k,where n is the households ' overall population and k is the number of attributes.

ii) Quasi Mean Percentage Error (QMPE)

$$QMPE = \frac{100\%}{p^*}\sum_1^n \left(\frac{x_i^* - p}{x_i^*}\right)^2 \quad 3.19$$

Wherex_i^* is the poverty ratio per household, p is the multidimensional poverty ratio and p^* = n X k, where n is the households ' overall population and k is the number of attributes. Quasi mean square deviation,

$$\text{QMSD} = \frac{1}{p^*}\sum(x_i^* - p)^2 \quad 3.20$$

the description of the variables is as above.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Introduction

We will address the outcomes of the analysis in this chapter. This includes results of the existing membership functionschemes, the proposed membership function schemes and the assessment criteria.

4.1 Existing and proposed fuzzy set membership function schemes

The membership functions for the attributes using existing fuzzy set membership functions; CZ and CL respectively are provided in tables 4.1-4.16 while the membership functions obtained using the proposed approaches; VMFSMF, VGMFSMF and VRMFSMF respectively are presented in tables 4.17-4.40

Table 4.1: Membership function for attribute Source of water for cooking and drinking using CZ Approach

Source of water for cooking and drinking	Membership functions
Treated pipe borne water	0.0000
Untreated Pipe borne water	0.1250
Borehole/Hand Pump	0.2500
Protected Well/Spring	0.3750
Unprotected Well/Spring	0.5000
Rain Water	0.6250
Stream/Pond/River	0.7500
Tanker/Truck/Vendor	0.8750
Other Sources	1.0000

Source: Computed by the author

Membership functions for attributes, source of water for cooking and drinking obtained using CZ approach as presented in table 4.1 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.1250 and 0.8750 respectively.

Table 4.2: Membership function for attribute for toilet facilities using CZ Approach

Toilet facilities	Membership Functions
VIP Latrine	0.0000
Covered Pit Latrine	0.1250
Uncovered Pit Latrine	0.2500
Pail/Bucket	0.3750
Flush to septic tank	0.5000
Flush to sewage	0.6250
Toilet on water	0.7500
Other types	0.8750
None	1.0000

Source: Computed by the author

Table 4.2 presents the membership functions for toilet facilitiesobtained using CZ approach as presented. It shows the values ranging from 0 to 1. These are the extreme values of no deprivation and highest deprivation respectively. The table also shows that the minimum and maximum values are 0.1250 and 0.8750 respectively.

Table 4.3: Membership function for attribute refuse removal/disposal by type using CZ Approach

Refuse removal/disposal by method	Membership Functions
HH Bin obtained from Govt Agency,	0.0000
HH Bin obtained from Private Agency	0.2000
Government Bin or Shed	0.4000
Disposal within Compound	0.6000
Unauthorized refuse heap	0.8000
Other Types	1.0000

Source: Computed by the author

Membership functions for attributerefuse disposal by typeobtained using CZ approach as presentedin table 4.3 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.2000 and 0.8000 respectively.

Table 4.4: Membership function for attribute Source of energy for cooking using CZ Approach

Source of energy s for cooking	Membership functions
Electricity	0.0000
Gas	0.2500
Kerosine	0.5000
Wood	0.7500
Coal	1.0000

Source: Computed by the author

Membership functions for attributesource of energy for cookingobtained using CZ approach as presentedin table 4.4 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.2500 and 0.7500 respectively.

Table 4.5: Membership function for attribute Source of energy for lightingusing CZ Approach

Source of energy for lighting	Membership functions
Solar Pannels	0.0000
IPP/Rural Electrification/Generator	0.1667
PHCN (NEPA)/Generator	0.3333
Private Generator only	0.5000
IPP/Rural Electrification only	0.6667
PHCN (NEPA) only	0.8333
None	1.0000

Source: Computed by the author

Membership functions for attribute source of energy for lighting obtained using CZ approach as presented in table 4.5 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.1667 and 0.8333 respectively.

Table 4.6: Membership function for attribute Material used for dwelling floor using CZ Approach

Material used for dwelling floor	Membership functions
Wood/Tile	0.0000
Plank/Concrete	0.3333
Dirt/Straw/Without concrete	0.6667
Other types of floor	1.0000

Source: Computed by the author

Membership functions for materials used for dwelling floorobtained using CZ approach as presented in table 4.6 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.3333 and 0.6667 respectively.

Table 4.7: Membership function for attribute Type of housing unit using CZ Approach

Type of housing	Membership functions
Whole Building	0.0000
Duplex	0.2500
Flat	0.5000
Single room	0.7500
Other Types	1.0000

Source: Computed by the author

Membership functions for attribute type of housing unitsobtained using CZ approach as presented in table 4.7 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.2500 and 0.7500 respectively.

Table 4.8: Membership function for attribute Distance to toilet using CZ Approach

Distance to toilet	Membership functions
Inside Dwelling	0.0000
Within 500m	0.3333
500m - 1km	0.6667
1km or more	1.0000

Source: Computed by the author

Membership functions for attribute distance to toilet obtained using CZ approach as presented in table 4.8 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.3333 and 0.6667 respectively.

Table 4.9: Membership function for attribute Source of water for cooking and drinkingusing CL approach

Attributes	Frequency		$F(X_j)$	$\mu(X_{ij})$
Treated pipe borne water	1393	0.0828	0.0828	0.0000
Untreated Pipe borne water	258	0.0153	0.0981	0.0167
Borehole/Hand Pump	4909	0.2917	0.3898	0.3347
Protected Well/Spring	2067	0.1228	0.5126	0.4686
Unprotected Well/Spring	3022	0.1796	0.6922	0.6644
Rain Water	192	0.0114	0.7036	0.6768
Stream/Pond/River	4402	0.2616	0.9651	0.9620
Tanker/Truck/Vendor	539	0.0320	0.9971	0.9969
Other Sources	48	0.0029	1.0000	1.0000
Total	16830			

$F(X_j)$isthe cumulative distribution of the attributes, j, $\mu(X_{ij})$ is membership function

Membership functions for attributes, source of water for cooking and drinking using obtained using CL approach as presented in table 4.9 also shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.0167 and 0.9969 respectively.

Table 4.10: Membership function for attribute Toilet facilities by types using CL approach

Toilet facilities by types	**Frequency**		$F(X_j)$	$\mu(X_{ij})$
VIP Latrine	119	0.0071	0.0071	0.0000
Covered Pit Latrine	7210	0.4284	0.4355	0.4315
Uncovered Pit Latrine	2997	0.1781	0.6135	0.6108
Pail/Bucket	19	0.0011	0.6147	0.6120
Flush to septic tank	1248	0.0742	0.6888	0.6866
Flush to sewage	645	0.0383	0.7272	0.7252
Toilet on water	982	0.0583	0.7855	0.7840
Other types	1584	0.0942	0.8796	0.8788
None	2026	0.1204	1.0000	1.0000
Total	**16830**			

$F(X_j)$ is the cumulative distribution of the attributes, j, $\mu(X_{ij})$ is membership function

Membership functions for attribute toilet facility by typeobtained using CL approach as presented in table 4.10 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.4315 and 0.8788 respectively.

Table 4.11: Membership function for attribute Refuse removal/disposal by method using CL approach

Refuse removal/disposal by Method	**Frequency**		$F(X_j)$	$\mu(X_{ij})$
HH Bin collected by Govt Agency	419	0.0249	0.0249	0.0000
HH Bin collected by Private Agency	361	0.0214	0.0463	0.0220
Government Bin or Shed	445	0.0264409	0.0728	0.0491
Disposal within Compound	5991	0.3559715	0.4288	0.4142
Unauthorized refuse heap	8331	0.4950	0.9238	0.9218
Other Types	1283	0.0762	1.0000	1.0000
Total	**16830**			

$F(X_j)$ is the cumulative distribution of the attributes, j, $\mu(X_{ij})$ is membership function

Membership functions for attribute refuse disposal by method obtained using CL approach as presented in table 4.11 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.0220 and 0.9218 respectively.

Table 4.12: Membership function for attribute Source of energy for lighting using CL approach

Source of energy for lighting	Frequency		$F(X_j)$	$\mu(X_{ij})$
Solar Pannels	8	0.0005	0.0005	0.0000
IPP/Rural Electrification/Generator	161	0.0096	0.0100	0.0096
PHCN (NEPA)/Generator	1234	0.0733	0.0834	0.0829
Private Generator only	617	0.0367	0.1200	0.1196
IPP/Rural Electrification only	319	0.0190	0.1390	0.1386
PHCN (NEPA) only	6971	0.4141	0.5532	0.5530
None	7520	0.4467	1.0000	1.0000
Total	**16830**			

$F(X_j)$ is the cumulative distribution of the attributes, j, $\mu(X_{ij})$ is membership function

Membership functions for attribute source of energy for lighting obtained using CL approach as presented in table 4.13 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.0096 and 0.5530 respectively.

Table 4.13: Membership function for attribute Material used for dwelling floor using CL approach

Material used for dwelling floor	**Frequency**		$F(X_j)$	$\mu(X_{ij})$
Wood/Tile	391	0.0232	0.0232	0.0000
Plank/Concrete	9262	0.5503	0.5736	0.5634
Dirt/Straw/Without concrete	6571	0.3904	0.9640	0.9631
Other types of floor	606	0.0360	1.0000	1.0000
Total	**16830**			

$F(X_j)$ is the cumulative distribution of the attributes, j, $\mu(X_{ij})$ is membership function

Membership functions for attribute material for dwelling floor obtained using CL approach as presented in table 4.13 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.5634 and 0.9631 respectively.

Table 4.14: Membership function for attribute source of energy for cooking using CL approach

Source of energy for cooking	**Frequency**		$F(X_j)$	$\mu(X_{ij})$
Electricity	71	0.0042	0.0042	0.0000
Gas	167	0.0100	0.0141	0.0100
Kerosine	3459	0.2055	0.2197	0.2164
Wood	12938	0.7687	0.9884	0.9884
Coal	195	0.0116	1.0000	1.0000
Total	**16830**			

$F(X_j)$ is the cumulative distribution of the attributes, j, $\mu(X_{ij})$ is membership function

Membership functions for attribute source of energy for cooking obtained using CL approach as presented in table 4.14 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.0100 and 0.9884 respectively.

Table 4.15: Membership function for attribute Type of housing unit using CL approach

Type of housing unit	Frequency		$\boldsymbol{F(X_j)}$	$\mu(X_{ij})$
Whole Building	4347	0.2583	0.2583	0.0000
Duplex	87	0.0052	0.2635	0.0070
Flat	1002	0.0595	0.3230	0.0872
Single room	11246	0.6682	0.9912	0.9881
Other Types	148	0.0088	1.0000	1.0000
Total	16830			

$\boldsymbol{F(X_j)}$is the cumulative distribution of the attributes, j, $\mu(X_{ij})$ is membership function

Membership functions for attribute type of housing unitobtained using CL approach as presented in table 4.15 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.0070 and 0.9881 respectively.

Table 4.16: Membership function for attribute Distance to toilet using CL approach

Distance to toilet	Frequency		$F(X_j)$	$\mu(X_{ij})$
Inside Dwelling	7776	0.4620	0.4620	0.0000
Within 500m	7506	0.4460	0.9080	0.8290
500m - 1km	1418	0.0843	0.9923	0.9856
1km or more	130	0.0077	1	1
Total	16830			

$F(X_j)$ is the cumulative distribution of the attributes, j, $\mu(X_{ij})$ is membership function

Membership functions for attribute distance to toilet obtained using CL approach as presented in table 4.16 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.8290 and 0.9856 respectively.

Table 4.17: Membership function for attribute Source of water for cooking and drinkingusingVMFSMF approach

Source of water for cooking and drinking	$\sum_{j=2}^{maxj} x_{ij}$	$\frac{\sum_{j=2}^{maxj} x_{ij}}{n^*}$	Membership functions
Treated pipe borne water	45	5.0000	0.0000
Pipe borne water not treated	44	5.5000	0.3636
Borehole/Hand Pump	42	6.0000	0.5000
Protected Well/Spring	39	6.5000	0.6154
Unprotected Well/Spring	35	7.0000	0.7143
Rain Water	30	7.5000	0.8000
Stream/Pond/River	24	8.0000	0.8750
Tanker/Truck/Vendor	17	8.5000	0.9412
Other Sources	9	9.0000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute material for dwelling floorobtained using VMFSMF approach as presented in table 4.17 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.3636 and 0.9412 respectively.

Table 4.18: Membership function for attribute Toilet facilities by type using VMFSMF approach

Toilet facilities by type	$\sum_{j=2}^{maxj} x_{ij}$	$\frac{\sum_{j=2}^{maxj} x_{ij}}{n^*}$	Membership functions
VIP Latrine	36	0.0000	0.0000
Covered Pit Latrine	44	5.5000	0.3636
Uncovered Pit Latrine	42	6.0000	0.5000
Pail/Bucket	39	6.5000	0.6154
Flush to septic tank	35	7.0000	0.7143
Flush to sewage	30	7.5000	0.8000
Toilet on water	24	8.0000	0.8750
Other types	17	8.5000	0.9412
None	9	9.0000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute toilet facilities by typeobtained using VMFSMF approach as presented in table 4.18 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.3636 and 0.9412 respectively.

Table 4.19: Membership function for attribute refuse removal/ disposal by method using VMFSMF approach

Refuse removal/ disposal by method	$\sum_{j=2}^{maxj} x_{ij}$	$\frac{\sum_{j=2}^{maxj} x_{ij}}{n^*}$	Membership Functions
HH Bin obtained from Govt Agency	21	3.5000	0.0000
HH Bin obtained from Private Agency	20	3.3333	0.5000
Government Bin or Shed	18	3.0000	0.6667
Disposal within Compound	15	2.5000	0.8000
Unauthorized refuse heap	11	1.8333	0.9091
Other Types	6	1.1667	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute refuse removal/disposal by type obtained using VMFSMF approach as presented in table 4.19 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.5000 and 0.9091 respectively.

Table 4.20: Membership functions for attribute source of energy for cooking using VMFSMF approach

Source of energy for cooking	$\sum_{j=2}^{maxj} x_{ij}$	$\frac{\sum_{j=2}^{maxj} x_{ij}}{n^*}$	Membership functions
Electricity	15	3.0000	0.0000
Gas	14	2.8000	0.5714
Kerosine	12	2.4000	0.7500
Wood	9	1.8000	0.8889
Coal	5	1.0000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute source of energy for cooking obtained using VMFSMF approach as presented in table 4.20 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.5714 and 0.8889 respectively.

Table 4.21: Membership functions for attribute Source of energy for lighting using VMFSMF approach

Source of energy for lighting	$\sum_{j=2}^{maxj} x_{ij}$	$\frac{\sum_{j=2}^{maxj} x_{ij}}{n^*}$	Membership functions
Solar Pannels	28	4.0000	0.0000
IPP/Rural Electrification/Generator	27	3.8571	0.4444
PHCN (NEPA)/Generator	25	3.5714	0.6000
Private Generator only	22	3.1428	0.7273
IPP/Rural Electrification only	18	2.5714	0.8333
PHCN (NEPA) only	13	1.8571	0.9231
None	8	1.14286	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute material for dwelling floor obtained using VMFSMF approach as presented in table 4.21 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.4444 and 0.9231 respectively.

Table 4.22: Membership function for attribute material used for dwelling floor using VMFSMF approach

Material used for dwelling floor	$\sum_{j=2}^{maxj} x_{ij}$	$\frac{\sum_{j=2}^{maxj} x_{ij}}{n^*}$	Membership function
Wood/Tile	10	2.5000	0.0000
Plank/Concrete	9	2.2500	0.6667
Dirt/Straw/Without concrete	7	1.7500	0.8571
Other types of floor	4	1.0000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute material for dwelling floor obtained using VMFSMF approach as presented in table 4.22 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.6667 and 0.8571 respectively.

Table 4.23: Membership function for attribute type of housing unit using VMFSMF approach

Type of housing unit	$\sum_{j=2}^{maxj} x_{ij}$	$\frac{\sum_{j=2}^{maxj} x_{ij}}{n^*}$	Membership functions
Whole Building	15	3.0000	0.0000
Duplex	14	2.8000	0.5714
Flat	12	2.4000	0.7500
Single room	9	1.8000	0.8889
Other Types	5	1.0000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute type of housing unitobtained using VMFSMF approach as presented in table 4.23 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.5714 and 0.8889 respectively.

Table 4.24: Membership function for attribute distance to toilet using VMFSMF approach

Distance to toilet	$\sum_{j=2}^{maxj} x_{ij}$	$\frac{\sum_{j=2}^{maxj} x_{ij}}{n^*}$	Membership functions
Inside Dwelling	10	2.5000	0.0000
Within 500m	9	2.2500	0.6667
500m - 1km	7	1.7500	0.8571
1km or more	4	1.0000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute distance to toilet obtained using VMFSMF approach as presented in table 4.24 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.6667 and 0.8571 respectively.

Table 4.25: Membership function for attribute Source of water for drinking and cooking using VGMFSMF approach

Source of water for drinking and cooking	$\sqrt[n^*]{x_1 \cdot x_{1,j+1} \cdots x_{1,maxj}}$	Membership function
Pipe borne water treated	0.0000	0.0000
Pipe borne water not treated	4.9542	0.4037
Borehole/Hand Pump	5.6396	0.5320
Protected Well/Spring	6.2652	0.6385
Unprotected Well/Spring	6.8535	0.7296
Rain Water	7.4156	0.8091
Stream/Pond/River	7.9581	0.8796
Tanker/Truck/Vendor	8.4853	0.9428
Other Sources	9.0000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute source of water for drinking and cookingobtained using VGMFSMF approach as presented in table 4.25 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.4037 and 0.9428 respectively.

Table 4.26: Membership function for attribute toilet facilities by type using VGMFSMF approach

Toilet facilities by type	$\sqrt[n^*]{x_1 \cdot x_{1,j+1} \cdots x_{1,maxj}}$	Membership functions
VIP Latrine	0.0000	0.0000
Covered Pit Latrine	4.9542	0.4037
Uncovered Pit Latrine	5.6396	0.5320
Pail/Bucket	6.2652	0.6384
Flush to septic tank	6.8535	0.7296
Flush to sewage	7.4156	0.8091
Toilet on water	7.9581	0.8796
Other types	8.4853	0.9428
None	9.0000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute toilet facilities by typeobtained using VGMFSMF approach as presented in table 4.26 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.4037 and 0.9428 respectively.

Table 4.27: Membership function for attribute refuse removal/disposal by method using VGMFSMF approach

Refuse removal/disposal by method	$\sqrt[n^*]{x_1 \cdot x_{1,j+1} \cdots x_{1,maxj}}$	Membership functions
HH Bin collected by Govt Agency	0.0000	0.0000
HH Bin collected by Private Agency	3.7279	0.5365
Government Bin or Shed	4.3559	0.6887
Disposal within Compound	4.9324	0.8110
Unauthorized refuse heap	5.4772	0.9129
Other Types	6.0000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute refuse removal/disposal by method obtained using VGMFSMF approach as presented in table 4.27 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.5365 and 0.9129 respectively.

Table 4.28: Membership function for attribute source of energy for cooking using VGMFSMF approach

source of energy for cooking	$\sqrt[n^*]{x_1 \cdot x_{1,j+1} \cdots x_{1,maxj}}$	Membership functions
Electricity	0.0000	0.0000
Gas	3.7279	0.5365
Kerosine	4.3559	0.6887
Wood	4.9324	0.8110
Coal	5.4772	0.9129
Total	6.0000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute source of energy for cooking obtained using VGMFSMF approach as presented in table 4.28 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.5365 and 0.9128 respectively.

Table 4.29: Membership function for attribute Source of energy for lighting using VGMFSMF approach

Energy source for lighting	$\sqrt[n^*]{x_1 \cdot x_{1,j+1} \cdots x_{1,maxj}}$	Membership functions
Solar Pannels	0.0000	0.0000
IPP/Rural Electrification/Generator	4.1407	0.4830
PHCN (NEPA)/Generator	4.7894	0.6264
Private Generator only	5.3836	0.7430
IPP/Rural Electrification only	5.9439	0.8412
PHCN (NEPA) only	6.4807	0.9258
None	7.0000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute source of energy for lighting obtained using VGMFSMF approach as presented in table 4.29 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.4830 and 0.9258 respectively.

Table 4.30: Membership function for attribute material used for dwelling floor using VGMFSMF approach

Material used for dwelling floor	$\sqrt[n^*]{x_1 \cdot x_{1,j+1} \cdots x_{1,maxj}}$	Membership functions
Wood/Tile	0.0000	0.0000
Plank/Concrete	2.8845	0.6934
Dirt/Straw/Without concrete	3.4641	0.8660
Other types of floor	4.0000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute material for dwelling floor obtained using VGMFSMF approach as presented in table 4.30 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.6934 and 0.8660 respectively.

Table 4.31: Membership function for attribute Type of housing unit using VGMFSMF approach

Type of housing unit	$\sqrt[n^*]{x_1 \cdot x_{1,j+1} \cdots x_{1,maxj}}$	Membership functions
Whole Building	0.0000	0.0000
Duplex	3.3098	0.6043
Flat	3.9149	0.7663
Single room	4.4721	0.8944
Other Types	5.0000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute type of housing unit obtained using VGMFSMF approach as presented in table 4.31 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.6043 and 0.8944 respectively.

Table 4.32: Membership function for attribute distance to toilet using VGMFSMF approach

Distance to toilet	$\sqrt[n^*]{x_1 \cdot x_{1,j+1} \cdots x_{1,maxj}}$	Membership functions
Inside Dwelling	0.0000	0.0000
Within 500m	2.8845	0.6934
500m - 1km	3.4641	0.8660
1km or more	4.0000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute distance to toilet obtained using VGMFSMF approach as presented in table 4.32 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.6934 and 0.8660 respectively.

Table 4.33: Membership function for attribute Source of water for drinking and cooking usingVRMFSMF approach

Source of water for drinking and cooking	$\frac{\mathbf{1}}{\frac{x_{ij}}{n^*}}$	Membership functions
Pipe borne water treated	0.0000	0.0000
Pipe borne water not treated	0.2286	0.4572
Borehole/Hand Pump	0.1899	0.5696
Protected Well/Spring	0.1659	0.6638
Unprotected Well/Spring	0.1491	0.7456
Rain Water	0.1364	0.8185
Stream/Pond/River	0.1263	0.8843
Tanker/Truck/Vendor	0.1181	0.9444
Other Sources	0.1111	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute source of water for cooking and drinking using VRMFSMF as presented in table 4.33 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.4572 and 0.9444 respectively.

Table 4.34: Membership function for attribute toilet facilitiesby type using VRMFSMF approach

Toilet facilitiesby type	$\frac{1}{\frac{x_{ij}}{n^*}}$	Membership Functions
VIP Latrine	0.0000	0.0000
Covered Pit Latrine	0.2286	0.4572
Uncovered Pit Latrine	0.1899	0.5696
Pail/Bucket	0.1659	0.6638
Flush to septic tank	0.1491	0.7456
Flush to sewage	0.1364	0.8185
Toilet on water	0.1263	0.8843
Other types	0.1181	0.9444
None	0.1111	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute toilet facilities by type using VRMFSMF as presented in table 4.34 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.4572 and 0.9444 respectively.

Table 4.35: Membership function for attribute refuse removal/disposal by method using VRMFSMF approach

Refuse removal/disposal by method	$\frac{\mathbf{1}}{\frac{x_{ij}}{n^*}}$	**Membership Functions**
HH Bin collected by Govt Agency	0.0000	0.0000
HH Bin collected by Private Agency	0.2900	0.5800
Government Bin or Shed	0.2375	0.7125
Disposal within Compound	0.2056	0.8222
Unauthorized refuse heap	0.1833	0.9167
Other Types	0.1667	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute refuse removal/disposal by method using VRMFSMF as presented in table 4.35 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.5800 and 0.9167 respectively.

Table 4.36: Membership function for attribute source of energy for cooking using VRMFSMF approach

source of energy for cooking	$\frac{1}{\frac{x_{ij}}{n^*}}$	Membership functions
Electricity	0.0000	0.0000
Gas	0.3208	0.6417
Kerosine	0.2611	0.7833
Wood	0.2250	0.9000
Coal	0.2000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute energy source for cooking using VRMFSMF as presented in table 4.36 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.6417 and 0.9000 respectively.

Table 4.37: Membership function for attribute Source of energy for lighting using VRMFSMF approach

Energy source for lighting	$\frac{1}{\frac{x_{ij}}{n^*}}$	Membership functions
Solar Pannels	0.0000	0.0000
IPP/Rural Electrification/Generator	0.2655	0.5310
PHCN (NEPA)/Generator	0.2186	0.6557
Private Generator only	0.1899	0.7595
IPP/Rural Electrification only	0.1698	0.8492
PHCN (NEPA) only	0.1548	0.9286
None	0.1429	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute energy source for lighting using VRMFSMF as presented in table 4.37 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.5310 and 0.9286 respectively.

Table 4.38: Membership function for attribute Material used for dwelling floor using VRMFSMF approach

Material used for dwelling floor	$\frac{1}{\frac{x_{ij}}{n^*}}$	Membership functions
Wood/Tile	0.0000	0.0000
Plank/Concrete	0.3611	0.7222
Dirt/Straw/Without concrete	0.2917	0.8750
Other types of floor	0.2500	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute material for dwelling floor using VRMFSMF as presented in table 4.38 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.7222 and 0.8750 respectively.

Table 4.39: Membership function for attribute type of housing unit using VRMFSMF approach

Type of housing unit	$\frac{1}{\frac{x_{ij}}{n^*}}$	Membership functions
Whole Building	0.0000	0.0000
Duplex	0.3208	0.6417
Flat	0.2611	0.7833
Single room	0.2250	0.9000
Other Types	0.2000	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute type of housing unit using VRMFSMF as presented in table 4.39 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.6417 and 0.9000 respectively.

Table 4.40: Membership function for attribute distance to toilet using VRMFSMF approach

Distance to toilet	$\frac{1}{\frac{x_{ij}}{n^*}}$	Membership functions
Inside Dwelling	0.0000	0.0000
Within 500m	0.3611	0.7222
500m - 1km	0.2917	0.8750
1km or more	0.2500	1.0000

$n^*$is the number of countable levels for attributes i, x_{ij} denotes the household's attributes

Membership functions for attribute distance to toilet using VRMFSMF as presented in table 4.40 shows the values ranging from 0 to 1. These are the extreme values no deprivation and highest deprivation. The table also shows that the minimum and maximum values are 0.7222 and 0.8750 respectively.

4.2 Fuzzy set multidimensional poverty

Table 4.41 - 4.45 shows the results for the fuzzy set multidimensional poverty analysis obtained using the existing fuzzy membership function schemes Cerioli and Zani (1990), CZ and Cheli and Lenmi (1995), CL, as well as the proposed fuzzy membership function schemes; VMFSMF, VGMFSMF and VRMFSMF respectively.

Table4.41: Fuzzy Set Multidimensional Analysis of Poverty using CZ approach

Household Number	Source of water for cooking and drinking	Type of housing unit	Material used for dwelling floor	Toilet facilities by type	Distance to toilet	Refuse removal / disposal by method	Source of energy for cooking	Source of energy for lighting	Poverty ratio per household
1	0.7500	0.7500	0.3333	0.6250	0.0000	0.6000	0.7500	0.3333	0.3850
2	0.2500	0.0000	0.3333	0.3750	0.3333	0.2000	0.5000	0.5000	0.2231
3	0.2500	0.0000	0.3333	0.6250	0.3333	0.2000	0.5000	0.5000	0.2419
4	0.2500	0.0000	0.3333	0.6250	0.3333	0.2000	0.5000	0.5000	0.2419
5	0.2500	0.7500	0.3333	0.3750	0.0000	0.2000	0.5000	0.5000	0.3005
6	0.2500	0.0000	0.3333	0.3750	0.0000	0.2000	0.5000	0.5000	0.1586
7	0.2500	0.7500	0.3333	0.3750	0.3333	0.2000	0.5000	0.5000	0.3650
8	0.2500	0.0000	0.3333	0.2500	0.3333	0.2000	0.5000	0.5000	0.2136
9	0.1250	0.2500	0.3333	0.1250	0.0000	0.2000	0.2500	0.5000	0.1629
10	0.2500	0.2500	0.3333	0.3750	0.0000	0.8000	0.5000	0.0000	0.1899
11	0.2500	0.2500	0.3333	0.2500	0.3333	0.2000	0.2500	0.5000	0.2495
12	0.2500	0.0000	0.3333	0.3750	0.3333	0.2000	0.5000	0.5000	0.2231
13	0.2500	0.2500	0.3333	0.3750	0.3333	0.2000	0.5000	0.5000	0.2704
14	0.2500	0.0000	0.3333	0.3750	0.3333	0.2000	0.5000	0.5000	0.2231
15	0.2500	0.7500	0.3333	0.3750	0.0000	0.2000	0.5000	0.5000	0.3005
16	0.7500	0.2500	0.3333	0.6250	0.3333	0.8000	0.7500	0.0000	0.3354
17	0.2500	0.0000	0.3333	0.3750	0.3333	0.8000	0.5000	0.0000	0.2071
18	0.2500	0.0000	0.3333	0.3750	0.0000	0.8000	0.5000	0.0000	0.1426
19	0.2500	0.7500	0.3333	0.6250	0.3333	0.8000	0.7500	0.0000	0.3794
20	0.2500	0.7500	0.3333	0.6250	0.3333	0.8000	0.7500	0.0000	0.3794
21	0.2500	0.7500	0.3333	0.6250	0.3333	0.8000	0.7500	0.0000	0.3794
22	0.7500	0.7500	0.3333	0.3750	0.3333	0.8000	0.7500	0.3333	0.4396
23	0.2500	0.0000	0.3333	0.3750	0.3333	0.2000	0.5000	0.5000	0.2231
24	0.2500	0.0000	0.3333	0.3750	0.0000	0.8000	0.5000	0.0000	0.1426
25	0.2500	0.0000	0.3333	0.3750	0.0000	0.8000	0.5000	0.0000	0.1426
26	0.2500	0.0000	0.3333	0.3750	0.0000	0.8000	0.5000	0.0000	0.1426
27	0.2500	0.0000	0.3333	0.3750	0.3333	0.8000	0.5000	0.0000	0.2071
28	0.2500	0.7500	0.6667	0.6250	0.3333	0.8000	0.5000	1.0000	0.4838
29	0.2500	0.0000	0.3333	0.3750	0.0000	0.8000	0.5000	0.0000	0.1426
30	0.2500	0.7500	0.0000	0.3750	0.0000	0.2000	0.2500	0.5000	0.2585
31	0.2500	0.0000	0.3333	0.3750	0.3333	0.8000	0.5000	0.0000	0.2071
32	0.2500	0.0000	0.3333	0.375	0.0000	0.8000	0.5000	0.0000	0.1426
33	0.2500	0.7500	0.3333	0.3750	0.0000	0.8000	0.7500	0.0000	0.2960

34	0.2500	0.2500	0.3333	0.3750	0.0000	0.8000	0.2500	0.5000	0.2211
35	0.2500	0.2500	0.3333	0.3750	0.0000	0.8000	0.2500	0.5000	0.2211
36	0.2500	0.2500	0.0000	0.3750	0.0000	0.8000	0.2500	0.5000	0.1905
37	0.2500	0.7500	0.3333	0.6250	0.0000	0.8000	0.7500	0.5000	0.3575
38	0.2500	0.0000	0.3333	0.6250	0.6667	0.8000	0.7500	0.0000	0.3020
39	0.2500	0.7500	0.3333	0.3750	0.0000	0.8000	0.7500	0.0000	0.2960
40	0.2500	0.7500	0.3333	0.3750	0.0000	0.8000	0.7500	0.5000	0.3386
41	0.2500	0.7500	0.3333	0.3750	0.0000	0.8000	0.7500	0.0000	0.2960
42	0.2500	0.0000	0.3333	0.6250	0.6667	0.8000	0.7500	0.0000	0.3020
43	0.2500	0.7500	0.3333	0.6250	0.6667	0.8000	0.7500	0.0000	0.4439
44	0.2500	0.7500	0.3333	0.2500	0.3333	0.8000	0.7500	0.5000	0.3937
45	0.2500	0.7500	0.3333	0.6250	0.6667	0.8000	0.7500	0.0000	0.4439
46	0.2500	0.2500	0.3333	0.3750	0.0000	0.8000	0.5000	0.5000	0.2326
47	0.2500	0.0000	0.3333	0.2500	0.0000	0.8000	0.7500	0.5000	0.1873
48	0.2500	0.0000	0.3333	0.8750	0.0000	0.8000	0.5000	0.5000	0.2230
49	0.2500	0.0000	0.3333	0.6250	0.6667	0.8000	0.5000	0.0000	0.2905
50	0.2500	0.7500	0.6667	0.6250	0.3333	1.0000	0.7500	1.0000	0.5041
$\sum_{j=1}^{k} \boldsymbol{\mu}(\boldsymbol{X_{ij}})$	7486.7	3702.2	8073.9	9203.6	3577.1	11792.6	11669.75	8509.8	0.31912
$\frac{1}{n}\sum_{j=1}^{k} \boldsymbol{\mu}(\boldsymbol{X_{ij}})$	0.4449	0.2200	0.4797	0.5469	0.2126	0.7007	0.6934	0.5056	
W_i	0.8100	1.5142	0.7345	0.6036	1.5486	0.3557	0.3662	0.6820	

W_i is weight, $\boldsymbol{\mu}(\boldsymbol{X_{ij}})$ is the fuzzy representation of the poor in relation to $(\boldsymbol{X_j})$

Table 4.41 presents the fuzzy set multidimensional analysis of poverty using CZ approach. The table shows the different weights of the eight deprivation attributes namely; source of water for cooking and drinking, type of housing unit, materials used for dwelling floor, toilet facilities by type, distance to toilet, refuse removal/disposal by type, source of energy for cooking, source of energy for lighting t be 0.8100, 1.5142, 0.7345, 0.6036, 1.5486, 0.3557, 0.3662 and 0.6194 respectively. The table also presents the poverty ratios per household as well as the multidimensional poverty to be 0.3191

Table4.42: Fuzzy Set Multidimensional Analysis of Poverty using CL

	Source of water for cooking and drinking	Type of housing unit	Material used for dwelling floor	Toilet facilities by type	Distance to toilet	Refuse removal/ disposal by method	Source of energy for cooking	Source of energy for lighting	Poverty ratio per household
1	0.9620	0.9881	0.5634	0.7252	0.0000	0.4142	0.9884	0.0829	0.3476
2	0.3347	0.0000	0.5634	0.6119	0.8290	0.0220	0.2164	0.1196	0.1785
3	0.3347	0.0000	0.5634	0.7252	0.8290	0.0220	0.2164	0.1196	0.1847
4	0.3347	0.0000	0.5634	0.7252	0.8290	0.0220	0.2164	0.1196	0.1847
5	0.3347	0.9881	0.5634	0.6119	0.0000	0.0220	0.2164	0.1196	0.2623
6	0.3347	0.0000	0.5634	0.6119	0.0000	0.0220	0.2164	0.1196	0.0982
7	0.3347	0.9881	0.5634	0.6119	0.8290	0.0220	0.2164	0.1196	0.3426
8	0.3347	0.0000	0.5634	0.6108	0.8290	0.0220	0.2164	0.1196	0.1785
9	0.0167	0.0070	0.5634	0.4315	0.0000	0.0220	0.0100	0.1196	0.0618
10	0.3347	0.0069	0.5634	0.6119	0.0000	0.9218	0.2164	0.0000	0.1308
11	0.3347	0.0069	0.5634	0.6108	0.8290	0.0220	0.0100	0.1196	0.1744
12	0.3347	0.0000	0.5634	0.6119	0.8290	0.0220	0.2164	0.1196	0.1785
13	0.3347	0.0070	0.5634	0.6119	0.8290	0.0220	0.2164	0.1196	0.1797
14	0.3347	0.0000	0.5634	0.6119	0.8290	0.0220	0.2164	0.1196	0.1785
15	0.3347	0.9881	0.5634	0.6119	0.0000	0.0220	0.2164	0.1196	0.2623
16	0.9620	0.0070	0.5634	0.7252	0.8290	0.9218	0.9884	0.0000	0.2813
17	0.3347	0.0000	0.5634	0.6119	0.8290	0.9218	0.2164	0.0000	0.2100
18	0.3347	0.0000	0.5634	0.6119	0.0000	0.9218	0.2164	0.0000	0.1298
19	0.3347	0.9881	0.5634	0.7252	0.8290	0.9218	0.9884	0.0000	0.4000
20	0.3347	0.9881	0.5634	0.7252	0.8290	0.9218	0.9884	0.0000	0.4000
21	0.3347	0.9881	0.5634	0.7252	0.8290	0.9218	0.9884	0.0000	0.4000
22	0.9620	0.9881	0.5634	0.6119	0.8290	0.9218	0.9884	0.0829	0.4460
23	0.3347	0.0000	0.5634	0.6119	0.8290	0.0220	0.2164	0.1196	0.1785
24	0.3347	0.0000	0.5634	0.6119	0.0000	0.9218	0.2164	0.0000	0.1297
25	0.3347	0.0000	0.5634	0.6119	0.0000	0.9218	0.2164	0.0000	0.1297

26	0.3347	0.0000	0.5634	0.6119	0.0000	0.9218	0.2164	0.0000	0.1297
27	0.3347	0.0000	0.5634	0.6119	0.8290	0.9218	0.2164	0.0000	0.2100
28	0.3347	0.9881	0.9631	0.7250	0.8290	0.9218	0.2164	1.0000	0.4936
29	0.3347	0.0000	0.5634	0.6119	0.0000	0.9218	0.2164	0.0000	0.1297
30	0.3347	0.9881	0.0000	0.6119	0.0000	0.0220	0.0100	0.1196	0.2341
31	0.3347	0.0000	0.5634	0.6119	0.8290	0.9218	0.2164	0.0000	0.2100
32	0.3347	0.0000	0.5634	0.6119	0.0000	0.9218	0.2164	0.0000	0.1297
33	0.3347	0.9881	0.5634	0.6119	0.0000	0.9218	0.9884	0.0000	0.3134
34	0.3347	0.0070	0.5634	0.6119	0.0000	0.9218	0.0100	0.1196	0.1372
35	0.3347	0.0070	0.5634	0.6119	0.0000	0.9218	0.0100	0.1196	0.1372
36	0.3347	0.0070	0.0000	0.6119	0.0000	0.9218	0.0100	0.1196	0.1143
37	0.3347	0.9881	0.5634	0.7252	0.0000	0.9218	0.9884	0.1196	0.3312
38	0.3347	0.0000	0.5634	0.7252	0.9856	0.9218	0.9884	0.0000	0.2510
39	0.3347	0.9881	0.5634	0.6119	0.0000	0.9218	0.9884	0.0000	0.3134
40	0.3347	0.9881	0.5634	0.6119	0.0000	0.9218	0.9884	0.1196	0.3250
41	0.3347	0.9881	0.5634	0.6119	0.0000	0.9218	0.9884	0.0000	0.3134
42	0.3347	0.0000	0.5634	0.7252	0.9856	0.9218	0.9884	0.0000	0.2510
43	0.3347	0.9881	0.5634	0.7252	0.9856	0.9218	0.9884	0.0000	0.4151
44	0.3347	0.9881	0.5634	0.6108	0.8290	0.9218	0.9884	0.1196	0.4053
45	0.3347	0.9881	0.5634	0.7252	0.9856	0.9218	0.9884	0.0000	0.4151
46	0.3347	0.0070	0.5634	0.6119	0.0000	0.9218	0.2164	0.1196	0.1424
47	0.3347	0.0000	0.5634	0.6108	0.0000	0.9218	0.9884	0.1196	0.1608
48	0.3347	0.0000	0.5634	0.8788	0.0000	0.9218	0.2164	0.1196	0.1559
49	0.3347	0.0000	0.5634	0.7252	0.9856	0.9218	0.2164	0.0000	0.2314
50	0.3347	0.9881	0.9631	0.7252	0.8290	1.0000	0.9884	1.0000	0.5169
$\sum_{j=1}^{k} \boldsymbol{\mu}(\boldsymbol{X_{ij}})$	9573.7	4458.0	12153.1	10861.3	7750.30	11473.8	13732.5	7748.55	2.33231
$\frac{1}{n}\sum_{j=1}^{k} \boldsymbol{\mu}(\boldsymbol{X_{ij}})$	0.5689	0.2649	0.7221	0.6454	0.4605	0.6818	0.8160	0.4604	
W_i	0.5642	1.3285	0.3256	0.4380	0.7754	0.3831	0.2034	0.7757	4.794274

W_i is weight, $\boldsymbol{\mu}(\boldsymbol{X_{ij}})$ is the fuzzy representation of the poor in relation to $(\boldsymbol{X_j})$

Table 4.42 presents the fuzzy set multidimensional analysis of poverty using CL approach. The table shows the different weights of the eight deprivation attributes namely; source of water for cooking and drinking, type of housing unit, materials used for dwelling floor, toilet facilities by type, distance to toilet, refuse removal/disposal by type, source of energy for cooking, source of energy for lighting t be 0.5642, 1.3285, 0.3256, 0.4380, 0.7754, 0.3831, 0.2034 and 0.7757 respectively. The table also presents the poverty ratios per household as well as the multidimensional poverty to be 0.2915

Table 4.43: Fuzzy Set Multidimensional Analysis of Poverty using VMFSMF approach

Household Number	Source of water for cooking and drinking	Type of housing unit	Material used for dwelling floor	Toilet facilities by type	Distance to toilet	Refuse removal/ disposal by method	Source of energy for cooking	Source of energy for lighting	Poverty ratio per household
1	0.8750	0.8889	0.6667	0.8000	0.0000	0.8000	0.8889	0.6000	0.3385
2	0.5000	0.0000	0.6667	0.6154	0.6667	0.5000	0.7500	0.7273	0.2467
3	0.5000	0.0000	0.6667	0.8000	0.6667	0.5000	0.7500	0.7273	0.2554
4	0.5000	0.0000	0.6667	0.8000	0.6667	0.5000	0.7500	0.7273	0.2554
5	0.5000	0.8889	0.6667	0.6154	0.0000	0.5000	0.7500	0.7273	0.3083
6	0.5000	0.0000	0.6667	0.6154	0.0000	0.5000	0.7500	0.7273	0.1655
7	0.5000	0.8889	0.6667	0.6154	0.6667	0.5000	0.7500	0.7273	0.3896
8	0.5000	0.0000	0.6667	0.5000	0.6667	0.5000	0.7500	0.7273	0.2413
9	0.3636	0.5714	0.6667	0.3636	0.0000	0.5000	0.5714	0.7273	0.2334
10	0.5000	0.5714	0.6667	0.6154	0.0000	0.9091	0.7500	0.0000	0.2101
11	0.5000	0.5714	0.6667	0.5000	0.6667	0.5000	0.5714	0.7273	0.3296
12	0.5000	0.0000	0.6667	0.6154	0.6667	0.5000	0.7500	0.7273	0.2467
13	0.5000	0.5714	0.6667	0.6154	0.6667	0.5000	0.7500	0.7273	0.3386
14	0.5000	0.0000	0.6667	0.6154	0.6667	0.5000	0.7500	0.7273	0.2467
15	0.5000	0.8889	0.6667	0.6154	0.0000	0.5000	0.7500	0.7273	0.3084
16	0.8750	0.5714	0.6667	0.8000	0.6667	0.9091	0.8889	0.0000	0.3247
17	0.5000	0.0000	0.6667	0.6154	0.6667	0.9091	0.7500	0.0000	0.1994
18	0.5000	0.0000	0.6667	0.6154	0.0000	0.9091	0.7500	0.0000	0.1182
19	0.5000	0.8889	0.6667	0.8000	0.6667	0.9091	0.8889	0.0000	0.3538
20	0.5000	0.8889	0.6667	0.8000	0.6667	0.9091	0.8889	0.0000	0.3538
21	0.5000	0.8889	0.6667	0.8000	0.6667	0.9091	0.8889	0.0000	0.3538
22	0.8750	0.8889	0.6667	0.6154	0.6667	0.9091	0.8889	0.6000	0.4134
23	0.5000	0.0000	0.6667	0.6154	0.6667	0.5000	0.7500	0.7272	0.2467
24	0.5000	0.0000	0.6667	0.6154	0.0000	0.9091	0.7500	0.0000	0.1182
25	0.5000	0.0000	0.6667	0.6154	0.0000	0.9091	0.7500	0.0000	0.1182
26	0.5000	0.0000	0.6667	0.6154	0.0000	0.9091	0.7500	0.0000	0.1182
27	0.5000	0.0000	0.6667	0.6154	0.6667	0.9091	0.7500	0.0000	0.1994
28	0.5000	0.8889	0.8571	0.8000	0.6667	0.9091	0.7500	1.0000	0.4356
29	0.5000	0.0000	0.6667	0.6154	0.0000	0.9091	0.7500	0.0000	0.1182
30	0.5000	0.8889	0.0000	0.6154	0.0000	0.5000	0.5714	0.7273	0.2795
31	0.5000	0.0000	0.6667	0.6154	0.6667	0.9091	0.7500	0.0000	0.1994
32	0.5000	0.0000	0.6667	0.6154	0.0000	0.9091	0.7500	0.0000	0.1182
33	0.5000	0.8889	0.6667	0.6154	0.0000	0.9091	0.8889	0.0000	0.2639

34	0.5000	0.5714	0.6667	0.6154	0.0000	0.9091	0.5714	0.7273	0.2628
35	0.5000	0.5714	0.6667	0.6154	0.0000	0.9091	0.5714	0.7273	0.2628
36	0.5000	0.5714	0.0000	0.6154	0.0000	0.9091	0.5714	0.7273	0.2374
37	0.5000	0.8889	0.6667	0.8000	0.0000	0.9091	0.8889	0.7273	0.3287
38	0.5000	0.0000	0.6667	0.8000	0.8571	0.9091	0.8889	0.0000	0.2341
39	0.5000	0.8889	0.6667	0.6154	0.0000	0.9091	0.8889	0.0000	0.2639
40	0.5000	0.8889	0.6667	0.6154	0.0000	0.9091	0.8889	0.7273	0.3201
41	0.5000	0.8889	0.6667	0.6154	0.0000	0.9091	0.8889	0.0000	0.2639
42	0.5000	0.0000	0.6667	0.8000	0.8571	0.9091	0.8889	0.0000	0.2341
43	0.5000	0.8889	0.6667	0.8000	0.8571	0.9091	0.8889	0.0000	0.3770
44	0.5000	0.8889	0.6667	0.5000	0.6667	0.9091	0.8889	0.7272	0.3959
45	0.5000	0.8889	0.6667	0.8000	0.8571	0.9091	0.8889	0.0000	0.3770
46	0.5000	0.5714	0.6667	0.6154	0.0000	0.9091	0.7500	0.7272	0.2663
47	0.5000	0.0000	0.6666	0.5000	0.0000	0.9091	0.8889	0.7272	0.1717
48	0.5000	0.0000	0.6667	0.9412	0.0000	0.9091	0.7500	0.7272	0.1897
49	0.5000	0.0000	0.6667	0.8000	0.8571	0.9091	0.7500	0.0000	0.2313
50	0.5000	0.8889	0.8571	0.8000	0.6667	1.0000	0.8889	1.0000	0.4403
$\sum_{j=1}^{k} \boldsymbol{\mu}(\boldsymbol{X_{ij}})$	10539.5	4649.87	12412.9	11547.5	6349.67	14126.61	14385	9070	2.1135
$\frac{1}{n}\sum_{j=1}^{k} \boldsymbol{\mu}(\boldsymbol{X_{ij}})$	0.6262	0.2763	0.7376	0.6861	0.3773	0.8394	0.8547	0.5390	
W_i	0.4680	1.2863	0.3044	0.3767	0.9748	0.1751	0.1570	0.6181	4.3604

W_i is weight, $\boldsymbol{\mu}(\boldsymbol{X_{ij}})$ is the fuzzy representation of the poor in relation to $(\boldsymbol{X_j})$

Table 4.43 presents the fuzzy set multidimensional analysis of poverty using VMFSMFS approach. The table shows the different weights of the eight deprivation attributes namely; source of water for cooking and drinking, type of housing unit, materials used for dwelling floor, toilet facilities by type, distance to toilet, refuse removal/disposal by type, source of energy for cooking, source of energy for lighting to be 0.4680, 1.2863, 0.3044, 0.3767, 0.9748, 0.1751, 0.1570 and 0.6181 respectively. The table also presents the poverty ratios per household as well as the multidimensional poverty to be 0.2642

Table 4.44: Fuzzy Set Multidimensional Analysis of Poverty using VGMFSMS

Household Number	Source of water for cooking and drinking	Type of housing unit	Material used for dwelling floor	Toilet facilities by type	Distance to toilet	Refuse removal/ disposal by method	Sourceof energy for cooking	Sourceo f energy for lighting	Poverty ratio per household
1	0.8796	0.8443	0.6934	0.8091	0.0000	0.8110	0.8110	0.6264	0.3384
2	0.5395	0.0000	0.6934	0.6384	0.6934	0.5365	0.6887	0.7430	0.2537
3	0.5395	0.0000	0.6934	0.8091	0.6934	0.5365	0.6887	0.7430	0.2614
4	0.5395	0.0000	0.6934	0.8091	0.6934	0.5365	0.6887	0.7430	0.2614
5	0.5395	0.8443	0.6934	0.6385	0.0000	0.5365	0.6887	0.7430	0.3115
6	0.5395	0.0000	0.6934	0.6385	0.0000	0.5365	0.6887	0.7430	0.1721
7	0.5395	0.8443	0.6934	0.6385	0.6934	0.5365	0.6887	0.7430	0.3932
8	0.5395	0.0000	0.6934	0.5320	0.6934	0.5365	0.6887	0.7430	0.2489
9	0.4037	0.6043	0.6934	0.4047	0.0000	0.5365	0.5365	0.7430	0.2492
10	0.5395	0.6043	0.6934	0.6385	0.0000	0.9129	0.6887	0.0000	0.2228
11	0.5395	0.6043	0.6934	0.5320	0.6934	0.5365	0.5365	0.7430	0.3440
12	0.5395	0.0000	0.6934	0.6385	0.6934	0.5365	0.6887	0.7430	0.2537
13	0.5395	0.6043	0.6934	0.6385	0.6934	0.5365	0.6887	0.7430	0.3535
14	0.5395	0.0000	0.6934	0.6385	0.6934	0.5365	0.6887	0.7430	0.2537
15	0.5395	0.8443	0.6934	0.6385	0.0000	0.5365	0.6887	0.7430	0.3115
16	0.8796	0.6043	0.6934	0.8091	0.6934	0.9129	0.8110	0.0000	0.3346
17	0.5395	0.0000	0.6934	0.6385	0.6934	0.9129	0.6887	0.0000	0.2047
18	0.5395	0.0000	0.6934	0.6385	0.0000	0.9129	0.6887	0.0000	0.1230
19	0.5395	0.8443	0.6934	0.8091	0.6934	0.9129	0.8110	0.0000	0.3556
20	0.5395	0.8443	0.6934	0.8091	0.6934	0.9129	0.8110	0.0000	0.3556
21	0.5395	0.8443	0.6934	0.8091	0.6934	0.9129	0.8110	0.0000	0.3556
22	0.8796	0.8443	0.6934	0.6385	0.6934	0.9129	0.8110	0.6264	0.4145
23	0.5395	0.0000	0.6934	0.6385	0.6934	0.5365	0.6887	0.7430	0.2537
24	0.5395	0.0000	0.6934	0.6385	0.0000	0.9129	0.6887	0.0000	0.1230
25	0.5395	0.0000	0.6934	0.6385	0.0000	0.9129	0.6887	0.0000	0.1230
26	0.5395	0.0000	0.6934	0.6385	0.0000	0.9129	0.6887	0.0000	0.1230
27	0.5395	0.0000	0.6934	0.6385	0.6934	0.9129	0.6887	0.0000	0.2047
28	0.5395	0.8443	0.8660	0.8091	0.6934	0.9129	0.6887	1.0000	0.4344
29	0.5395	0.0000	0.6933	0.6385	0.0000	0.9129	0.688	0.0000	0.1230
30	0.5395	0.8443	0.0000	0.6385	0.0000	0.5365	0.5365	0.7430	0.2825
31	0.5395	0.0000	0.6934	0.6385	0.6934	0.9129	0.6887	0.0000	0.2040
32	0.5395	0.0000	0.6934	0.6385	0.0000	0.9129	0.6887	0.0000	0.1230
33	0.5395	0.8443	0.6934	0.6385	0.0000	0.9129	0.8110	0.0000	0.2662
34	0.5395	0.6043	0.6934	0.6385	0.0000	0.9129	0.5365	0.7430	0.2750
35	0.5395	0.6043	0.6934	0.6385	0.0000	0.9129	0.5365	0.7430	0.2750

36	0.5395	0.6043	0.0000	0.6385	0.0000	0.9129	0.5365	0.7430	0.2507
37	0.5395	0.8443	0.6934	0.8091	0.0000	0.9129	0.8110	0.7430	0.3309
38	0.5395	0.0000	0.6934	0.8091	0.8660	0.9129	0.8110	0.0000	0.2365
39	0.5395	0.8443	0.6934	0.6385	0.0000	0.9129	0.8110	0.0000	0.2662
40	0.5395	0.8443	0.6934	0.6385	0.0000	0.9129	0.8110	0.7430	0.3231
41	0.5395	0.8443	0.6934	0.6385	0.0000	0.9129	0.8110	0.0000	0.2662
42	0.5395	0.0000	0.6934	0.8091	0.8660	0.9129	0.8110	0.0000	0.2365
43	0.5395	0.8443	0.6934	0.8091	0.8660	0.9129	0.8110	0.0000	0.3759
44	0.5395	0.8443	0.6934	0.5320	0.6934	0.9129	0.8110	0.7430	0.4000
45	0.5395	0.8443	0.6934	0.8091	0.8660	0.9129	0.8110	0.0000	0.3759
46	0.5395	0.6043	0.6934	0.6385	0.0000	0.9129	0.6887	0.7430	0.2797
47	0.5395	0.0000	0.6934	0.5320	0.0000	0.9129	0.8110	0.7430	0.1789
48	0.5395	0.0000	0.6934	0.9428	0.0000	0.9129	0.6887	0.7430	0.1937
49	0.5395	0.0000	0.6934	0.8091	0.86604	0.9129	0.6887	0.0000	0.2327
50	0.5395	0.8443	0.8660	0.8091	0.6934	1.0000	0.8110	1.0000	0.4400
$\sum_{j=1}^{k} \boldsymbol{\mu}(\boldsymbol{X_{ij}})$	10860.7	4490.19	12718.6	11717.2	6562.39	14246.75	13142.1	9120.26	2.1135
$\frac{1}{n}\sum_{j=1}^{k} \boldsymbol{\mu}(\boldsymbol{X_{ij}})$	0.6453	0.2668	0.7557	0.6962	0.3899	0.8465	0.7809	0.5419	
W_i	0.4380	1.3213	0.2801	0.3621	0.9418	0.1666	0.2473	0.6127	4.3604

W_i is weight, $\boldsymbol{\mu}(\boldsymbol{X_{ij}})$ is the fuzzy representation of the poor in relation to $(\boldsymbol{X_j})$

Table 4.44 presents the fuzzy set multidimensional analysis of poverty using VGMFSMS approach. The table shows the different weights of the eight deprivation attributes namely; source of water for cooking and drinking, type of housing unit, materials used for dwelling floor,toilet facilities by type, distance to toilet, refuse removal/disposal by type, source of energy for cooking, source of energy for lighting to be 0.4380, 1.3213, 0.2801, 0.3621, 0.9418, 0.1667, 0.2473 and 0.6127 respectively. The table also presents the poverty ratios per household as well as the multidimensional poverty to be 0.2665

Table 4.45:

Fuzzy Set Multidimensional Analysis of Poverty using VRMFSMS

Household Number	Source of water for cooking and drinking	Type of housing unit	Material used for dwelling floor	Toilet facilities by type	Distance to toilet	Refuse removal/ disposal by method	Source of energy for cooking	Source of energy for lighting	Poverty ratio per household
1	0.8842	0.9000	0.7222	0.8185	0.0000	0.8222	0.9000	0.6557	0.3273
2	0.5695	0.0000	0.7222	0.6638	0.7222	0.5800	0.7833	0.7595	0.2456
3	0.5695	0.0000	0.7222	0.8185	0.7222	0.5800	0.7833	0.7595	0.2523
4	0.5695	0.0000	0.7222	0.8185	0.7222	0.5800	0.7833	0.7595	0.2523
5	0.5695	0.9000	0.7222	0.6638	0.0000	0.5800	0.7833	0.7595	0.3055
6	0.5695	0.0000	0.7222	0.6638	0.0000	0.5800	0.7833	0.7595	0.1636
7	0.5695	0.9000	0.7222	0.6638	0.7222	0.5800	0.7833	0.7595	0.3874
8	0.5695	0.0000	0.7222	0.5700	0.7222	0.5800	0.7833	0.7595	0.2415
9	0.4572	0.6417	0.7222	0.4572	0.0000	0.5800	0.6417	0.7595	0.2476
10	0.5695	0.6417	0.7222	0.6638	0.0000	0.9167	0.7833	0.0000	0.2138
11	0.5695	0.6417	0.7222	0.5700	0.7222	0.5800	0.6417	0.7595	0.3401
12	0.5695	0.0000	0.7222	0.6638	0.7222	0.5800	0.7833	0.7595	0.2456
13	0.5695	0.6417	0.7222	0.6638	0.7222	0.5800	0.7833	0.7595	0.3467
14	0.5695	0.0000	0.7222	0.6638	0.7222	0.5800	0.7833	0.7595	0.2456
15	0.5695	0.9000	0.7222	0.6638	0.0000	0.5800	0.7833	0.7595	0.3055
16	0.8842	0.6417	0.7222	0.8185	0.7222	0.9167	0.9000	0.0000	0.3206
17	0.5695	0.0000	0.7222	0.6638	0.7222	0.9167	0.7833	0.0000	0.1946
18	0.5695	0.0000	0.7222	0.6638	0.0000	0.9167	0.7833	0.0000	0.1127
19	0.5695	0.9000	0.7222	0.8185	0.7222	0.9167	0.9000	0.0000	0.3451
20	0.5695	0.9000	0.7222	0.8185	0.7222	0.9167	0.9000	0.0000	0.3451
21	0.5695	0.9000	0.7222	0.8185	0.7222	0.9167	0.9000	0.0000	0.3451
22	0.8842	0.9000	0.7222	0.6638	0.7222	0.9167	0.9000	0.6557	0.4044
23	0.5695	0.0000	0.7222	0.6638	0.7222	0.5800	0.7833	0.7595	0.2456
24	0.5695	0.0000	0.7222	0.6638	0.0000	0.9167	0.7833	0.0000	0.1127
25	0.5695	0.0000	0.7222	0.6638	0.0000	0.9167	0.7833	0.0000	0.1127
26	0.5695	0.0000	0.7222	0.6638	0.0000	0.9167	0.7833	0.0000	0.1127
27	0.5695	0.0000	0.7222	0.6638	0.7222	0.9167	0.7833	0.0000	0.1946
28	0.5695	0.9000	0.8750	0.8185	0.7222	0.9167	0.7833	1.0000	0.4238
29	0.5695	0.0000	0.7222	0.6638	0.0000	0.9167	0.7833	0.0000	0.1127
30	0.5695	0.9000	0.0000	0.6638	0.0000	0.5800	0.6417	0.7595	0.2799
31	0.5695	0.0000	0.7222	0.6638	0.7222	0.9167	0.7833	0.0000	0.1946
32	0.5695	0.0000	0.7222	0.6638	0.0000	0.9167	0.7833	0.0000	0.1127
33	0.5695	0.9000	0.7222	0.6638	0.0000	0.9167	0.9000	0.0000	0.2565

34	0.5695	0.6417	0.7222	0.6638	0.0000	0.9167	0.6417	0.7595	0.2689
35	0.5695	0.6417	0.7222	0.6638	0.0000	0.9167	0.6417	0.7595	0.2689
36	0.5695	0.6417	0.0000	0.6638	0.0000	0.9167	0.6417	0.7595	0.2459
37	0.5695	0.9000	0.7222	0.8185	0.0000	0.9167	0.9000	0.7595	0.3208
38	0.5695	0.0000	0.7222	0.8185	0.8750	0.9167	0.9000	0.0000	0.2207
39	0.5695	0.9000	0.7222	0.6638	0.0000	0.9167	0.9000	0.0000	0.2565
40	0.5695	0.9000	0.7222	0.6638	0.0000	0.9167	0.9000	0.7595	0.3141
41	0.5695	0.9000	0.7222	0.6638	0.0000	0.9167	0.9000	0.0000	0.2565
42	0.5695	0.0000	0.7222	0.8185	0.8750	0.9167	0.9000	0.0000	0.2207
43	0.5695	0.9000	0.7222	0.8185	0.8750	0.9167	0.9000	0.0000	0.3625
44	0.5695	0.9000	0.7222	0.5696	0.7222	0.9167	0.9000	0.7595	0.3920
45	0.5695	0.9000	0.7222	0.8185	0.8750	0.9167	0.9000	0.0000	0.3625
46	0.5695	0.6417	0.7222	0.6638	0.0000	0.9167	0.7833	0.7595	0.2714
47	0.5695	0.0000	0.7222	0.5696	0.0000	0.9167	0.9000	0.7595	0.1682
48	0.5695	0.0000	0.7222	0.9444	0.0000	0.9167	0.7833	0.7595	0.1824
49	0.5695	0.0000	0.7222	0.8185	0.8750	0.9167	0.7833	0.0000	0.2186
50	0.5695	0.9000	0.8750	0.8185	0.7222	1.0000	0.9000	1.0000	0.4275
$\sum_{j=1}^{k} \boldsymbol{\mu}(\boldsymbol{X_{ij}})$	11145.93	4771.4	13044.8	11906.5	6791.73	14372.1	14655.9	9175.3	0.2531
$\frac{1}{n}\sum_{j=1}^{k} \boldsymbol{\mu}(\boldsymbol{X_{ij}})$	0.6623	0.2835	0.7751	0.7075	0.4035	0.8540	0.8708	0.5452	
W_i	0.4121	1.2605	0.2548	0.3461	0.9075	0.1579	0.1383	0.6067	

W_i is weight, $\boldsymbol{\mu}(\boldsymbol{X_{ij}})$ is the fuzzy representation of the poor in relation to $(\boldsymbol{X_j})$

Table 4.45 presents the fuzzy set multidimensional analysis of poverty using VRMFSMFS approach. The table shows the different weights of the eight deprivation attributes namely; source of water for cooking and drinking, type of housing unit, materials used for dwelling floor,toilet facilities by type, distance to toilet, refuse removal/disposal by type, source of energy for cooking, source of energy for lighting to be 0.4142, 1.2605, 0.2548, 0.3461, 0.9075, 0.1579, 0.1383 and 0.6066 respectively. The table also presents the poverty ratios per household as well as the multidimensional poverty to be 0.2531

4.3: Proposed Assessment Criteria

Table 4.46: Assessment criteria for existing methods, CZ and CL

Fuzzy Membership Functions Schemes	QMAD	QMPE	QMSD
CZ	0.0111	0.0330	0.0015
CL	0.0120	0.0701	0.0071

Source: Computed by the author

Table 4.46 shows the estimates of the proposed assessment criteria; MAD, QMPE and QMSD as 0.0111, 0.9330, 0.0015 and 0.1200,0.0701, 0.0071 for CZ and CL respectively

Table 4.47: Assessment criteria for proposed schemes

Fuzzy Membership Functions Schemes	QMAD	QMPE	QMSD
VMFSMFS	0.0095	0.0349	0.0698
VRMFSMFS	0.0093	0.0375	0.0641
VGMFSMFS	0.0093	0.0315	0.0011

Source: Computed by the author

Table 4.47 shows the estimates of the proposed assessment criteria; QMAD, QMPE and QMSD as 0.0100, 0.0349, 0.0700; 0.0093, 0.0375, 0.0641 and 0.0093, 0.0315, 0.011 respectively for VMFSMFS, VGMFSMFS and VRMFSMFS

Table 4.48: Assessment criteria for all membership function schemes

Fuzzy Membership Functions Schemes	QMAD	QMSD	QMPE
CZ	0.0111	0.0330	0.0015
CL	0.0120	0.0701	0.0071
VMFSMFS	0.0095	0.0349	0.0698
VRMFSMFS	0.0093	0.0375	0.0641
VGMFSMFS	0.0093	0.0315	0.0011

Source: Computed by the author

From table 4.48 shows the assessment criteria for the existing as well as the proposed membership function schemes

Table 4.49: Ranking of Assessment criteria For the Five Fuzzy Membership Function Schemes

Fuzzy Membership Functions Schemes	QMAD	QMSD	QMPE
CZ	0.0111 (4)	0.0330 (2)	0.0015 (2)
CL	0.0120 (5)	0.0701 (5)	0.0071 (3)
VMFSMFS	0.0095 (3)	0.0349 (3)	0.0698 (5)
VRMFSMFS	0.0093 (1)	0.0375 (4)	0.0641 (4)
VGMFSMFS	0.0093 (2)	0.0315 (1)	0.0011 (1)

Source: Computed by the author

Table 4.49 shows the ranking of the assessment criteria for both the existing and the proposed fuzzy set membership function schemes. It that for QMAD, VRMFSMFS ranked 1st, VGMFSMFS ranked 2nd, VMFSMFS ranked 3rd, CZ ranked 4th and CL ranked 5th. For QMSD, VGMFSMFS ranked 1st, CZ ranked 2nd, VMFSMFS ranked 3rd, VRMFSMFS ranked 4th and CL ranked 5th. And for QMPE, VGMFSMFS ranked 1st, CZ ranked 2nd, CL ranked 3rd, VRMFSMFS ranked 4th and VMFSMFS ranked 5th

Table 4.50: Ranking of the estimates of Assessment criteria For the Existing Fuzzy Membership Function Scheme

Fuzzy Membership Functions	QMAD	QMSD	QMPE
CZ	0.0111 (1)	0.0330 (1)	0.0015 (1)
CL	0.0120 (2)	0.0701 (2)	0.0071 (2)

Source: Computed by the author

Table 4.50 shows the ranking of the estimates for the existing membership function of CZ and CL. Using QMAD, CZ ranked 1st with CL ranking 2nd. Also using QMSD, CZ ranked 1st with CL ranking 2nd while using QMPE, CZ also ranked 1st with CL ranking 2nd

Table 4.51: Ranking of the estimates of assessment criteria for the proposed Fuzzy Membership Function Schemes

Fuzzy Membership Functions Schemes	QMAD	QMSD	QMPE
VMFSMFS	0.0095 (3)	0.0349 (2)	0.0698 (3)
VRMFSMFS	0.0093 (1)	0.0375 (3)	0.0641 (2)
VGMFSMFS	0.0093 (2)	0.0315 (1)	0.0011 (1)

Source: Computed by the author

Table 4.51 shows the ranking of the estimates of assessment criteria for the proposed schemes of VMFSMFS, VGMFSMFS and VRMFSMFS respectively. From the table, VRMFSMFSranked 1st, VGMFSMFS ranked 2nd while VMFSMFS ranked 3rd using QMAD; VGMFSMFS ranked 1st, VMFSMFS ranked and VRMFSMFS ranked 3rd using QMSD while VGMFSMFS ranked 1st, VRMFSMFS ranked and VMFSMFS ranked 3rd using QMPE

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1: Findings and Conclusions

According to literature, it is difficult to identify a unique scheme for determination of membership function and there is no universally accepted scheme for the determination of membership function for different attributes in fuzzy set framework. In the light of above, this study developed Varying Mean Fuzzy Set Membership Function Scheme, Varying Reciprocal Mean Fuzzy Set Membership Function Scheme as well as Varying Geometric Mean Fuzzy Set Membership Function Scheme. These developed schemes in addition to existing fuzzy set schemes of Ceriolli and Zani(1990) and Cheli and Lenmi(1995) were used to determineMembership Functions (MFs) in Fuzzy set framework in Nigeria.The MFs of the developed FSMFSs ranged from 0 to 1 for all the eight DAs, namely: source of water for drinking and cooking, toilet facilities by type, refuse disposal by method, energy source for cooking, material used fur dwelling floor, type of housing unit, and distance to toilet, as expected for any multidimensional poverty fuzzy set scheme. This means that for each of the eight deprivation attributes, say, source of water for drinking and cooking, there are several shades or grades of deprivation. A household that uses treated pipe borne water is slightly better off than household that is using untreated pipe borne water. Similarly, households using unprotected well as source of water for cooking and drinking is slightly worse off than households using protected well while households using other source is seriously deprived.The more the households are deprived, the larger the membership functions and also the closer the value to one. The different values of membership functions between zero and one denotes the different shades of deprivation in the listed deprivation attributes. Zero depicts state of no deprivation in the concerned attribute while one depicts total deprivation in the concerned attribute.

For the multidimensional poverty analysis, the results show that the household possess the different attributes at different degrees. This is deduced from the different weights, since none of the weights is equal to zero. Weight equal to zero indicates that the attribute does not contain useful information about the degree of poverty of the analysed households. From table 4.3.1, using CZ approach, Households are more deprived in the attributetype of refuse disposal with least weight of 0.3557, while least deprivation was in attribute distance to toilet with the highest weight of1.54860. The poverty ratios show how representative the attributes are in the household. Household with highest poverty ratio value is assumed to have the highest poverty.The multidimensional poverty ratio is 0.31912.This indicates that using the CZ approach, the household were 31.9% deprived Looking at the tables row-wise, we see the different levels of poverty. Using the CL approach, Households had highest deprivation in attribute fuel for cooking with the least weight of 0.2034 while least deprivation was in attribute type of housing unit with the highest weight of 1.3285. The different values of poverty ratios also indicate different levels of household deprivations. The multidimensional poverty ratio for CL approach was 0.2915. This indicates that household were 29.1% deprived. Multidimensional poverty analysis using VMFSMFS approach shows that households were more deprived in attribute fuel for cooking with least weight of 0.1570. It also shows that least deprivation was in attribute type of housing unit with highest weight of 1.2863. Also household exhibited different poverty ratios. Household with the highest poverty ratio is assumed to be the most deprived. The multidimensional poverty ratio derived from the approach was 0.2642. This indicates that households were 26.4% deprived. With VGMFSMFS approach, households were more deprived in attribute type of refuse refusal/disposal as with CZ approach with least weight of 0.1666, while the least deprivation was in attribute type of housing unit with highest weight of 1.3212. The multidimensional poverty ratio was 0.2666. This indicates that households were 26.7% deprived. Lastly, with VRMFSMFS approach, households were more deprived in attribute fuel for cooking with least weight of 0.1383. household's least deprivation was in attribute type of housing unit with highest weight of 1.2605. The multidimensional poverty ratio was 0.2531. This indicates that households were 25.3% deprived.

The developed assessment criteria; QMAD, QMPE and QMSD were applied to both the existing CZ and CL schemes as well as the developed schemes in other to ascertain their performances. Upon ranking, the estimates of the assessment criteria for the developed FSMFSs were lower than estimates from the two existing FSMFSs.

Within the existing fuzzy membership functions, CZ and CL, on application of the assessment criteria, It can be seen from the ranking,thatCZranked 1st while CZ ranked last on assessment with the proposed assessment criteria. This indicates that CZ performs better CL.

Also, within the proposed fuzzy membership functions schemes;VMFSMF, VGMFSMF and VRMFSMF, VGMFSMF performs bestamong others followed by VRMFSMF, and lastly, VMFSMF. This is because it ranked 1st in two out of the three proposed assessment criteria. It can also be seen that on ranking of the assessment criteria for both the existingCZ and CL and proposedVMFSMF, VGMFSMF and VRMFSMF approaches, in other to determine the best among them,VGMFSMF ranked 1st for QMSD and QMPE i.e two out of the three proposed assessment criteria,

The two existing membership function schemes considered as well as the proposed membership function schemes, all gave rise to different multidimensional poverty ratios. The multidimensional poverty ratio obtained in the study was close to that obtained in human development reports, 2020. All the membership function schemes except CZ andVGMFSMF that indicated highest deprivation in refuse disposal, CL, VMFSMF,and VRMFSMF indicated that households were highly deprived in attributefuel for cooking. This implies that interventions should be targeted at fuel for cooking. The results also show that of all the approaches of both the existing and proposed, households had least deprivations in type of housing unit for all except in CZ that was in distance to toilet.

The proposed fuzzy set membership function schemes: varying mean fuzzy set membership function, varying geometric fuzzy set membership function and varying reciprocal fuzzy set membership function schemes yielded results that are in line with the results obtained from the existing fuzzy set membership function schemes. In other words, the proposed fuzzy set membership function schemes can be applied to any data for since literature shows that there is no universally accepted method for determination

of membership functions in fuzzy set. The varying geometric mean fuzzy set membership function scheme gave wider inference on the nature and scope of poverty. The proposed assessment criteria provided basis for the statistical evaluation of current and future membership function schemes in multidimensional poverty analysis.

5.2: Contributions to Knowledge

This research work contributed to knowledge in the following ways:

i) Development of three schemes for obtaining membership function in the fuzzy set framework since literature revealed that there are no universally accepted methods for determining membership function in fuzzy set framework.
ii) Development of assessment criteria for the proposed method as well as other Fuzzy Set Membership Function approaches that are in existence.
iii) Determination of the multidimensional poverty ratios for the year under study.

5.3 Recommendations for further research

The following are recommendations in this research work:

i) Researchers can also propose further fuzzy Set membership function schemes since literature indicates that there is no universally accepted method for determining membership functions in the fuzzy set framework.
ii) Other evaluation criteria aside the three proposed in this study can also be considered by other researchers.
iii) Exploration of the exact distributions of the alternative fuzzy set membership function schemes as well as their general statistical properties

5.4 Limitation of the Study

There was no recent household survey data as at the time of the study. Hence, 2010 harmonized living standard survey data was used.

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APPENDIX I

Assessment Criteria using Ceriolli and Zani Approach

Poverty ratio per household		QUASI MAD	QUASI MSD	QUASI MPE		
0.38507	0.06595	0.06595	0.004349	0.06595	0.171268	0.029333
0.223125	-0.09599	0.095995	0.009215	-0.09599	-0.43023	0.185097
0.241987	-0.07713	0.077133	0.00595	-0.07713	-0.31875	0.101602
0.241987	-0.07713	0.077133	0.00595	-0.07713	-0.31875	0.101602
0.300565	-0.01856	0.018555	0.000344	-0.01856	-0.06173	0.003811
0.158607	-0.16051	0.160513	0.025765	-0.16051	-1.01202	1.024191
0.365083	0.045963	0.045963	0.002113	0.045963	0.125899	0.01585
0.213694	-0.10543	0.105426	0.011115	-0.10543	-0.49335	0.243391
0.162965	-0.15615	0.156155	0.024384	-0.15615	-0.95821	0.918164
0.189981	-0.12914	0.129139	0.016677	-0.12914	-0.67974	0.462051
0.249571	-0.06955	0.069549	0.004837	-0.06955	-0.27867	0.077658
0.223125	-0.09599	0.095995	0.009215	-0.09599	-0.43023	0.185097
0.270445	-0.04868	0.048675	0.002369	-0.04868	-0.17998	0.032394
0.223125	-0.09599	0.095995	0.009215	-0.09599	-0.43023	0.185097
0.300565	-0.01856	0.018555	0.000344	-0.01856	-0.06173	0.003811
0.335431	0.016311	0.016311	0.000266	0.016311	0.048626	0.002365
0.207181	-0.11194	0.111939	0.01253	-0.11194	-0.5403	0.291923
0.142662	-0.17646	0.176458	0.031137	-0.17646	-1.2369	1.529913
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.43962	0.1205	0.1205	0.01452	0.1205	0.2741	0.075131
0.223125	-0.09599	0.095995	0.009215	-0.09599	-0.43023	0.185097
0.142662	-0.17646	0.176458	0.031137	-0.17646	-1.2369	1.529913
0.142662	-0.17646	0.176458	0.031137	-0.17646	-1.2369	1.529913
0.142662	-0.17646	0.176458	0.031137	-0.17646	-1.2369	1.529913
0.207181	-0.11194	0.111939	0.01253	-0.11194	-0.5403	0.291923
0.483854	0.164734	0.164734	0.027137	0.164734	0.340463	0.115915
0.142662	-0.17646	0.176458	0.031137	-0.17646	-1.2369	1.529913
0.25852	-0.0606	0.0606	0.003672	-0.0606	-0.23441	0.054948
0.207181	-0.11194	0.111939	0.01253	-0.11194	-0.5403	0.291923
0.142662	-0.17646	0.176458	0.031137	-0.17646	-1.2369	1.529913
0.296063	-0.02306	0.023057	0.000532	-0.02306	-0.07788	0.006065
0.22116	-0.09796	0.09796	0.009596	-0.09796	-0.44294	0.196192
0.22116	-0.09796	0.09796	0.009596	-0.09796	-0.44294	0.196192
0.190558	-0.12856	0.128562	0.016528	-0.12856	-0.67466	0.455167
0.357546	0.038426	0.038426	0.001477	0.038426	0.107471	0.01155

0.302023	-0.0171	0.017097	0.000292	-0.0171	-0.05661	0.003205
0.296063	-0.02306	0.023057	0.000532	-0.02306	-0.07788	0.006065
0.338684	0.019564	0.019564	0.000383	0.019564	0.057765	0.003337
0.296063	-0.02306	0.023057	0.000532	-0.02306	-0.07788	0.006065
0.302023	-0.0171	0.017097	0.000292	-0.0171	-0.05661	0.003205
0.443981	0.124861	0.124861	0.01559	0.124861	0.28123	0.079091
0.393772	0.074652	0.074652	0.005573	0.074652	0.189582	0.035941
0.443981	0.124861	0.124861	0.01559	0.124861	0.28123	0.079091
0.232603	-0.08652	0.086517	0.007485	-0.08652	-0.37195	0.138349
0.187295	-0.13182	0.131825	0.017378	-0.13182	-0.70383	0.495383
0.223006	-0.09611	0.096114	0.009238	-0.09611	-0.43099	0.185754
0.29058	-0.02854	0.02854	0.000815	-0.02854	-0.09822	0.009647
0.504189	0.185069	0.185069	0.034251	0.185069	0.367063	0.134735
0.426762	0.107642	0.107642	0.011587	0.107642	0.25223	0.06362
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.53245	0.21333	0.21333	0.04551	0.21333	0.400657	0.160526
0.482122	0.163002	0.163002	0.02657	0.163002	0.338093	0.114307
0.523019	0.203899	0.203899	0.041575	0.203899	0.38985	0.151983
0.484023	0.164903	0.164903	0.027193	0.164903	0.340692	0.116071
0.484023	0.164903	0.164903	0.027193	0.164903	0.340692	0.116071
0.589281	0.270161	0.270161	0.072987	0.270161	0.458459	0.210185
0.453412	0.134292	0.134292	0.018034	0.134292	0.29618	0.087723
0.482122	0.163002	0.163002	0.02657	0.163002	0.338093	0.114307
0.589281	0.270161	0.270161	0.072987	0.270161	0.458459	0.210185
0.36208	0.04296	0.04296	0.001846	0.04296	0.118648	0.014077
0.467912	0.148792	0.148792	0.022139	0.148792	0.317991	0.101118
0.504038	0.184918	0.184918	0.034195	0.184918	0.366874	0.134596
0.453412	0.134292	0.134292	0.018034	0.134292	0.29618	0.087723
0.524743	0.205623	0.205623	0.042281	0.205623	0.391855	0.15355
0.619893	0.300773	0.300773	0.090464	0.300773	0.485201	0.23542
0.36208	0.04296	0.04296	0.001846	0.04296	0.118648	0.014077
0.233023	-0.0861	0.086097	0.007413	-0.0861	-0.36948	0.136513
0.308836	-0.01028	0.010284	0.000106	-0.01028	-0.0333	0.001109
0.339447	0.020327	0.020327	0.000413	0.020327	0.059882	0.003586
0.261435	-0.05769	0.057685	0.003328	-0.05769	-0.22065	0.048686
0.223712	-0.09541	0.095408	0.009103	-0.09541	-0.42648	0.181883
0.288111	-0.03101	0.031009	0.000962	-0.03101	-0.10763	0.011584
0.373354	0.054234	0.054234	0.002941	0.054234	0.145262	0.021101
0.252004	-0.06712	0.067116	0.004505	-0.06712	-0.26633	0.070931
0.373354	0.054234	0.054234	0.002941	0.054234	0.145262	0.021101
0.349278	0.030158	0.030158	0.00091	0.030158	0.086344	0.007455
0.356812	0.037692	0.037692	0.001421	0.037692	0.105635	0.011159
0.288231	-0.03089	0.030889	0.000954	-0.03089	-0.10717	0.011485

0.472691	0.153571	0.153571	0.023584	0.153571	0.324887	0.105551
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.398962	0.079842	0.079842	0.006375	0.079842	0.200124	0.04005
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.425191	0.106071	0.106071	0.011251	0.106071	0.249467	0.062234
0.425191	0.106071	0.106071	0.011251	0.106071	0.249467	0.062234
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.398962	0.079842	0.079842	0.006375	0.079842	0.200124	0.04005
0.398962	0.079842	0.079842	0.006375	0.079842	0.200124	0.04005
0.313835	-0.00528	0.005285	2.79E-05	-0.00528	-0.01684	0.000284
0.313835	-0.00528	0.005285	2.79E-05	-0.00528	-0.01684	0.000284
0.398962	0.079842	0.079842	0.006375	0.079842	0.200124	0.04005
0.398962	0.079842	0.079842	0.006375	0.079842	0.200124	0.04005
0.313835	-0.00528	0.005285	2.79E-05	-0.00528	-0.01684	0.000284
0.313835	-0.00528	0.005285	2.79E-05	-0.00528	-0.01684	0.000284
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.425191	0.106071	0.106071	0.011251	0.106071	0.249467	0.062234
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.329792	0.010672	0.010672	0.000114	0.010672	0.03236	0.001047
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.228592	-0.09053	0.090528	0.008195	-0.09053	-0.39602	0.156834
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.228592	-0.09053	0.090528	0.008195	-0.09053	-0.39602	0.156834
0.425191	0.106071	0.106071	0.011251	0.106071	0.249467	0.062234
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264

0.330972	0.011852	0.011852	0.00014	0.011852	0.035811	0.001282
0.465224	0.146104	0.146104	0.021346	0.146104	0.314051	0.098628
0.398962	0.079842	0.079842	0.006375	0.079842	0.200124	0.04005
0.465224	0.146104	0.146104	0.021346	0.146104	0.314051	0.098628
0.4635	0.14438	0.14438	0.020846	0.14438	0.3115	0.097032
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.315582	-0.00354	0.003538	1.25E-05	-0.00354	-0.01121	0.000126
0.391275	0.072155	0.072155	0.005206	0.072155	0.18441	0.034007
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.4635	0.14438	0.14438	0.020846	0.14438	0.3115	0.097032
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.313835	-0.00528	0.005285	2.79E-05	-0.00528	-0.01684	0.000284
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.398962	0.079842	0.079842	0.006375	0.079842	0.200124	0.04005
0.529762	0.210642	0.210642	0.04437	0.210642	0.397616	0.158099
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.377431	0.058311	0.058311	0.0034	0.058311	0.154495	0.023869
0.413172	0.094052	0.094052	0.008846	0.094052	0.227634	0.051817
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.436274	0.117154	0.117154	0.013725	0.117154	0.268534	0.07211
0.226042	-0.09308	0.093078	0.008664	-0.09308	-0.41177	0.169557
0.357546	0.038426	0.038426	0.001477	0.038426	0.107471	0.01155
0.410622	0.091502	0.091502	0.008373	0.091502	0.222837	0.049656
0.226042	-0.09308	0.093078	0.008664	-0.09308	-0.41177	0.169557
0.422064	0.102944	0.102944	0.010598	0.102944	0.243907	0.05949
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.404504	0.085384	0.085384	0.00729	0.085384	0.211083	0.044556
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.260896	-0.05822	0.058224	0.00339	-0.05822	-0.22317	0.049804
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.433731	0.114611	0.114611	0.013136	0.114611	0.264245	0.069825
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.413396	0.094276	0.094276	0.008888	0.094276	0.228053	0.052008
0.43962	0.1205	0.1205	0.01452	0.1205	0.2741	0.075131

0.373354	0.054234	0.054234	0.002941	0.054234	0.145262	0.021101
0.504038	0.184918	0.184918	0.034195	0.184918	0.366874	0.134596
0.515312	0.196192	0.196192	0.038491	0.196192	0.380725	0.144952
0.43962	0.1205	0.1205	0.01452	0.1205	0.2741	0.075131
0.458481	0.139361	0.139361	0.019422	0.139361	0.303963	0.092393
0.395073	0.075953	0.075953	0.005769	0.075953	0.192251	0.03696
0.382785	0.063665	0.063665	0.004053	0.063665	0.16632	0.027662
0.444399	0.125279	0.125279	0.015695	0.125279	0.281906	0.079471
0.458481	0.139361	0.139361	0.019422	0.139361	0.303963	0.092393
0.515312	0.196192	0.196192	0.038491	0.196192	0.380725	0.144952
0.463799	0.144679	0.144679	0.020932	0.144679	0.311943	0.097308
0.460681	0.141561	0.141561	0.02004	0.141561	0.307286	0.094425
0.223593	-0.09553	0.095527	0.009125	-0.09553	-0.42724	0.182532
0.328153	0.009033	0.009033	8.16E-05	0.009033	0.027528	0.000758
0.328153	0.009033	0.009033	8.16E-05	0.009033	0.027528	0.000758
0.43007	0.11095	0.11095	0.01231	0.11095	0.257981	0.066554
0.288111	-0.03101	0.031009	0.000962	-0.03101	-0.10763	0.011584
0.288111	-0.03101	0.031009	0.000962	-0.03101	-0.10763	0.011584
0.328153	0.009033	0.009033	8.16E-05	0.009033	0.027528	0.000758
0.276669	-0.04245	0.042451	0.001802	-0.04245	-0.15344	0.023543
0.288111	-0.03101	0.031009	0.000962	-0.03101	-0.10763	0.011584
0.43007	0.11095	0.11095	0.01231	0.11095	0.257981	0.066554
0.297542	-0.02158	0.021578	0.000466	-0.02158	-0.07252	0.005259
0.276669	-0.04245	0.042451	0.001802	-0.04245	-0.15344	0.023543
0.43007	0.11095	0.11095	0.01231	0.11095	0.257981	0.066554
0.545924	0.226804	0.226804	0.05144	0.226804	0.41545	0.172598
0.264469	-0.05465	0.054651	0.002987	-0.05465	-0.20664	0.042702
0.180504	-0.13862	0.138616	0.019214	-0.13862	-0.76794	0.589733
0.21715	-0.10197	0.10197	0.010398	-0.10197	-0.46959	0.22051
0.226042	-0.09308	0.093078	0.008664	-0.09308	-0.41177	0.169557
0.259771	-0.05935	0.059349	0.003522	-0.05935	-0.22847	0.052197
0.228592	-0.09053	0.090528	0.008195	-0.09053	-0.39602	0.156834
0.24091	-0.07821	0.07821	0.006117	-0.07821	-0.32465	0.105395
0.228592	-0.09053	0.090528	0.008195	-0.09053	-0.39602	0.156834
0.249802	-0.06932	0.069318	0.004805	-0.06932	-0.27749	0.077002
0.198288	-0.12083	0.120832	0.0146	-0.12083	-0.60937	0.371336
0.249802	-0.06932	0.069318	0.004805	-0.06932	-0.27749	0.077002
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.268663	-0.05046	0.050457	0.002546	-0.05046	-0.18781	0.035271
0.250879	-0.06824	0.068241	0.004657	-0.06824	-0.27201	0.073989
0.322727	0.003607	0.003607	1.3E-05	0.003607	0.011178	0.000125
0.21715	-0.10197	0.10197	0.010398	-0.10197	-0.46959	0.22051
0.235592	-0.08353	0.083528	0.006977	-0.08353	-0.35455	0.125702

0.189981	-0.12914	0.129139	0.016677	-0.12914	-0.67974	0.462051
0.407854	0.088734	0.088734	0.007874	0.088734	0.217564	0.047334
0.464686	0.145566	0.145566	0.021189	0.145566	0.313256	0.098129
0.275224	-0.0439	0.043896	0.001927	-0.0439	-0.15949	0.025437
0.464686	0.145566	0.145566	0.021189	0.145566	0.313256	0.098129
0.207181	-0.11194	0.111939	0.01253	-0.11194	-0.5403	0.291923
0.154105	-0.16502	0.165015	0.02723	-0.16502	-1.0708	1.146617
0.322727	0.003607	0.003607	1.3E-05	0.003607	0.011178	0.000125
0.226042	-0.09308	0.093078	0.008664	-0.09308	-0.41177	0.169557
0.29313	-0.02599	0.02599	0.000675	-0.02599	-0.08866	0.007861
0.464686	0.145566	0.145566	0.021189	0.145566	0.313256	0.098129
0.207181	-0.11194	0.111939	0.01253	-0.11194	-0.5403	0.291923
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.422288	0.103168	0.103168	0.010644	0.103168	0.244308	0.059686
0.334846	0.015726	0.015726	0.000247	0.015726	0.046964	0.002206
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.260009	-0.05911	0.059111	0.003494	-0.05911	-0.22734	0.051684
0.401968	0.082848	0.082848	0.006864	0.082848	0.206105	0.042479
0.248567	-0.07055	0.070553	0.004978	-0.07055	-0.28384	0.080565
0.401968	0.082848	0.082848	0.006864	0.082848	0.206105	0.042479
0.300768	-0.01835	0.018352	0.000337	-0.01835	-0.06102	0.003723
0.300768	-0.01835	0.018352	0.000337	-0.01835	-0.06102	0.003723
0.442726	0.123606	0.123606	0.015279	0.123606	0.279194	0.077949
0.442726	0.123606	0.123606	0.015279	0.123606	0.279194	0.077949
0.289325	-0.02979	0.029795	0.000888	-0.02979	-0.10298	0.010605
0.289325	-0.02979	0.029795	0.000888	-0.02979	-0.10298	0.010605
0.300768	-0.01835	0.018352	0.000337	-0.01835	-0.06102	0.003723
0.300768	-0.01835	0.018352	0.000337	-0.01835	-0.06102	0.003723
0.390525	0.071405	0.071405	0.005099	0.071405	0.182844	0.033432
0.442726	0.123606	0.123606	0.015279	0.123606	0.279194	0.077949
0.485348	0.166228	0.166228	0.027632	0.166228	0.342492	0.117301
0.474592	0.155472	0.155472	0.024172	0.155472	0.327591	0.107316

0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.474592	0.155472	0.155472	0.024172	0.155472	0.327591	0.107316
0.368	0.04888	0.04888	0.002389	0.04888	0.132827	0.017643
0.368	0.04888	0.04888	0.002389	0.04888	0.132827	0.017643
0.413172	0.094052	0.094052	0.008846	0.094052	0.227634	0.051817
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.417413	0.098293	0.098293	0.009662	0.098293	0.235481	0.055451
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.271214	-0.04791	0.047906	0.002295	-0.04791	-0.17664	0.031201
0.271214	-0.04791	0.047906	0.002295	-0.04791	-0.17664	0.031201
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.455793	0.136673	0.136673	0.01868	0.136673	0.299858	0.089915
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.145558	-0.17356	0.173562	0.030124	-0.17356	-1.19239	1.421787
0.386011	0.066891	0.066891	0.004474	0.066891	0.173287	0.030029
0.233023	-0.0861	0.086097	0.007413	-0.0861	-0.36948	0.136513
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.413172	0.094052	0.094052	0.008846	0.094052	0.227634	0.051817
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.280106	-0.03901	0.039014	0.001522	-0.03901	-0.13928	0.0194
0.422064	0.102944	0.102944	0.010598	0.102944	0.243907	0.05949
0.413172	0.094052	0.094052	0.008846	0.094052	0.227634	0.051817
0.237485	-0.08164	0.081635	0.006664	-0.08164	-0.34375	0.118164
0.318349	-0.00077	0.000771	5.94E-07	-0.00077	-0.00242	5.86E-06
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.226042	-0.09308	0.093078	0.008664	-0.09308	-0.41177	0.169557
0.413172	0.094052	0.094052	0.008846	0.094052	0.227634	0.051817
0.329792	0.010672	0.010672	0.000114	0.010672	0.03236	0.001047
0.228592	-0.09053	0.090528	0.008195	-0.09053	-0.39602	0.156834
0.368	0.04888	0.04888	0.002389	0.04888	0.132827	0.017643
0.237485	-0.08164	0.081635	0.006664	-0.08164	-0.34375	0.118164

0.280106	-0.03901	0.039014	0.001522	-0.03901	-0.13928	0.0194
0.368	0.04888	0.04888	0.002389	0.04888	0.132827	0.017643
0.368	0.04888	0.04888	0.002389	0.04888	0.132827	0.017643
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.21715	-0.10197	0.10197	0.010398	-0.10197	-0.46959	0.22051
0.21715	-0.10197	0.10197	0.010398	-0.10197	-0.46959	0.22051
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.237485	-0.08164	0.081635	0.006664	-0.08164	-0.34375	0.118164
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.368539	0.049419	0.049419	0.002442	0.049419	0.134094	0.017981
0.228592	-0.09053	0.090528	0.008195	-0.09053	-0.39602	0.156834
0.398962	0.079842	0.079842	0.006375	0.079842	0.200124	0.04005
0.388874	0.069754	0.069754	0.004866	0.069754	0.179374	0.032175
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.268634	-0.05049	0.050486	0.002549	-0.05049	-0.18793	0.035319
0.422603	0.103483	0.103483	0.010709	0.103483	0.24487	0.059961
0.246915	-0.0722	0.072205	0.005214	-0.0722	-0.29243	0.085514
0.237485	-0.08164	0.081635	0.006664	-0.08164	-0.34375	0.118164
0.362769	0.043649	0.043649	0.001905	0.043649	0.120323	0.014478
0.388874	0.069754	0.069754	0.004866	0.069754	0.179374	0.032175
0.257004	-0.06212	0.062116	0.003858	-0.06212	-0.24169	0.058416
0.422603	0.103483	0.103483	0.010709	0.103483	0.24487	0.059961
0.266434	-0.05269	0.052686	0.002776	-0.05269	-0.19774	0.039102
0.408393	0.089273	0.089273	0.00797	0.089273	0.218595	0.047784
0.29313	-0.02599	0.02599	0.000675	-0.02599	-0.08866	0.007861
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.379981	0.060861	0.060861	0.003704	0.060861	0.160169	0.025654
0.21715	-0.10197	0.10197	0.010398	-0.10197	-0.46959	0.22051
0.21715	-0.10197	0.10197	0.010398	-0.10197	-0.46959	0.22051
0.210808	-0.10831	0.108312	0.011732	-0.10831	-0.5138	0.263986
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.228592	-0.09053	0.090528	0.008195	-0.09053	-0.39602	0.156834
0.21715	-0.10197	0.10197	0.010398	-0.10197	-0.46959	0.22051

0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.228592	-0.09053	0.090528	0.008195	-0.09053	-0.39602	0.156834
0.228592	-0.09053	0.090528	0.008195	-0.09053	-0.39602	0.156834
0.318349	-0.00077	0.000771	5.94E-07	-0.00077	-0.00242	5.86E-06
0.421177	0.102057	0.102057	0.010416	0.102057	0.242315	0.058716
0.463799	0.144679	0.144679	0.020932	0.144679	0.311943	0.097308
0.279219	-0.0399	0.039901	0.001592	-0.0399	-0.1429	0.020421
0.42304	0.10392	0.10392	0.010799	0.10392	0.245651	0.060344
0.43007	0.11095	0.11095	0.01231	0.11095	0.257981	0.066554
0.300768	-0.01835	0.018352	0.000337	-0.01835	-0.06102	0.003723
0.288111	-0.03101	0.031009	0.000962	-0.03101	-0.10763	0.011584
0.287171	-0.03195	0.031949	0.001021	-0.03195	-0.11126	0.012378
0.337259	0.018139	0.018139	0.000329	0.018139	0.053783	0.002893
0.223593	-0.09553	0.095527	0.009125	-0.09553	-0.42724	0.182532
0.223593	-0.09553	0.095527	0.009125	-0.09553	-0.42724	0.182532
0.233023	-0.0861	0.086097	0.007413	-0.0861	-0.36948	0.136513
0.233023	-0.0861	0.086097	0.007413	-0.0861	-0.36948	0.136513
0.145212	-0.17391	0.173908	0.030244	-0.17391	-1.19761	1.434271
0.287171	-0.03195	0.031949	0.001021	-0.03195	-0.11126	0.012378
0.288111	-0.03101	0.031009	0.000962	-0.03101	-0.10763	0.011584
0.287209	-0.03191	0.031911	0.001018	-0.03191	-0.11111	0.012345
0.287209	-0.03191	0.031911	0.001018	-0.03191	-0.11111	0.012345
0.184216	-0.1349	0.134904	0.018199	-0.1349	-0.73231	0.536283
0.184216	-0.1349	0.134904	0.018199	-0.1349	-0.73231	0.536283
0.145558	-0.17356	0.173562	0.030124	-0.17356	-1.19239	1.421787
0.157001	-0.16212	0.162119	0.026283	-0.16212	-1.0326	1.066264
0.157001	-0.16212	0.162119	0.026283	-0.16212	-1.0326	1.066264
0.14525	-0.17387	0.17387	0.030231	-0.17387	-1.19703	1.432887
0.14525	-0.17387	0.17387	0.030231	-0.17387	-1.19703	1.432887
0.287209	-0.03191	0.031911	0.001018	-0.03191	-0.11111	0.012345
0.244587	-0.07453	0.074533	0.005555	-0.07453	-0.30473	0.092859
0.244587	-0.07453	0.074533	0.005555	-0.07453	-0.30473	0.092859
0.157001	-0.16212	0.162119	0.026283	-0.16212	-1.0326	1.066264
0.19257	-0.12655	0.12655	0.016015	-0.12655	-0.65716	0.431865
0.157001	-0.16212	0.162119	0.026283	-0.16212	-1.0326	1.066264
0.157001	-0.16212	0.162119	0.026283	-0.16212	-1.0326	1.066264
0.306368	-0.01275	0.012752	0.000163	-0.01275	-0.04162	0.001732
0.306368	-0.01275	0.012752	0.000163	-0.01275	-0.04162	0.001732
0.145558	-0.17356	0.173562	0.030124	-0.17356	-1.19239	1.421787
0.157001	-0.16212	0.162119	0.026283	-0.16212	-1.0326	1.066264
0.317811	-0.00131	0.001309	1.71E-06	-0.00131	-0.00412	1.7E-05
0.157001	-0.16212	0.162119	0.026283	-0.16212	-1.0326	1.066264
0.317811	-0.00131	0.001309	1.71E-06	-0.00131	-0.00412	1.7E-05

0.19257	-0.12655	0.12655	0.016015	-0.12655	-0.65716	0.431865
0.287209	-0.03191	0.031911	0.001018	-0.03191	-0.11111	0.012345
0.287209	-0.03191	0.031911	0.001018	-0.03191	-0.11111	0.012345
0.325953	0.006833	0.006833	4.67E-05	0.006833	0.020965	0.00044
0.308836	-0.01028	0.010284	0.000106	-0.01028	-0.0333	0.001109
0.341125	0.022005	0.022005	0.000484	0.022005	0.064506	0.004161
0.405643	0.086523	0.086523	0.007486	0.086523	0.213299	0.045496
0.363022	0.043902	0.043902	0.001927	0.043902	0.120934	0.014625
0.23372	-0.0854	0.0854	0.007293	-0.0854	-0.36539	0.133512
0.244823	-0.0743	0.074297	0.00552	-0.0743	-0.30347	0.092094
0.372453	0.053333	0.053333	0.002844	0.053333	0.143193	0.020504
0.212171	-0.10695	0.106949	0.011438	-0.10695	-0.50407	0.254085
0.353339	0.034219	0.034219	0.001171	0.034219	0.096844	0.009379
0.422064	0.102944	0.102944	0.010598	0.102944	0.243907	0.05949
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.237485	-0.08164	0.081635	0.006664	-0.08164	-0.34375	0.118164
0.338684	0.019564	0.019564	0.000383	0.019564	0.057765	0.003337
0.226042	-0.09308	0.093078	0.008664	-0.09308	-0.41177	0.169557
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.237485	-0.08164	0.081635	0.006664	-0.08164	-0.34375	0.118164
0.182397	-0.13672	0.136723	0.018693	-0.13672	-0.74959	0.56189
0.238023	-0.0811	0.081097	0.006577	-0.0811	-0.34071	0.116084
0.154105	-0.16502	0.165015	0.02723	-0.16502	-1.0708	1.146617
0.161523	-0.1576	0.157597	0.024837	-0.1576	-0.97569	0.95197
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.413172	0.094052	0.094052	0.008846	0.094052	0.227634	0.051817
0.413172	0.094052	0.094052	0.008846	0.094052	0.227634	0.051817
0.237485	-0.08164	0.081635	0.006664	-0.08164	-0.34375	0.118164
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.43007	0.11095	0.11095	0.01231	0.11095	0.257981	0.066554
0.264469	-0.05465	0.054651	0.002987	-0.05465	-0.20664	0.042702
0.382301	0.063181	0.063181	0.003992	0.063181	0.165264	0.027312
0.370551	0.051431	0.051431	0.002645	0.051431	0.138795	0.019264
0.201424	-0.1177	0.117696	0.013852	-0.1177	-0.58432	0.34143
0.320715	0.001595	0.001595	2.55E-06	0.001595	0.004975	2.47E-05
0.338684	0.019564	0.019564	0.000383	0.019564	0.057765	0.003337
0.235592	-0.08353	0.083528	0.006977	-0.08353	-0.35455	0.125702
0.207181	-0.11194	0.111939	0.01253	-0.11194	-0.5403	0.291923
0.218393	-0.10073	0.100727	0.010146	-0.10073	-0.46122	0.212724
0.207181	-0.11194	0.111939	0.01253	-0.11194	-0.5403	0.291923
0.196726	-0.12239	0.122394	0.01498	-0.12239	-0.62216	0.387077
0.142662	-0.17646	0.176458	0.031137	-0.17646	-1.2369	1.529913

0.133231	-0.18589	0.185889	0.034555	-0.18589	-1.39523	1.946679
0.223593	-0.09553	0.095527	0.009125	-0.09553	-0.42724	0.182532
0.300768	-0.01835	0.018352	0.000337	-0.01835	-0.06102	0.003723
0.343389	0.024269	0.024269	0.000589	0.024269	0.070676	0.004995
0.288111	-0.03101	0.031009	0.000962	-0.03101	-0.10763	0.011584
0.297542	-0.02158	0.021578	0.000466	-0.02158	-0.07252	0.005259
0.300768	-0.01835	0.018352	0.000337	-0.01835	-0.06102	0.003723
0.297542	-0.02158	0.021578	0.000466	-0.02158	-0.07252	0.005259
0.300768	-0.01835	0.018352	0.000337	-0.01835	-0.06102	0.003723
0.318266	-0.00085	0.000854	7.29E-07	-0.00085	-0.00268	7.2E-06
0.442726	0.123606	0.123606	0.015279	0.123606	0.279194	0.077949
0.300768	-0.01835	0.018352	0.000337	-0.01835	-0.06102	0.003723
0.386011	0.066891	0.066891	0.004474	0.066891	0.173287	0.030029
0.233023	-0.0861	0.086097	0.007413	-0.0861	-0.36948	0.136513
0.373354	0.054234	0.054234	0.002941	0.054234	0.145262	0.021101
0.373354	0.054234	0.054234	0.002941	0.054234	0.145262	0.021101
0.308836	-0.01028	0.010284	0.000106	-0.01028	-0.0333	0.001109
0.515312	0.196192	0.196192	0.038491	0.196192	0.380725	0.144952
0.515312	0.196192	0.196192	0.038491	0.196192	0.380725	0.144952
0.515312	0.196192	0.196192	0.038491	0.196192	0.380725	0.144952
0.252004	-0.06712	0.067116	0.004505	-0.06712	-0.26633	0.070931
0.373354	0.054234	0.054234	0.002941	0.054234	0.145262	0.021101
0.318266	-0.00085	0.000854	7.29E-07	-0.00085	-0.00268	7.2E-06
0.515312	0.196192	0.196192	0.038491	0.196192	0.380725	0.144952
0.373354	0.054234	0.054234	0.002941	0.054234	0.145262	0.021101
0.252004	-0.06712	0.067116	0.004505	-0.06712	-0.26633	0.070931
0.252004	-0.06712	0.067116	0.004505	-0.06712	-0.26633	0.070931
0.373354	0.054234	0.054234	0.002941	0.054234	0.145262	0.021101
0.373354	0.054234	0.054234	0.002941	0.054234	0.145262	0.021101
0.272585	-0.04654	0.046535	0.002166	-0.04654	-0.17072	0.029145
0.498523	0.179403	0.179403	0.032185	0.179403	0.359869	0.129506
0.458481	0.139361	0.139361	0.019422	0.139361	0.303963	0.092393
0.515312	0.196192	0.196192	0.038491	0.196192	0.380725	0.144952
0.377868	0.058748	0.058748	0.003451	0.058748	0.155473	0.024172
0.31929	0.00017	0.00017	2.9E-08	0.00017	0.000533	2.84E-07
0.460681	0.141561	0.141561	0.02004	0.141561	0.307286	0.094425
0.533267	0.214147	0.214147	0.045859	0.214147	0.401576	0.161263
0.43007	0.11095	0.11095	0.01231	0.11095	0.257981	0.066554
0.321221	0.002101	0.002101	4.41E-06	0.002101	0.00654	4.28E-05
0.250141	-0.06898	0.068979	0.004758	-0.06898	-0.27576	0.076043
0.223172	-0.09595	0.095948	0.009206	-0.09595	-0.42993	0.184838
0.247271	-0.07185	0.071849	0.005162	-0.07185	-0.29057	0.084429
0.335431	0.016311	0.016311	0.000266	0.016311	0.048626	0.002365

0.237485	-0.08164	0.081635	0.006664	-0.08164	-0.34375	0.118164
0.477342	0.158222	0.158222	0.025034	0.158222	0.331465	0.109869
0.238699	-0.08042	0.080421	0.006468	-0.08042	-0.33692	0.113512
0.340082	0.020962	0.020962	0.000439	0.020962	0.061638	0.003799
0.477342	0.158222	0.158222	0.025034	0.158222	0.331465	0.109869
0.292763	-0.02636	0.026357	0.000695	-0.02636	-0.09003	0.008105
0.250141	-0.06898	0.068979	0.004758	-0.06898	-0.27576	0.076043
0.3921	0.07298	0.07298	0.005326	0.07298	0.186125	0.034643
0.237485	-0.08164	0.081635	0.006664	-0.08164	-0.34375	0.118164
0.3921	0.07298	0.07298	0.005326	0.07298	0.186125	0.034643
0.303866	-0.01525	0.015254	0.000233	-0.01525	-0.0502	0.00252
0.237485	-0.08164	0.081635	0.006664	-0.08164	-0.34375	0.118164
0.30872	-0.0104	0.0104	0.000108	-0.0104	-0.03369	0.001135
0.422711	0.103591	0.103591	0.010731	0.103591	0.245063	0.060056
0.339993	0.020873	0.020873	0.000436	0.020873	0.061391	0.003769
0.316523	-0.0026	0.002597	6.75E-06	-0.0026	-0.00821	6.73E-05
0.142662	-0.17646	0.176458	0.031137	-0.17646	-1.2369	1.529913
0.379443	0.060323	0.060323	0.003639	0.060323	0.158978	0.025274
0.30872	-0.0104	0.0104	0.000108	-0.0104	-0.03369	0.001135
0.248567	-0.07055	0.070553	0.004978	-0.07055	-0.28384	0.080565
0.214081	-0.10504	0.105039	0.011033	-0.10504	-0.49065	0.24074
0.423278	0.104158	0.104158	0.010849	0.104158	0.246075	0.060553
0.423865	0.104745	0.104745	0.010972	0.104745	0.247119	0.061068
0.442726	0.123606	0.123606	0.015279	0.123606	0.279194	0.077949
0.300768	-0.01835	0.018352	0.000337	-0.01835	-0.06102	0.003723
0.239475	-0.07964	0.079645	0.006343	-0.07964	-0.33258	0.11061
0.343389	0.024269	0.024269	0.000589	0.024269	0.070676	0.004995
0.359294	0.040174	0.040174	0.001614	0.040174	0.111814	0.012502
0.575221	0.256101	0.256101	0.065588	0.256101	0.445222	0.198223
0.372049	0.052929	0.052929	0.002802	0.052929	0.142264	0.020239
0.433263	0.114143	0.114143	0.013029	0.114143	0.263449	0.069405
0.368725	0.049605	0.049605	0.002461	0.049605	0.13453	0.018098
0.617842	0.298722	0.298722	0.089235	0.298722	0.483493	0.233765
0.340433	0.021313	0.021313	0.000454	0.021313	0.062604	0.003919
0.356659	0.037539	0.037539	0.001409	0.037539	0.105251	0.011078
0.319168	4.83E-05	4.83E-05	2.33E-09	4.83E-05	0.000151	2.29E-08
0.472569	0.153449	0.153449	0.023547	0.153449	0.324713	0.105438
0.358756	0.039636	0.039636	0.001571	0.039636	0.110481	0.012206
0.330611	0.011491	0.011491	0.000132	0.011491	0.034757	0.001208
0.305298	-0.01382	0.013822	0.000191	-0.01382	-0.04528	0.00205
0.470112	0.150992	0.150992	0.022799	0.150992	0.321183	0.103158
0.328153	0.009033	0.009033	8.16E-05	0.009033	0.027528	0.000758
0.488973	0.169853	0.169853	0.02885	0.169853	0.347367	0.120664

0.361222	0.042102	0.042102	0.001773	0.042102	0.116555	0.013585
0.358756	0.039636	0.039636	0.001571	0.039636	0.110481	0.012206
0.328153	0.009033	0.009033	8.16E-05	0.009033	0.027528	0.000758
0.358756	0.039636	0.039636	0.001571	0.039636	0.110481	0.012206
0.297542	-0.02158	0.021578	0.000466	-0.02158	-0.07252	0.005259
0.297542	-0.02158	0.021578	0.000466	-0.02158	-0.07252	0.005259
0.386509	0.067389	0.067389	0.004541	0.067389	0.174354	0.030399
0.567634	0.248514	0.248514	0.061759	0.248514	0.437806	0.191674
0.435106	0.115986	0.115986	0.013453	0.115986	0.26657	0.071059
0.386509	0.067389	0.067389	0.004541	0.067389	0.174354	0.030399
0.435106	0.115986	0.115986	0.013453	0.115986	0.26657	0.071059
0.358217	0.039097	0.039097	0.001529	0.039097	0.109144	0.011912
0.453967	0.134847	0.134847	0.018184	0.134847	0.297042	0.088234
0.368725	0.049605	0.049605	0.002461	0.049605	0.13453	0.018098
0.50642	0.1873	0.1873	0.035081	0.1873	0.369851	0.13679
0.386509	0.067389	0.067389	0.004541	0.067389	0.174354	0.030399
0.435106	0.115986	0.115986	0.013453	0.115986	0.26657	0.071059
0.386509	0.067389	0.067389	0.004541	0.067389	0.174354	0.030399
0.567634	0.248514	0.248514	0.061759	0.248514	0.437806	0.191674
0.471752	0.152632	0.152632	0.023297	0.152632	0.323543	0.10468
0.386509	0.067389	0.067389	0.004541	0.067389	0.174354	0.030399
0.421125	0.102005	0.102005	0.010405	0.102005	0.242221	0.058671
0.384479	0.065359	0.065359	0.004272	0.065359	0.169994	0.028898
0.262591	-0.05653	0.056529	0.003196	-0.05653	-0.21527	0.046343
0.425675	0.106555	0.106555	0.011354	0.106555	0.250321	0.06266
0.435106	0.115986	0.115986	0.013453	0.115986	0.26657	0.071059
0.383941	0.064821	0.064821	0.004202	0.064821	0.16883	0.028504
0.425675	0.106555	0.106555	0.011354	0.106555	0.250321	0.06266
0.567634	0.248514	0.248514	0.061759	0.248514	0.437806	0.191674
0.421125	0.102005	0.102005	0.010405	0.102005	0.242221	0.058671
0.335882	0.016762	0.016762	0.000281	0.016762	0.049906	0.002491
0.482391	0.163271	0.163271	0.026657	0.163271	0.338462	0.114556
0.339766	0.020646	0.020646	0.000426	0.020646	0.060766	0.003692
0.506029	0.186909	0.186909	0.034935	0.186909	0.369364	0.13643
0.432202	0.113082	0.113082	0.012787	0.113082	0.261641	0.068456
0.296148	-0.02297	0.022972	0.000528	-0.02297	-0.07757	0.006017
0.353877	0.034757	0.034757	0.001208	0.034757	0.098218	0.009647
0.353877	0.034757	0.034757	0.001208	0.034757	0.098218	0.009647
0.280644	-0.03848	0.038476	0.00148	-0.03848	-0.1371	0.018796
0.311256	-0.00786	0.007864	6.18E-05	-0.00786	-0.02527	0.000638
0.311256	-0.00786	0.007864	6.18E-05	-0.00786	-0.02527	0.000638
0.187834	-0.13129	0.131286	0.017236	-0.13129	-0.69895	0.488531
0.311256	-0.00786	0.007864	6.18E-05	-0.00786	-0.02527	0.000638

0.271214	-0.04791	0.047906	0.002295	-0.04791	-0.17664	0.031201
0.280644	-0.03848	0.038476	0.00148	-0.03848	-0.1371	0.018796
0.311256	-0.00786	0.007864	6.18E-05	-0.00786	-0.02527	0.000638
0.311256	-0.00786	0.007864	6.18E-05	-0.00786	-0.02527	0.000638
0.271214	-0.04791	0.047906	0.002295	-0.04791	-0.17664	0.031201
0.271214	-0.04791	0.047906	0.002295	-0.04791	-0.17664	0.031201
0.280644	-0.03848	0.038476	0.00148	-0.03848	-0.1371	0.018796
0.311256	-0.00786	0.007864	6.18E-05	-0.00786	-0.02527	0.000638
0.457292	0.138172	0.138172	0.019092	0.138172	0.302153	0.091296
0.457292	0.138172	0.138172	0.019092	0.138172	0.302153	0.091296
0.392754	0.073634	0.073634	0.005422	0.073634	0.187481	0.035149
0.457292	0.138172	0.138172	0.019092	0.138172	0.302153	0.091296
0.457292	0.138172	0.138172	0.019092	0.138172	0.302153	0.091296
0.457292	0.138172	0.138172	0.019092	0.138172	0.302153	0.091296
0.457292	0.138172	0.138172	0.019092	0.138172	0.302153	0.091296
0.457292	0.138172	0.138172	0.019092	0.138172	0.302153	0.091296
0.457292	0.138172	0.138172	0.019092	0.138172	0.302153	0.091296
0.392754	0.073634	0.073634	0.005422	0.073634	0.187481	0.035149
0.457292	0.138172	0.138172	0.019092	0.138172	0.302153	0.091296
0.392754	0.073634	0.073634	0.005422	0.073634	0.187481	0.035149
0.457292	0.138172	0.138172	0.019092	0.138172	0.302153	0.091296
0.457292	0.138172	0.138172	0.019092	0.138172	0.302153	0.091296
0.392754	0.073634	0.073634	0.005422	0.073634	0.187481	0.035149
0.595926	0.276806	0.276806	0.076621	0.276806	0.464497	0.215758
0.595926	0.276806	0.276806	0.076621	0.276806	0.464497	0.215758
0.595926	0.276806	0.276806	0.076621	0.276806	0.464497	0.215758
0.595926	0.276806	0.276806	0.076621	0.276806	0.464497	0.215758
0.595926	0.276806	0.276806	0.076621	0.276806	0.464497	0.215758
0.660464	0.341344	0.341344	0.116516	0.341344	0.516824	0.267107
0.595926	0.276806	0.276806	0.076621	0.276806	0.464497	0.215758
0.453967	0.134847	0.134847	0.018184	0.134847	0.297042	0.088234
0.386509	0.067389	0.067389	0.004541	0.067389	0.174354	0.030399
0.453967	0.134847	0.134847	0.018184	0.134847	0.297042	0.088234
0.595926	0.276806	0.276806	0.076621	0.276806	0.464497	0.215758
0.471752	0.152632	0.152632	0.023297	0.152632	0.323543	0.10468
0.453967	0.134847	0.134847	0.018184	0.134847	0.297042	0.088234
0.471752	0.152632	0.152632	0.023297	0.152632	0.323543	0.10468
0.595926	0.276806	0.276806	0.076621	0.276806	0.464497	0.215758
0.072349	-0.24677	0.246771	0.060896	-0.24677	-3.41086	11.63394
0.240463	-0.07866	0.078657	0.006187	-0.07866	-0.3271	0.106997
0.093222	-0.2259	0.225898	0.05103	-0.2259	-2.42322	5.872013
0.204894	-0.11423	0.114226	0.013048	-0.11423	-0.55749	0.310791
0.138879	-0.18024	0.180241	0.032487	-0.18024	-1.29782	1.684345

0.104341	-0.21478	0.214779		0.04613	-0.21478	-2.05844	4.237182
0.139299	-0.17982	0.179821		0.032336	-0.17982	-1.2909	1.666432
0.109105	-0.21002	0.210015		0.044106	-0.21002	-1.9249	3.705224
0.358756	0.039636	0.039636		0.001571	0.039636	0.110481	0.012206
0.093222	-0.2259	0.225898		0.05103	-0.2259	-2.42322	5.872013
0.160967	-0.15815	0.158153		0.025012	-0.15815	-0.98252	0.96535
0.109105	-0.21002	0.210015		0.044106	-0.21002	-1.9249	3.705224
0.132187	-0.18693	0.186933		0.034944	-0.18693	-1.41415	1.999825
0.128791	-0.19033	0.190329		0.036225	-0.19033	-1.47781	2.183923
0.118535	-0.20058	0.200585		0.040234	-0.20058	-1.69219	2.863508
0.237485	-0.08164	0.081635		0.006664	-0.08164	-0.34375	0.118164
0.128791	-0.19033	0.190329		0.036225	-0.19033	-1.47781	2.183923
0.147653	-0.17147	0.171467		0.029401	-0.17147	-1.16129	1.348594
0.308129	-0.01099	0.010991		0.000121	-0.01099	-0.03567	0.001272
0.097662	-0.22146	0.221458		0.049044	-0.22146	-2.26759	5.141972
0.190473	-0.12865	0.128647		0.01655	-0.12865	-0.67541	0.456177
0.32699	0.00787	0.00787		6.19E-05	0.00787	0.024069	0.000579
0.109105	-0.21002	0.210015		0.044106	-0.21002	-1.9249	3.705224
0.211346	-0.10777	0.107774		0.011615	-0.10777	-0.50994	0.260038
0.186033	-0.13309	0.133087		0.017712	-0.13309	-0.7154	0.511792
0.27256	-0.04656	0.04656		0.002168	-0.04656	-0.17083	0.029182
0.118535	-0.20058	0.200585		0.040234	-0.20058	-1.69219	2.863508
0.246915	-0.0722	0.072205		0.005214	-0.0722	-0.29243	0.085514
0.097662	-0.22146	0.221458		0.049044	-0.22146	-2.26759	5.141972
0.27256	-0.04656	0.04656		0.002168	-0.04656	-0.17083	0.029182
0.454768	0.135648	0.135648		0.0184	0.135648	0.298279	0.08897
0.565324	0.246204	0.246204		0.060616	0.246204	0.435509	0.189668
0.343411	0.024291	0.024291		0.00059	0.024291	0.070735	0.005003
0.565324	0.246204	0.246204		0.060616	0.246204	0.435509	0.189668
0.428654	0.109534	0.109534		0.011998	0.109534	0.25553	0.065296
0.595926	0.276806	0.276806		0.076621	0.276806	0.464497	0.215758
0.510683	0.191563	0.191563		0.036696	0.191563	0.375111	0.140709
0.565324	0.246204	0.246204		0.060616	0.246204	0.435509	0.189668
0.565324	0.246204	0.246204		0.060616	0.246204	0.435509	0.189668
0.471752	0.152632	0.152632		0.023297	0.152632	0.323543	0.10468
0.471752	0.152632	0.152632		0.023297	0.152632	0.323543	0.10468
0.453967	0.134847	0.134847		0.018184	0.134847	0.297042	0.088234
0.565324	0.246204	0.246204		0.060616	0.246204	0.435509	0.189668
0.565324	0.246204	0.246204		0.060616	0.246204	0.435509	0.189668
0.453967	0.134847	0.134847		0.018184	0.134847	0.297042	0.088234
0.31912		1492.515		206.591			4445.162
	QMAD	0.011085	QMSD	0.001534		QMPE	0.033015

APPENDIX II

Assessment Criteria Using Cheli And Lemmi Approach

Poverty ratio per household		QUASI MAD	QUASI MSD	QUASI MPE		
0.34755804	0.056073	0.056073	0.003144	0.056073	0.161334	0.026029
0.17854019	-0.11294	0.112945	0.012757	-0.11294	-0.6326	0.400185
0.1847416	-0.10674	0.106743	0.011394	-0.10674	-0.5778	0.333851
0.1847416	-0.10674	0.106743	0.011394	-0.10674	-0.5778	0.333851
0.26227178	-0.02921	0.029213	0.000853	-0.02921	-0.11139	0.012407
0.09818371	-0.1933	0.193301	0.037365	-0.1933	-1.96877	3.876062
0.34262826	0.051143	0.051143	0.002616	0.051143	0.149267	0.022281
0.17847794	-0.11301	0.113007	0.012771	-0.11301	-0.63317	0.400906
0.06178831	-0.2297	0.229697	0.052761	-0.2297	-3.71748	13.81964
0.13083454	-0.16065	0.16065	0.025809	-0.16065	-1.22789	1.507714
0.17438782	-0.1171	0.117097	0.013712	-0.1171	-0.67148	0.45088
0.17854019	-0.11294	0.112945	0.012757	-0.11294	-0.6326	0.400185
0.1796976	-0.11179	0.111787	0.012496	-0.11179	-0.62209	0.386991
0.17854019	-0.11294	0.112945	0.012757	-0.11294	-0.6326	0.400185
0.26227178	-0.02921	0.029213	0.000853	-0.02921	-0.11139	0.012407
0.28125329	-0.01023	0.010232	0.000105	-0.01023	-0.03638	0.001323
0.21003361	-0.08145	0.081451	0.006634	-0.08145	-0.3878	0.15039
0.12967713	-0.16181	0.161808	0.026182	-0.16181	-1.24777	1.556942
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.44602291	0.154538	0.154538	0.023882	0.154538	0.34648	0.120048
0.17854019	-0.11294	0.112945	0.012757	-0.11294	-0.6326	0.400185
0.12967713	-0.16181	0.161808	0.026182	-0.16181	-1.24777	1.556942
0.12967713	-0.16181	0.161808	0.026182	-0.16181	-1.24777	1.556942
0.12967713	-0.16181	0.161808	0.026182	-0.16181	-1.24777	1.556942
0.21003361	-0.08145	0.081451	0.006634	-0.08145	-0.3878	0.15039
0.49354777	0.202063	0.202063	0.040829	0.202063	0.409409	0.167616
0.12967713	-0.16181	0.161808	0.026182	-0.16181	-1.24777	1.556942
0.23409486	-0.05739	0.05739	0.003294	-0.05739	-0.24516	0.060102
0.21003361	-0.08145	0.081451	0.006634	-0.08145	-0.3878	0.15039
0.12967713	-0.16181	0.161808	0.026182	-0.16181	-1.24777	1.556942
0.31339302	0.021908	0.021908	0.00048	0.021908	0.069906	0.004887
0.13718357	-0.1543	0.154301	0.023809	-0.1543	-1.12478	1.265132
0.13718357	-0.1543	0.154301	0.023809	-0.1543	-1.12478	1.265132
0.11425419	-0.17723	0.177231	0.031411	-0.17723	-1.5512	2.406214

0.33119101	0.039706	0.039706	0.001577	0.039706	0.119889	0.014373
0.25104355	-0.04044	0.040441	0.001636	-0.04044	-0.16109	0.025951
0.31339302	0.021908	0.021908	0.00048	0.021908	0.069906	0.004887
0.32498959	0.033505	0.033505	0.001123	0.033505	0.103094	0.010628
0.31339302	0.021908	0.021908	0.00048	0.021908	0.069906	0.004887
0.25104355	-0.04044	0.040441	0.001636	-0.04044	-0.16109	0.025951
0.41513163	0.123647	0.123647	0.015288	0.123647	0.297849	0.088714
0.40528383	0.113799	0.113799	0.01295	0.113799	0.280788	0.078842
0.41513163	0.123647	0.123647	0.015288	0.123647	0.297849	0.088714
0.14243111	-0.14905	0.149054	0.022217	-0.14905	-1.0465	1.095158
0.16083927	-0.13065	0.130646	0.017068	-0.13065	-0.81228	0.659791
0.15588125	-0.1356	0.135604	0.018388	-0.1356	-0.86992	0.756756
0.23141573	-0.06007	0.060069	0.003608	-0.06007	-0.25957	0.067378
0.51691936	0.225434	0.225434	0.050821	0.225434	0.436111	0.190193
0.40191969	0.110435	0.110435	0.012196	0.110435	0.274768	0.075497
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.47062205	0.179137	0.179137	0.03209	0.179137	0.380639	0.144886
0.45899753	0.167513	0.167513	0.02806	0.167513	0.364953	0.133191
0.46740504	0.17592	0.17592	0.030948	0.17592	0.376376	0.141659
0.43461608	0.143131	0.143131	0.020487	0.143131	0.329328	0.108457
0.43461608	0.143131	0.143131	0.020487	0.143131	0.329328	0.108457
0.55953892	0.268054	0.268054	0.071853	0.268054	0.479062	0.229501
0.41834864	0.126864	0.126864	0.016094	0.126864	0.303249	0.09196
0.45899753	0.167513	0.167513	0.02806	0.167513	0.364953	0.133191
0.55953892	0.268054	0.268054	0.071853	0.268054	0.479062	0.229501
0.2984936	0.007009	0.007009	4.91E-05	0.007009	0.02348	0.000551
0.45544134	0.163956	0.163956	0.026882	0.163956	0.359994	0.129596
0.46258168	0.171097	0.171097	0.029274	0.171097	0.369873	0.136806
0.41834864	0.126864	0.126864	0.016094	0.126864	0.303249	0.09196
0.5443582	0.252873	0.252873	0.063945	0.252873	0.464535	0.215792
0.57580635	0.284321	0.284321	0.080839	0.284321	0.493779	0.243818
0.2984936	0.007009	0.007009	4.91E-05	0.007009	0.02348	0.000551
0.2029564	-0.08853	0.088529	0.007837	-0.08853	-0.4362	0.190266
0.29669663	0.005212	0.005212	2.72E-05	0.005212	0.017566	0.000309
0.31296407	0.021479	0.021479	0.000461	0.021479	0.068631	0.00471
0.21099678	-0.08049	0.080488	0.006478	-0.08049	-0.38147	0.145517
0.20151611	-0.08997	0.089969	0.008094	-0.08997	-0.44646	0.199327
0.28009587	-0.01139	0.011389	0.00013	-0.01139	-0.04066	0.001653
0.37705311	0.085568	0.085568	0.007322	0.085568	0.226939	0.051501
0.20777976	-0.08371	0.083705	0.007007	-0.08371	-0.40286	0.162293
0.37705311	0.085568	0.085568	0.007322	0.085568	0.226939	0.051501
0.346231	0.054746	0.054746	0.002997	0.054746	0.15812	0.025002
0.35361917	0.062134	0.062134	0.003861	0.062134	0.175709	0.030874

0.28187259	-0.00961	0.009612	9.24E-05	-0.00961	-0.0341	0.001163
0.45578052	0.164296	0.164296	0.026993	0.164296	0.360471	0.129939
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.38368148	0.092196	0.092196	0.0085	0.092196	0.240294	0.057741
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.44966897	0.158184	0.158184	0.025022	0.158184	0.351779	0.123748
0.44966897	0.158184	0.158184	0.025022	0.158184	0.351779	0.123748
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.38368148	0.092196	0.092196	0.0085	0.092196	0.240294	0.057741
0.38368148	0.092196	0.092196	0.0085	0.092196	0.240294	0.057741
0.30851027	0.017025	0.017025	0.00029	0.017025	0.055185	0.003045
0.30851027	0.017025	0.017025	0.00029	0.017025	0.055185	0.003045
0.38368148	0.092196	0.092196	0.0085	0.092196	0.240294	0.057741
0.38368148	0.092196	0.092196	0.0085	0.092196	0.240294	0.057741
0.30851027	0.017025	0.017025	0.00029	0.017025	0.055185	0.003045
0.30851027	0.017025	0.017025	0.00029	0.017025	0.055185	0.003045
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.44966897	0.158184	0.158184	0.025022	0.158184	0.351779	0.123748
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.30067979	0.009195	0.009195	8.45E-05	0.009195	0.03058	0.000935
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.21155303	-0.07993	0.079932	0.006389	-0.07993	-0.37783	0.142759
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.21155303	-0.07993	0.079932	0.006389	-0.07993	-0.37783	0.142759
0.44966897	0.158184	0.158184	0.025022	0.158184	0.351779	0.123748
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191

0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.23799113	-0.05349	0.053494	0.002862	-0.05349	-0.22477	0.050523
0.47581536	0.18433	0.18433	0.033978	0.18433	0.387399	0.150078
0.38368148	0.092196	0.092196	0.0085	0.092196	0.240294	0.057741
0.47581536	0.18433	0.18433	0.033978	0.18433	0.387399	0.150078
0.3988622	0.107377	0.107377	0.01153	0.107377	0.269209	0.072473
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.29712359	0.005639	0.005639	3.18E-05	0.005639	0.018977	0.00036
0.39224187	0.100757	0.100757	0.010152	0.100757	0.256874	0.065984
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.3988622	0.107377	0.107377	0.01153	0.107377	0.269209	0.072473
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.30851027	0.017025	0.017025	0.00029	0.017025	0.055185	0.003045
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.38368148	0.092196	0.092196	0.0085	0.092196	0.240294	0.057741
0.49099608	0.199511	0.199511	0.039805	0.199511	0.406339	0.165112
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.38354011	0.092055	0.092055	0.008474	0.092055	0.240014	0.057607
0.38723768	0.095753	0.095753	0.009169	0.095753	0.247271	0.061143
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.41338619	0.121901	0.121901	0.01486	0.121901	0.294885	0.086957
0.21623502	-0.07525	0.07525	0.005663	-0.07525	-0.348	0.121105
0.33119101	0.039706	0.039706	0.001577	0.039706	0.119889	0.014373
0.39191967	0.100435	0.100435	0.010087	0.100435	0.256263	0.065671
0.21623502	-0.07525	0.07525	0.005663	-0.07525	-0.348	0.121105
0.41154749	0.120062	0.120062	0.014415	0.120062	0.291734	0.085109
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.37222775	0.080743	0.080743	0.006519	0.080743	0.216918	0.047053
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.21152353	-0.07996	0.079961	0.006394	-0.07996	-0.37803	0.142904
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40057714	0.109092	0.109092	0.011901	0.109092	0.272337	0.074168
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.39653756	0.105053	0.105053	0.011036	0.105053	0.264925	0.070185

0.44602291	0.154538	0.154538	0.023882	0.154538	0.34648	0.120048
0.37705311	0.085568	0.085568	0.007322	0.085568	0.226939	0.051501
0.46258168	0.171097	0.171097	0.029274	0.171097	0.369873	0.136806
0.54114119	0.249656	0.249656	0.062328	0.249656	0.461351	0.212845
0.44602291	0.154538	0.154538	0.023882	0.154538	0.34648	0.120048
0.45222432	0.160739	0.160739	0.025837	0.160739	0.355442	0.126339
0.36901074	0.077526	0.077526	0.00601	0.077526	0.210091	0.044138
0.38027012	0.088785	0.088785	0.007883	0.088785	0.233479	0.054512
0.44951686	0.158032	0.158032	0.024974	0.158032	0.351559	0.123594
0.45222432	0.160739	0.160739	0.025837	0.160739	0.355442	0.126339
0.54114119	0.249656	0.249656	0.062328	0.249656	0.461351	0.212845
0.43147071	0.139986	0.139986	0.019596	0.139986	0.324439	0.10526
0.46045139	0.168966	0.168966	0.02855	0.168966	0.366958	0.134658
0.19973939	-0.09175	0.091746	0.008417	-0.09175	-0.45933	0.210981
0.29958032	0.008095	0.008095	6.55E-05	0.008095	0.027022	0.00073
0.29958032	0.008095	0.008095	6.55E-05	0.008095	0.027022	0.00073
0.44418395	0.152699	0.152699	0.023317	0.152699	0.343774	0.118181
0.28009587	-0.01139	0.011389	0.00013	-0.01139	-0.04066	0.001653
0.28009587	-0.01139	0.011389	0.00013	-0.01139	-0.04066	0.001653
0.29958032	0.008095	0.008095	6.55E-05	0.008095	0.027022	0.00073
0.26046805	-0.03102	0.031017	0.000962	-0.03102	-0.11908	0.01418
0.28009587	-0.01139	0.011389	0.00013	-0.01139	-0.04066	0.001653
0.44418395	0.152699	0.152699	0.023317	0.152699	0.343774	0.118181
0.28331288	-0.00817	0.008172	6.68E-05	-0.00817	-0.02884	0.000832
0.26046805	-0.03102	0.031017	0.000962	-0.03102	-0.11908	0.01418
0.44418395	0.152699	0.152699	0.023317	0.152699	0.343774	0.118181
0.55740863	0.265924	0.265924	0.070715	0.265924	0.477071	0.227597
0.19308263	-0.0984	0.098402	0.009683	-0.0984	-0.50964	0.259732
0.16694362	-0.12454	0.124541	0.015511	-0.12454	-0.74601	0.556529
0.19192521	-0.09956	0.09956	0.009912	-0.09956	-0.51874	0.269094
0.21623502	-0.07525	0.07525	0.005663	-0.07525	-0.348	0.121105
0.20352178	-0.08796	0.087963	0.007738	-0.08796	-0.43221	0.186802
0.21155303	-0.07993	0.079932	0.006389	-0.07993	-0.37783	0.142759
0.19732037	-0.09416	0.094165	0.008867	-0.09416	-0.47722	0.227736
0.21155303	-0.07993	0.079932	0.006389	-0.07993	-0.37783	0.142759
0.22163018	-0.06985	0.069855	0.00488	-0.06985	-0.31519	0.099342
0.1857238	-0.10576	0.105761	0.011185	-0.10576	-0.56945	0.324278
0.22163018	-0.06985	0.069855	0.00488	-0.06985	-0.31519	0.099342
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.22783159	-0.06365	0.063653	0.004052	-0.06365	-0.27939	0.078058
0.18604011	-0.10544	0.105445	0.011119	-0.10544	-0.56679	0.321246
0.33282008	0.041335	0.041335	0.001709	0.041335	0.124196	0.015425
0.19192521	-0.09956	0.09956	0.009912	-0.09956	-0.51874	0.269094

0.21807398	-0.07341	0.073411	0.005389	-0.07341	-0.33663	0.113322
0.13083454	-0.16065	0.16065	0.025809	-0.16065	-1.22789	1.507714
0.40799129	0.116506	0.116506	0.013574	0.116506	0.285561	0.081545
0.49690816	0.205423	0.205423	0.042199	0.205423	0.413403	0.170902
0.22779178	-0.06369	0.063693	0.004057	-0.06369	-0.27961	0.078183
0.49690816	0.205423	0.205423	0.042199	0.205423	0.413403	0.170902
0.21003361	-0.08145	0.081451	0.006634	-0.08145	-0.3878	0.15039
0.14930495	-0.14218	0.14218	0.020215	-0.14218	-0.95228	0.906836
0.33282008	0.041335	0.041335	0.001709	0.041335	0.124196	0.015425
0.21623502	-0.07525	0.07525	0.005663	-0.07525	-0.348	0.121105
0.22673375	-0.06475	0.064751	0.004193	-0.06475	-0.28558	0.081558
0.49690816	0.205423	0.205423	0.042199	0.205423	0.413403	0.170902
0.21003361	-0.08145	0.081451	0.006634	-0.08145	-0.3878	0.15039
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.40028133	0.108796	0.108796	0.011837	0.108796	0.2718	0.073875
0.29509703	0.003612	0.003612	1.3E-05	0.003612	0.01224	0.00015
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.20759698	-0.08389	0.083888	0.007037	-0.08389	-0.40409	0.163289
0.37168506	0.0802	0.0802	0.006432	0.0802	0.215774	0.046559
0.18796916	-0.10352	0.103516	0.010716	-0.10352	-0.55071	0.303278
0.37168506	0.0802	0.0802	0.006432	0.0802	0.215774	0.046559
0.2825583	-0.00893	0.008927	7.97E-05	-0.00893	-0.03159	0.000998
0.2825583	-0.00893	0.008927	7.97E-05	-0.00893	-0.03159	0.000998
0.44664638	0.155161	0.155161	0.024075	0.155161	0.347392	0.120681
0.44664638	0.155161	0.155161	0.024075	0.155161	0.347392	0.120681
0.26293048	-0.02855	0.028555	0.000815	-0.02855	-0.1086	0.011794
0.26293048	-0.02855	0.028555	0.000815	-0.02855	-0.1086	0.011794
0.2825583	-0.00893	0.008927	7.97E-05	-0.00893	-0.03159	0.000998
0.2825583	-0.00893	0.008927	7.97E-05	-0.00893	-0.03159	0.000998
0.35205724	0.060572	0.060572	0.003669	0.060572	0.172052	0.029602
0.44664638	0.155161	0.155161	0.024075	0.155161	0.347392	0.120681
0.45824295	0.166758	0.166758	0.027808	0.166758	0.363907	0.132429

0.43139907	0.139914	0.139914	0.019576	0.139914	0.324326	0.105188
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.43139907	0.139914	0.139914	0.019576	0.139914	0.324326	0.105188
0.3803231	0.088838	0.088838	0.007892	0.088838	0.233586	0.054562
0.3803231	0.088838	0.088838	0.007892	0.088838	0.233586	0.054562
0.38723768	0.095753	0.095753	0.009169	0.095753	0.247271	0.061143
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.4240753	0.13259	0.13259	0.01758	0.13259	0.312657	0.097755
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.2231496	-0.06834	0.068335	0.00467	-0.06834	-0.30623	0.093778
0.2231496	-0.06834	0.068335	0.00467	-0.06834	-0.30623	0.093778
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.47259835	0.181113	0.181113	0.032802	0.181113	0.383229	0.146864
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.07004858	-0.22144	0.221436	0.049034	-0.22144	-3.16118	9.993082
0.37951554	0.088031	0.088031	0.007749	0.088031	0.231955	0.053803
0.2029564	-0.08853	0.088529	0.007837	-0.08853	-0.4362	0.190266
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.38723768	0.095753	0.095753	0.009169	0.095753	0.247271	0.061143
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.24745941	-0.04403	0.044026	0.001938	-0.04403	-0.17791	0.031652
0.41154749	0.120062	0.120062	0.014415	0.120062	0.291734	0.085109
0.38723768	0.095753	0.095753	0.009169	0.095753	0.247271	0.061143
0.23586284	-0.05562	0.055622	0.003094	-0.05562	-0.23582	0.055613
0.28105197	-0.01043	0.010433	0.000109	-0.01043	-0.03712	0.001378
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.21623502	-0.07525	0.07525	0.005663	-0.07525	-0.348	0.121105
0.38723768	0.095753	0.095753	0.009169	0.095753	0.247271	0.061143
0.30067979	0.009195	0.009195	8.45E-05	0.009195	0.03058	0.000935
0.21155303	-0.07993	0.079932	0.006389	-0.07993	-0.37783	0.142759
0.3803231	0.088838	0.088838	0.007892	0.088838	0.233586	0.054562

0.23586284	-0.05562	0.055622	0.003094	-0.05562	-0.23582	0.055613
0.24745941	-0.04403	0.044026	0.001938	-0.04403	-0.17791	0.031652
0.3803231	0.088838	0.088838	0.007892	0.088838	0.233586	0.054562
0.3803231	0.088838	0.088838	0.007892	0.088838	0.233586	0.054562
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.19192521	-0.09956	0.09956	0.009912	-0.09956	-0.51874	0.269094
0.19192521	-0.09956	0.09956	0.009912	-0.09956	-0.51874	0.269094
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.23586284	-0.05562	0.055622	0.003094	-0.05562	-0.23582	0.055613
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.3592303	0.067745	0.067745	0.004589	0.067745	0.188585	0.035564
0.21155303	-0.07993	0.079932	0.006389	-0.07993	-0.37783	0.142759
0.38368148	0.092196	0.092196	0.0085	0.092196	0.240294	0.057741
0.40316793	0.111683	0.111683	0.012473	0.111683	0.277013	0.076736
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.23103748	-0.06045	0.060448	0.003654	-0.06045	-0.26164	0.068453
0.39045469	0.09897	0.09897	0.009795	0.09897	0.253473	0.064249
0.23907985	-0.05241	0.052405	0.002746	-0.05241	-0.2192	0.048047
0.23586284	-0.05562	0.055622	0.003094	-0.05562	-0.23582	0.055613
0.35230453	0.06082	0.06082	0.003699	0.06082	0.172633	0.029802
0.40316793	0.111683	0.111683	0.012473	0.111683	0.277013	0.076736
0.21959341	-0.07189	0.071892	0.005168	-0.07189	-0.32739	0.107181
0.39045469	0.09897	0.09897	0.009795	0.09897	0.253473	0.064249
0.22281042	-0.06867	0.068675	0.004716	-0.06867	-0.30822	0.094999
0.38689849	0.095413	0.095413	0.009104	0.095413	0.246611	0.060817
0.22673375	-0.06475	0.064751	0.004193	-0.06475	-0.28558	0.081558
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37885812	0.087373	0.087373	0.007634	0.087373	0.230622	0.053187
0.19192521	-0.09956	0.09956	0.009912	-0.09956	-0.51874	0.269094
0.19192521	-0.09956	0.09956	0.009912	-0.09956	-0.51874	0.269094
0.19277285	-0.09871	0.098712	0.009744	-0.09871	-0.51206	0.26221
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.21155303	-0.07993	0.079932	0.006389	-0.07993	-0.37783	0.142759

0.19192521	-0.09956	0.09956	0.009912	-0.09956	-0.51874	0.269094
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.21155303	-0.07993	0.079932	0.006389	-0.07993	-0.37783	0.142759
0.21155303	-0.07993	0.079932	0.006389	-0.07993	-0.37783	0.142759
0.28105197	-0.01043	0.010433	0.000109	-0.01043	-0.03712	0.001378
0.41987414	0.128389	0.128389	0.016484	0.128389	0.30578	0.093501
0.43147071	0.139986	0.139986	0.019596	0.139986	0.324439	0.10526
0.25578607	-0.0357	0.035699	0.001274	-0.0357	-0.13957	0.019479
0.43027349	0.138788	0.138788	0.019262	0.138788	0.322559	0.104044
0.44418395	0.152699	0.152699	0.023317	0.152699	0.343774	0.118181
0.2825583	-0.00893	0.008927	7.97E-05	-0.00893	-0.03159	0.000998
0.28009587	-0.01139	0.011389	0.00013	-0.01139	-0.04066	0.001653
0.28908322	-0.0024	0.002402	5.77E-06	-0.0024	-0.00831	6.9E-05
0.35756381	0.066079	0.066079	0.004366	0.066079	0.184803	0.034152
0.19973939	-0.09175	0.091746	0.008417	-0.09175	-0.45933	0.210981
0.19973939	-0.09175	0.091746	0.008417	-0.09175	-0.45933	0.210981
0.2029564	-0.08853	0.088529	0.007837	-0.08853	-0.4362	0.190266
0.2029564	-0.08853	0.088529	0.007837	-0.08853	-0.4362	0.190266
0.12499514	-0.16649	0.16649	0.027719	-0.16649	-1.33197	1.774146
0.28908322	-0.0024	0.002402	5.77E-06	-0.0024	-0.00831	6.9E-05
0.28009587	-0.01139	0.011389	0.00013	-0.01139	-0.04066	0.001653
0.28237015	-0.00911	0.009115	8.31E-05	-0.00911	-0.03228	0.001042
0.28237015	-0.00911	0.009115	8.31E-05	-0.00911	-0.03228	0.001042
0.07771024	-0.21377	0.213775	0.0457	-0.21377	-2.75092	7.567567
0.07771024	-0.21377	0.213775	0.0457	-0.21377	-2.75092	7.567567
0.07004858	-0.22144	0.221436	0.049034	-0.22144	-3.16118	9.993082
0.07529612	-0.21619	0.216189	0.046738	-0.21619	-2.87118	8.243688
0.07529612	-0.21619	0.216189	0.046738	-0.21619	-2.87118	8.243688
0.11828207	-0.1732	0.173203	0.029999	-0.1732	-1.46432	2.144236
0.11828207	-0.1732	0.173203	0.029999	-0.1732	-1.46432	2.144236
0.28237015	-0.00911	0.009115	8.31E-05	-0.00911	-0.03228	0.001042
0.27077357	-0.02071	0.020711	0.000429	-0.02071	-0.07649	0.005851
0.27077357	-0.02071	0.020711	0.000429	-0.02071	-0.07649	0.005851
0.07529612	-0.21619	0.216189	0.046738	-0.21619	-2.87118	8.243688
0.11943948	-0.17205	0.172046	0.0296	-0.17205	-1.44044	2.07487
0.07529612	-0.21619	0.216189	0.046738	-0.21619	-2.87118	8.243688
0.07529612	-0.21619	0.216189	0.046738	-0.21619	-2.87118	8.243688
0.30005199	0.008567	0.008567	7.34E-05	0.008567	0.028552	0.000815
0.30005199	0.008567	0.008567	7.34E-05	0.008567	0.028552	0.000815
0.07004858	-0.22144	0.221436	0.049034	-0.22144	-3.16118	9.993082
0.07529612	-0.21619	0.216189	0.046738	-0.21619	-2.87118	8.243688
0.30529953	0.013815	0.013815	0.000191	0.013815	0.045249	0.002047
0.07529612	-0.21619	0.216189	0.046738	-0.21619	-2.87118	8.243688

0.30529953	0.013815	0.013815	0.000191	0.013815	0.045249	0.002047
0.11943948	-0.17205	0.172046	0.0296	-0.17205	-1.44044	2.07487
0.28237015	-0.00911	0.009115	8.31E-05	-0.00911	-0.03228	0.001042
0.28237015	-0.00911	0.009115	8.31E-05	-0.00911	-0.03228	0.001042
0.29135326	-0.00013	0.000132	1.74E-08	-0.00013	-0.00045	2.04E-07
0.29669663	0.005212	0.005212	2.72E-05	0.005212	0.017566	0.000309
0.31133124	0.019846	0.019846	0.000394	0.019846	0.063746	0.004064
0.39168772	0.100203	0.100203	0.010041	0.100203	0.255823	0.065445
0.38009115	0.088606	0.088606	0.007851	0.088606	0.233118	0.054344
0.21718164	-0.0743	0.074303	0.005521	-0.0743	-0.34213	0.11705
0.22139823	-0.07009	0.070087	0.004912	-0.07009	-0.31656	0.100213
0.38330816	0.091823	0.091823	0.008431	0.091823	0.239554	0.057386
0.2122593	-0.07923	0.079226	0.006277	-0.07923	-0.37325	0.139315
0.34908752	0.057603	0.057603	0.003318	0.057603	0.165009	0.027228
0.41154749	0.120062	0.120062	0.014415	0.120062	0.291734	0.085109
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.23586284	-0.05562	0.055622	0.003094	-0.05562	-0.23582	0.055613
0.32498959	0.033505	0.033505	0.001123	0.033505	0.103094	0.010628
0.21623502	-0.07525	0.07525	0.005663	-0.07525	-0.348	0.121105
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.23586284	-0.05562	0.055622	0.003094	-0.05562	-0.23582	0.055613
0.15872337	-0.13276	0.132762	0.017626	-0.13276	-0.83643	0.699622
0.21477004	-0.07671	0.076715	0.005885	-0.07671	-0.3572	0.127589
0.14930495	-0.14218	0.14218	0.020215	-0.14218	-0.95228	0.906836
0.13587854	-0.15561	0.155606	0.024213	-0.15561	-1.14519	1.311455
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.38723768	0.095753	0.095753	0.009169	0.095753	0.247271	0.061143
0.38723768	0.095753	0.095753	0.009169	0.095753	0.247271	0.061143
0.23586284	-0.05562	0.055622	0.003094	-0.05562	-0.23582	0.055613
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.44418395	0.152699	0.152699	0.023317	0.152699	0.343774	0.118181
0.19308263	-0.0984	0.098402	0.009683	-0.0984	-0.50964	0.259732
0.38570713	0.094222	0.094222	0.008878	0.094222	0.244284	0.059675
0.37564111	0.084156	0.084156	0.007082	0.084156	0.224033	0.050191
0.15046236	-0.14102	0.141023	0.019887	-0.14102	-0.93726	0.87846
0.31640927	0.024924	0.024924	0.000621	0.024924	0.078772	0.006205
0.32498959	0.033505	0.033505	0.001123	0.033505	0.103094	0.010628
0.21807398	-0.07341	0.073411	0.005389	-0.07341	-0.33663	0.113322
0.21003361	-0.08145	0.081451	0.006634	-0.08145	-0.3878	0.15039
0.13887491	-0.15261	0.15261	0.02329	-0.15261	-1.0989	1.207588
0.21003361	-0.08145	0.081451	0.006634	-0.08145	-0.3878	0.15039
0.16090152	-0.13058	0.130583	0.017052	-0.13058	-0.81157	0.658652

0.12967713	-0.16181	0.161808	0.026182	-0.16181	-1.24777	1.556942
0.12961488	-0.16187	0.16187	0.026202	-0.16187	-1.24885	1.559637
0.19973939	-0.09175	0.091746	0.008417	-0.09175	-0.45933	0.210981
0.2825583	-0.00893	0.008927	7.97E-05	-0.00893	-0.03159	0.000998
0.29415487	0.00267	0.00267	7.13E-06	0.00267	0.009076	8.24E-05
0.28009587	-0.01139	0.011389	0.00013	-0.01139	-0.04066	0.001653
0.28331288	-0.00817	0.008172	6.68E-05	-0.00817	-0.02884	0.000832
0.2825583	-0.00893	0.008927	7.97E-05	-0.00893	-0.03159	0.000998
0.28331288	-0.00817	0.008172	6.68E-05	-0.00817	-0.02884	0.000832
0.2825583	-0.00893	0.008927	7.97E-05	-0.00893	-0.03159	0.000998
0.29991364	0.008429	0.008429	7.1E-05	0.008429	0.028104	0.00079
0.44664638	0.155161	0.155161	0.024075	0.155161	0.347392	0.120681
0.2825583	-0.00893	0.008927	7.97E-05	-0.00893	-0.03159	0.000998
0.37951554	0.088031	0.088031	0.007749	0.088031	0.231955	0.053803
0.2029564	-0.08853	0.088529	0.007837	-0.08853	-0.4362	0.190266
0.37705311	0.085568	0.085568	0.007322	0.085568	0.226939	0.051501
0.37705311	0.085568	0.085568	0.007322	0.085568	0.226939	0.051501
0.29669663	0.005212	0.005212	2.72E-05	0.005212	0.017566	0.000309
0.54114119	0.249656	0.249656	0.062328	0.249656	0.461351	0.212845
0.54114119	0.249656	0.249656	0.062328	0.249656	0.461351	0.212845
0.54114119	0.249656	0.249656	0.062328	0.249656	0.461351	0.212845
0.20777976	-0.08371	0.083705	0.007007	-0.08371	-0.40286	0.162293
0.37705311	0.085568	0.085568	0.007322	0.085568	0.226939	0.051501
0.29991364	0.008429	0.008429	7.1E-05	0.008429	0.028104	0.00079
0.54114119	0.249656	0.249656	0.062328	0.249656	0.461351	0.212845
0.37705311	0.085568	0.085568	0.007322	0.085568	0.226939	0.051501
0.20777976	-0.08371	0.083705	0.007007	-0.08371	-0.40286	0.162293
0.20777976	-0.08371	0.083705	0.007007	-0.08371	-0.40286	0.162293
0.37705311	0.085568	0.085568	0.007322	0.085568	0.226939	0.051501
0.37705311	0.085568	0.085568	0.007322	0.085568	0.226939	0.051501
0.18612107	-0.10536	0.105364	0.011102	-0.10536	-0.5661	0.320474
0.47170877	0.180224	0.180224	0.032481	0.180224	0.382066	0.145974
0.45222432	0.160739	0.160739	0.025837	0.160739	0.355442	0.126339
0.54114119	0.249656	0.249656	0.062328	0.249656	0.461351	0.212845
0.34959481	0.05811	0.05811	0.003377	0.05811	0.16622	0.027629
0.27206462	-0.01942	0.01942	0.000377	-0.01942	-0.07138	0.005095
0.46045139	0.168966	0.168966	0.02855	0.168966	0.366958	0.134658
0.53729998	0.245815	0.245815	0.060425	0.245815	0.4575	0.209307
0.44418395	0.152699	0.152699	0.023317	0.152699	0.343774	0.118181
0.25185774	-0.03963	0.039627	0.00157	-0.03963	-0.15734	0.024756
0.24530517	-0.04618	0.04618	0.002133	-0.04618	-0.18825	0.03544
0.14236887	-0.14912	0.149116	0.022236	-0.14912	-1.04739	1.097032
0.17143902	-0.12005	0.120046	0.014411	-0.12005	-0.70023	0.490316

0.28125329	-0.01023	0.010232	0.000105	-0.01023	-0.03638	0.001323
0.23586284	-0.05562	0.055622	0.003094	-0.05562	-0.23582	0.055613
0.50635049	0.214865	0.214865	0.046167	0.214865	0.424341	0.180066
0.22567735	-0.06581	0.065808	0.004331	-0.06581	-0.2916	0.085031
0.25805916	-0.03343	0.033426	0.001117	-0.03343	-0.12953	0.016777
0.50635049	0.214865	0.214865	0.046167	0.214865	0.424341	0.180066
0.25690174	-0.03458	0.034583	0.001196	-0.03458	-0.13462	0.018122
0.24530517	-0.04618	0.04618	0.002133	-0.04618	-0.18825	0.03544
0.40939325	0.117908	0.117908	0.013902	0.117908	0.288007	0.082948
0.23586284	-0.05562	0.055622	0.003094	-0.05562	-0.23582	0.055613
0.40939325	0.117908	0.117908	0.013902	0.117908	0.288007	0.082948
0.2680276	-0.02346	0.023457	0.00055	-0.02346	-0.08752	0.00766
0.23586284	-0.05562	0.055622	0.003094	-0.05562	-0.23582	0.055613
0.32283535	0.03135	0.03135	0.000983	0.03135	0.097109	0.00943
0.42566068	0.134176	0.134176	0.018003	0.134176	0.315217	0.099362
0.27516794	-0.01632	0.016317	0.000266	-0.01632	-0.0593	0.003516
0.28813625	-0.00335	0.003349	1.12E-05	-0.00335	-0.01162	0.000135
0.12967713	-0.16181	0.161808	0.026182	-0.16181	-1.24777	1.556942
0.39995092	0.108466	0.108466	0.011765	0.108466	0.271198	0.073548
0.32283535	0.03135	0.03135	0.000983	0.03135	0.097109	0.00943
0.18796916	-0.10352	0.103516	0.010716	-0.10352	-0.55071	0.303278
0.15990469	-0.13158	0.13158	0.017313	-0.13158	-0.82287	0.67711
0.401362	0.109877	0.109877	0.012073	0.109877	0.27376	0.074945
0.44044497	0.14896	0.14896	0.022189	0.14896	0.338203	0.114382
0.44664638	0.155161	0.155161	0.024075	0.155161	0.347392	0.120681
0.2825583	-0.00893	0.008927	7.97E-05	-0.00893	-0.03159	0.000998
0.18680235	-0.10468	0.104683	0.010958	-0.10468	-0.56039	0.31404
0.29415487	0.00267	0.00267	7.13E-06	0.00267	0.009076	8.24E-05
0.44418395	0.152699	0.152699	0.023317	0.152699	0.343774	0.118181
0.21623502	-0.07525	0.07525	0.005663	-0.07525	-0.348	0.121105
0.18315915	-0.10833	0.108326	0.011734	-0.10833	-0.59143	0.34979
0.15203422	-0.13945	0.139451	0.019447	-0.13945	-0.91723	0.841316
0.06514784	-0.22634	0.226337	0.051229	-0.22634	-3.47421	12.07012
0.09332835	-0.19816	0.198157	0.039266	-0.19816	-2.12322	4.508065
0.10509934	-0.18639	0.186386	0.03474	-0.18639	-1.77342	3.145032
0.30108058	0.009596	0.009596	9.21E-05	0.009596	0.03187	0.001016
0.08155804	-0.20993	0.209927	0.044069	-0.20993	-2.57396	6.625258
0.16303085	-0.12845	0.128454	0.0165	-0.12845	-0.78791	0.620807
0.10509934	-0.18639	0.186386	0.03474	-0.18639	-1.77342	3.145032
0.10011512	-0.19137	0.19137	0.036622	-0.19137	-1.9115	3.653826
0.12570141	-0.16578	0.165784	0.027484	-0.16578	-1.31887	1.739413
0.10516158	-0.18632	0.186323	0.034716	-0.18632	-1.77178	3.139212
0.23586284	-0.05562	0.055622	0.003094	-0.05562	-0.23582	0.055613

0.12570141	-0.16578	0.165784		0.027484	-0.16578	-1.31887	1.739413
0.13190282	-0.15958	0.159582		0.025466	-0.15958	-1.20985	1.463729
0.25684754	-0.03464	0.034637		0.0012	-0.03464	-0.13486	0.018186
0.08547152	-0.20601	0.206013		0.042442	-0.20601	-2.41032	5.80963
0.17209166	-0.11939	0.119393		0.014255	-0.11939	-0.69378	0.481327
0.26867374	-0.02281	0.022811		0.00052	-0.02281	-0.0849	0.007209
0.10509934	-0.18639	0.186386		0.03474	-0.18639	-1.77342	3.145032
0.19493649	-0.09655	0.096549		0.009322	-0.09655	-0.49528	0.245304
0.17133295	-0.12015	0.120152		0.014437	-0.12015	-0.70128	0.491791
0.21270418	-0.07878	0.078781		0.006206	-0.07878	-0.37038	0.137179
0.10516158	-0.18632	0.186323		0.034716	-0.18632	-1.77178	3.139212
0.23907985	-0.05241	0.052405		0.002746	-0.05241	-0.2192	0.048047
0.08547152	-0.20601	0.206013		0.042442	-0.20601	-2.41032	5.80963
0.21270418	-0.07878	0.078781		0.006206	-0.07878	-0.37038	0.137179
0.43019897	0.138714	0.138714		0.019242	0.138714	0.322441	0.103968
0.54814203	0.256657	0.256657		0.065873	0.256657	0.468231	0.21924
0.26761114	-0.02387	0.023874		0.00057	-0.02387	-0.08921	0.007959
0.54814203	0.256657	0.256657		0.065873	0.256657	0.468231	0.21924
0.36456838	0.073083	0.073083		0.005341	0.073083	0.200466	0.040186
0.54814203	0.256657	0.256657		0.065873	0.256657	0.468231	0.21924
0.41360779	0.122123	0.122123		0.014914	0.122123	0.295262	0.08718
0.41360779	0.122123	0.122123		0.014914	0.122123	0.295262	0.08718
0.38555421	0.094069	0.094069		0.008849	0.094069	0.243984	0.059528
0.54814203	0.256657	0.256657		0.065873	0.256657	0.468231	0.21924
0.54814203	0.256657	0.256657		0.065873	0.256657	0.468231	0.21924
0.38555421	0.094069	0.094069		0.008849	0.094069	0.243984	0.059528
0.29148522		1609.005		234.3304			9431.21
	QMAD	**0.01195**	**QMSD**	**0.00174**		**QMPE**	**0.070048**

APPENDIX III

Assessment Criteria Using Varying Mean

Poverty ratio per household		QUASI MAD	QUASI MSD	QUASI MPE		
0.338461	0.074274	0.074274	0.005517	0.074274	0.219447	0.048157
0.246679	-0.01751	0.017508	0.000307	-0.01751	-0.07098	0.005038
0.255371	-0.00882	0.008816	7.77E-05	-0.00882	-0.03452	0.001192
0.255371	-0.00882	0.008816	7.77E-05	-0.00882	-0.03452	0.001192
0.308371	0.044184	0.044184	0.001952	0.044184	0.143283	0.02053
0.165445	-0.09874	0.098742	0.00975	-0.09874	-0.59683	0.356206
0.389605	0.125418	0.125418	0.01573	0.125418	0.321911	0.103627
0.241246	-0.02294	0.022941	0.000526	-0.02294	-0.0951	0.009043
0.23399	-0.0302	0.030197	0.000912	-0.0302	-0.12905	0.016655
0.21009	-0.0541	0.054097	0.002927	-0.0541	-0.2575	0.066304
0.329622	0.065435	0.065435	0.004282	0.065435	0.198516	0.039409
0.246679	-0.01751	0.017508	0.000307	-0.01751	-0.07098	0.005038
0.338559	0.074372	0.074372	0.005531	0.074372	0.219672	0.048256
0.246679	-0.01751	0.017508	0.000307	-0.01751	-0.07098	0.005038
0.308371	0.044184	0.044184	0.001952	0.044184	0.143283	0.02053
0.324681	0.060494	0.060494	0.003659	0.060494	0.186317	0.034714
0.199443	-0.06474	0.064744	0.004192	-0.06474	-0.32462	0.105379
0.118209	-0.14598	0.145978	0.021309	-0.14598	-1.23491	1.524994
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.41339	0.149203	0.149203	0.022262	0.149203	0.360926	0.130268
0.246679	-0.01751	0.017508	0.000307	-0.01751	-0.07098	0.005038
0.118209	-0.14598	0.145978	0.021309	-0.14598	-1.23491	1.524994
0.118209	-0.14598	0.145978	0.021309	-0.14598	-1.23491	1.524994
0.118209	-0.14598	0.145978	0.021309	-0.14598	-1.23491	1.524994
0.199443	-0.06474	0.064744	0.004192	-0.06474	-0.32462	0.105379
0.435571	0.171384	0.171384	0.029373	0.171384	0.39347	0.154819
0.118209	-0.14598	0.145978	0.021309	-0.14598	-1.23491	1.524994
0.279499	0.015312	0.015312	0.000234	0.015312	0.054785	0.003001
0.199443	-0.06474	0.064744	0.004192	-0.06474	-0.32462	0.105379
0.118209	-0.14598	0.145978	0.021309	-0.14598	-1.23491	1.524994
0.263861	-0.00033	0.000326	1.06E-07	-0.00033	-0.00123	1.52E-06
0.262776	-0.00141	0.001411	1.99E-06	-0.00141	-0.00537	2.89E-05
0.262776	-0.00141	0.001411	1.99E-06	-0.00141	-0.00537	2.89E-05
0.237407	-0.02678	0.02678	0.000717	-0.02678	-0.1128	0.012724
0.328743	0.064556	0.064556	0.004168	0.064556	0.196373	0.038562

0.234066	-0.03012	0.030121	0.000907	-0.03012	-0.12869	0.01656
0.263861	-0.00033	0.000326	1.06E-07	-0.00033	-0.00123	1.52E-06
0.320051	0.055864	0.055864	0.003121	0.055864	0.174546	0.030466
0.263861	-0.00033	0.000326	1.06E-07	-0.00033	-0.00123	1.52E-06
0.234066	-0.03012	0.030121	0.000907	-0.03012	-0.12869	0.01656
0.376993	0.112806	0.112806	0.012725	0.112806	0.299225	0.089536
0.395851	0.131664	0.131664	0.017336	0.131664	0.332611	0.11063
0.376993	0.112806	0.112806	0.012725	0.112806	0.299225	0.089536
0.266279	0.002092	0.002092	4.38E-06	0.002092	0.007857	6.17E-05
0.171691	-0.0925	0.092496	0.008556	-0.0925	-0.53874	0.290237
0.189739	-0.07445	0.074448	0.005542	-0.07445	-0.39237	0.153954
0.231341	-0.03285	0.032846	0.001079	-0.03285	-0.14198	0.020159
0.440286	0.176099	0.176099	0.031011	0.176099	0.399965	0.159972
0.371652	0.107465	0.107465	0.011549	0.107465	0.289155	0.08361
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.448819	0.184632	0.184632	0.034089	0.184632	0.411373	0.169228
0.435448	0.171261	0.171261	0.02933	0.171261	0.393298	0.154683
0.445288	0.181101	0.181101	0.032797	0.181101	0.406705	0.165409
0.387772	0.123585	0.123585	0.015273	0.123585	0.318705	0.101573
0.387772	0.123585	0.123585	0.015273	0.123585	0.318705	0.101573
0.479723	0.215536	0.215536	0.046456	0.215536	0.449293	0.201864
0.380524	0.116337	0.116337	0.013534	0.116337	0.305728	0.09347
0.435448	0.171261	0.171261	0.02933	0.171261	0.393298	0.154683
0.479723	0.215536	0.215536	0.046456	0.215536	0.449293	0.201864
0.259536	-0.00465	0.004651	2.16E-05	-0.00465	-0.01792	0.000321
0.425615	0.161428	0.161428	0.026059	0.161428	0.379281	0.143854
0.402463	0.138276	0.138276	0.01912	0.138276	0.343574	0.118043
0.380524	0.116337	0.116337	0.013534	0.116337	0.305728	0.09347
0.456519	0.192332	0.192332	0.036991	0.192332	0.421301	0.177494
0.486971	0.222784	0.222784	0.049633	0.222784	0.457489	0.209297
0.259536	-0.00465	0.004651	2.16E-05	-0.00465	-0.01792	0.000321
0.155098	-0.10909	0.109089	0.0119	-0.10909	-0.70336	0.494712
0.228827	-0.03536	0.03536	0.00125	-0.03536	-0.15453	0.023879
0.236075	-0.02811	0.028112	0.00079	-0.02811	-0.11908	0.014181
0.201454	-0.06273	0.062733	0.003935	-0.06273	-0.3114	0.096971
0.183797	-0.08039	0.08039	0.006463	-0.08039	-0.43739	0.191308
0.2328	-0.03139	0.031387	0.000985	-0.03139	-0.13482	0.018177
0.310061	0.045874	0.045874	0.002104	0.045874	0.14795	0.021889
0.197923	-0.06626	0.066264	0.004391	-0.06626	-0.3348	0.112091
0.310061	0.045874	0.045874	0.002104	0.045874	0.14795	0.021889
0.311188	0.047001	0.047001	0.002209	0.047001	0.151037	0.022812
0.279639	0.015452	0.015452	0.000239	0.015452	0.055259	0.003054
0.265031	0.000844	0.000844	7.12E-07	0.000844	0.003183	1.01E-05

0.431916	0.167729	0.167729	0.028133	0.167729	0.388337	0.150806
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.397756	0.133569	0.133569	0.017841	0.133569	0.335807	0.112766
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.403292	0.139105	0.139105	0.01935	0.139105	0.344924	0.118973
0.403292	0.139105	0.139105	0.01935	0.139105	0.344924	0.118973
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.397756	0.133569	0.133569	0.017841	0.133569	0.335807	0.112766
0.397756	0.133569	0.133569	0.017841	0.133569	0.335807	0.112766
0.285734	0.021547	0.021547	0.000464	0.021547	0.075409	0.005687
0.285734	0.021547	0.021547	0.000464	0.021547	0.075409	0.005687
0.397756	0.133569	0.133569	0.017841	0.133569	0.335807	0.112766
0.397756	0.133569	0.133569	0.017841	0.133569	0.335807	0.112766
0.285734	0.021547	0.021547	0.000464	0.021547	0.075409	0.005687
0.285734	0.021547	0.021547	0.000464	0.021547	0.075409	0.005687
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.403292	0.139105	0.139105	0.01935	0.139105	0.344924	0.118973
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.317663	0.053476	0.053476	0.00286	0.053476	0.168342	0.028339
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.208474	-0.05571	0.055713	0.003104	-0.05571	-0.26724	0.071419
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.208474	-0.05571	0.055713	0.003104	-0.05571	-0.26724	0.071419
0.403292	0.139105	0.139105	0.01935	0.139105	0.344924	0.118973
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597

0.281566	0.017379	0.017379	0.000302	0.017379	0.061722	0.00381
0.432192	0.168005	0.168005	0.028226	0.168005	0.388728	0.151109
0.397756	0.133569	0.133569	0.017841	0.133569	0.335807	0.112766
0.432192	0.168005	0.168005	0.028226	0.168005	0.388728	0.151109
0.420961	0.156774	0.156774	0.024578	0.156774	0.372419	0.138696
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.30783	0.043643	0.043643	0.001905	0.043643	0.141775	0.0201
0.347427	0.08324	0.08324	0.006929	0.08324	0.239589	0.057403
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.420961	0.156774	0.156774	0.024578	0.156774	0.372419	0.138696
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.285734	0.021547	0.021547	0.000464	0.021547	0.075409	0.005687
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.397756	0.133569	0.133569	0.017841	0.133569	0.335807	0.112766
0.455397	0.19121	0.19121	0.036561	0.19121	0.419875	0.176295
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.354594	0.090407	0.090407	0.008173	0.090407	0.25496	0.065005
0.40759	0.143403	0.143403	0.020564	0.143403	0.351831	0.123785
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.418171	0.153984	0.153984	0.023711	0.153984	0.368233	0.135595
0.208136	-0.05605	0.056051	0.003142	-0.05605	-0.2693	0.072522
0.328743	0.064556	0.064556	0.004168	0.064556	0.196373	0.038562
0.407252	0.143065	0.143065	0.020468	0.143065	0.351294	0.123407
0.208136	-0.05605	0.056051	0.003142	-0.05605	-0.2693	0.072522
0.409977	0.14579	0.14579	0.021255	0.14579	0.355606	0.126456
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.318452	0.054265	0.054265	0.002945	0.054265	0.170403	0.029037
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.199912	-0.06427	0.064275	0.004131	-0.06427	-0.32151	0.103371
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32501	0.060823	0.060823	0.003699	0.060823	0.187141	0.035022
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32084	0.056653	0.056653	0.00321	0.056653	0.176577	0.03118
0.41339	0.149203	0.149203	0.022262	0.149203	0.360926	0.130268

0.310061	0.045874	0.045874	0.002104	0.045874	0.14795	0.021889
0.402463	0.138276	0.138276	0.01912	0.138276	0.343574	0.118043
0.452987	0.1888	0.1888	0.035646	0.1888	0.416789	0.173713
0.41339	0.149203	0.149203	0.022262	0.149203	0.360926	0.130268
0.422083	0.157896	0.157896	0.024931	0.157896	0.374088	0.139942
0.314921	0.050734	0.050734	0.002574	0.050734	0.1611	0.025953
0.313592	0.049405	0.049405	0.002441	0.049405	0.157546	0.024821
0.41779	0.153603	0.153603	0.023594	0.153603	0.367657	0.135171
0.422083	0.157896	0.157896	0.024931	0.157896	0.374088	0.139942
0.452987	0.1888	0.1888	0.035646	0.1888	0.416789	0.173713
0.429529	0.165342	0.165342	0.027338	0.165342	0.384937	0.148177
0.382975	0.118788	0.118788	0.014111	0.118788	0.310172	0.096206
0.151566	-0.11262	0.112621	0.012683	-0.11262	-0.74305	0.552116
0.24358	-0.02061	0.020607	0.000425	-0.02061	-0.0846	0.007157
0.24358	-0.02061	0.020607	0.000425	-0.02061	-0.0846	0.007157
0.375727	0.11154	0.11154	0.012441	0.11154	0.296864	0.088128
0.2328	-0.03139	0.031387	0.000985	-0.03139	-0.13482	0.018177
0.2328	-0.03139	0.031387	0.000985	-0.03139	-0.13482	0.018177
0.24358	-0.02061	0.020607	0.000425	-0.02061	-0.0846	0.007157
0.230075	-0.03411	0.034112	0.001164	-0.03411	-0.14826	0.021982
0.2328	-0.03139	0.031387	0.000985	-0.03139	-0.13482	0.018177
0.375727	0.11154	0.11154	0.012441	0.11154	0.296864	0.088128
0.236332	-0.02786	0.027855	0.000776	-0.02786	-0.11786	0.013892
0.230075	-0.03411	0.034112	0.001164	-0.03411	-0.14826	0.021982
0.375727	0.11154	0.11154	0.012441	0.11154	0.296864	0.088128
0.460235	0.196048	0.196048	0.038435	0.196048	0.425974	0.181454
0.297629	0.033442	0.033442	0.001118	0.033442	0.112361	0.012625
0.190489	-0.0737	0.073698	0.005431	-0.0737	-0.38689	0.149681
0.205748	-0.05844	0.058439	0.003415	-0.05844	-0.28403	0.080672
0.208136	-0.05605	0.056051	0.003142	-0.05605	-0.2693	0.072522
0.261938	-0.00225	0.002249	5.06E-06	-0.00225	-0.00859	7.37E-05
0.208474	-0.05571	0.055713	0.003104	-0.05571	-0.26724	0.071419
0.253245	-0.01094	0.010942	0.00012	-0.01094	-0.04321	0.001867
0.208474	-0.05571	0.055713	0.003104	-0.05571	-0.26724	0.071419
0.255633	-0.00855	0.008554	7.32E-05	-0.00855	-0.03346	0.00112
0.197056	-0.06713	0.067131	0.004507	-0.06713	-0.34067	0.116058
0.255633	-0.00855	0.008554	7.32E-05	-0.00855	-0.03346	0.00112
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.264326	0.000139	0.000139	1.92E-08	0.000139	0.000524	2.75E-07
0.25902	-0.00517	0.005167	2.67E-05	-0.00517	-0.01995	0.000398
0.288122	0.023935	0.023935	0.000573	0.023935	0.083072	0.006901
0.205748	-0.05844	0.058439	0.003415	-0.05844	-0.28403	0.080672
0.2458	-0.01839	0.018387	0.000338	-0.01839	-0.07481	0.005596

0.21009	-0.0541	0.054097	0.002927	-0.0541	-0.2575	0.066304
0.400144	0.135957	0.135957	0.018484	0.135957	0.339771	0.115444
0.431048	0.166861	0.166861	0.027843	0.166861	0.387106	0.149851
0.28735	0.023163	0.023163	0.000537	0.023163	0.080609	0.006498
0.431048	0.166861	0.166861	0.027843	0.166861	0.387106	0.149851
0.199443	-0.06474	0.064744	0.004192	-0.06474	-0.32462	0.105379
0.120935	-0.14325	0.143252	0.020521	-0.14325	-1.18454	1.403145
0.288122	0.023935	0.023935	0.000573	0.023935	0.083072	0.006901
0.208136	-0.05605	0.056051	0.003142	-0.05605	-0.2693	0.072522
0.231678	-0.03251	0.032509	0.001057	-0.03251	-0.14032	0.019689
0.431048	0.166861	0.166861	0.027843	0.166861	0.387106	0.149851
0.199443	-0.06474	0.064744	0.004192	-0.06474	-0.32462	0.105379
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.32283	0.058643	0.058643	0.003439	0.058643	0.181653	0.032998
0.284678	0.020491	0.020491	0.00042	0.020491	0.071979	0.005181
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.202934	-0.06125	0.061253	0.003752	-0.06125	-0.30183	0.091104
0.345861	0.081674	0.081674	0.006671	0.081674	0.236147	0.055765
0.200209	-0.06398	0.063978	0.004093	-0.06398	-0.31955	0.102115
0.345861	0.081674	0.081674	0.006671	0.081674	0.236147	0.055765
0.236672	-0.02752	0.027515	0.000757	-0.02752	-0.11626	0.013516
0.236672	-0.02752	0.027515	0.000757	-0.02752	-0.11626	0.013516
0.379598	0.115411	0.115411	0.01332	0.115411	0.304036	0.092438
0.379598	0.115411	0.115411	0.01332	0.115411	0.304036	0.092438
0.233947	-0.03024	0.03024	0.000914	-0.03024	-0.12926	0.016709
0.233947	-0.03024	0.03024	0.000914	-0.03024	-0.12926	0.016709
0.236672	-0.02752	0.027515	0.000757	-0.02752	-0.11626	0.013516
0.236672	-0.02752	0.027515	0.000757	-0.02752	-0.11626	0.013516
0.343136	0.078949	0.078949	0.006233	0.078949	0.23008	0.052937
0.379598	0.115411	0.115411	0.01332	0.115411	0.304036	0.092438
0.435788	0.171601	0.171601	0.029447	0.171601	0.393771	0.155056
0.384241	0.120054	0.120054	0.014413	0.120054	0.312444	0.097621

0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.384241	0.120054	0.120054	0.014413	0.120054	0.312444	0.097621
0.351063	0.086876	0.086876	0.007547	0.086876	0.247465	0.061239
0.351063	0.086876	0.086876	0.007547	0.086876	0.247465	0.061239
0.40759	0.143403	0.143403	0.020564	0.143403	0.351831	0.123785
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.371339	0.107152	0.107152	0.011482	0.107152	0.288556	0.083265
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.264663	0.000476	0.000476	2.27E-07	0.000476	0.001799	3.23E-06
0.264663	0.000476	0.000476	2.27E-07	0.000476	0.001799	3.23E-06
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.428661	0.164474	0.164474	0.027052	0.164474	0.383692	0.147219
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.212076	-0.05211	0.052111	0.002716	-0.05211	-0.24572	0.060378
0.313932	0.049745	0.049745	0.002475	0.049745	0.158458	0.025109
0.155098	-0.10909	0.109089	0.0119	-0.10909	-0.70336	0.494712
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.40759	0.143403	0.143403	0.020564	0.143403	0.351831	0.123785
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.267051	0.002864	0.002864	8.2E-06	0.002864	0.010724	0.000115
0.409977	0.14579	0.14579	0.021255	0.14579	0.355606	0.126456
0.40759	0.143403	0.143403	0.020564	0.143403	0.351831	0.123785
0.210861	-0.05333	0.053326	0.002844	-0.05333	-0.25289	0.063955
0.314938	0.050751	0.050751	0.002576	0.050751	0.161145	0.025968
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.208136	-0.05605	0.056051	0.003142	-0.05605	-0.2693	0.072522
0.40759	0.143403	0.143403	0.020564	0.143403	0.351831	0.123785
0.317663	0.053476	0.053476	0.00286	0.053476	0.168342	0.028339
0.208474	-0.05571	0.055713	0.003104	-0.05571	-0.26724	0.071419
0.351063	0.086876	0.086876	0.007547	0.086876	0.247465	0.061239
0.210861	-0.05333	0.053326	0.002844	-0.05333	-0.25289	0.063955

0.267051	0.002864	0.002864	8.2E-06	0.002864	0.010724	0.000115
0.351063	0.086876	0.086876	0.007547	0.086876	0.247465	0.061239
0.351063	0.086876	0.086876	0.007547	0.086876	0.247465	0.061239
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.205748	-0.05844	0.058439	0.003415	-0.05844	-0.28403	0.080672
0.205748	-0.05844	0.058439	0.003415	-0.05844	-0.28403	0.080672
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.210861	-0.05333	0.053326	0.002844	-0.05333	-0.25289	0.063955
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.352207	0.08802	0.08802	0.007747	0.08802	0.249909	0.062455
0.208474	-0.05571	0.055713	0.003104	-0.05571	-0.26724	0.071419
0.397756	0.133569	0.133569	0.017841	0.133569	0.335807	0.112766
0.35732	0.093133	0.093133	0.008674	0.093133	0.260642	0.067934
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.219253	-0.04493	0.044934	0.002019	-0.04493	-0.20494	0.042001
0.411121	0.146934	0.146934	0.02159	0.146934	0.357399	0.127734
0.214393	-0.04979	0.049794	0.002479	-0.04979	-0.23226	0.053943
0.210861	-0.05333	0.053326	0.002844	-0.05333	-0.25289	0.063955
0.298901	0.034714	0.034714	0.001205	0.034714	0.116139	0.013488
0.35732	0.093133	0.093133	0.008674	0.093133	0.260642	0.067934
0.25483	-0.00936	0.009357	8.76E-05	-0.00936	-0.03672	0.001348
0.411121	0.146934	0.146934	0.02159	0.146934	0.357399	0.127734
0.258361	-0.00583	0.005826	3.39E-05	-0.00583	-0.02255	0.000508
0.401288	0.137101	0.137101	0.018797	0.137101	0.341652	0.116726
0.231678	-0.03251	0.032509	0.001057	-0.03251	-0.14032	0.019689
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.354932	0.090745	0.090745	0.008235	0.090745	0.255668	0.065366
0.205748	-0.05844	0.058439	0.003415	-0.05844	-0.28403	0.080672
0.205748	-0.05844	0.058439	0.003415	-0.05844	-0.28403	0.080672
0.201907	-0.06228	0.06228	0.003879	-0.06228	-0.30846	0.095146
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.208474	-0.05571	0.055713	0.003104	-0.05571	-0.26724	0.071419
0.205748	-0.05844	0.058439	0.003415	-0.05844	-0.28403	0.080672

0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.208474	-0.05571	0.055713	0.003104	-0.05571	-0.26724	0.071419
0.208474	-0.05571	0.055713	0.003104	-0.05571	-0.26724	0.071419
0.314938	0.050751	0.050751	0.002576	0.050751	0.161145	0.025968
0.373339	0.109152	0.109152	0.011914	0.109152	0.292367	0.085479
0.429529	0.165342	0.165342	0.027338	0.165342	0.384937	0.148177
0.230413	-0.03377	0.033774	0.001141	-0.03377	-0.14658	0.021486
0.360673	0.096486	0.096486	0.009309	0.096486	0.267516	0.071565
0.375727	0.11154	0.11154	0.012441	0.11154	0.296864	0.088128
0.236672	-0.02752	0.027515	0.000757	-0.02752	-0.11626	0.013516
0.2328	-0.03139	0.031387	0.000985	-0.03139	-0.13482	0.018177
0.261474	-0.00271	0.002713	7.36E-06	-0.00271	-0.01038	0.000108
0.280367	0.01618	0.01618	0.000262	0.01618	0.05771	0.00333
0.151566	-0.11262	0.112621	0.012683	-0.11262	-0.74305	0.552116
0.151566	-0.11262	0.112621	0.012683	-0.11262	-0.74305	0.552116
0.155098	-0.10909	0.109089	0.0119	-0.10909	-0.70336	0.494712
0.155098	-0.10909	0.109089	0.0119	-0.10909	-0.70336	0.494712
0.118547	-0.14564	0.14564	0.021211	-0.14564	-1.22854	1.509323
0.261474	-0.00271	0.002713	7.36E-06	-0.00271	-0.01038	0.000108
0.2328	-0.03139	0.031387	0.000985	-0.03139	-0.13482	0.018177
0.286524	0.022337	0.022337	0.000499	0.022337	0.077958	0.006077
0.286524	0.022337	0.022337	0.000499	0.022337	0.077958	0.006077
0.235605	-0.02858	0.028582	0.000817	-0.02858	-0.12131	0.014717
0.235605	-0.02858	0.028582	0.000817	-0.02858	-0.12131	0.014717
0.212076	-0.05211	0.052111	0.002716	-0.05211	-0.24572	0.060378
0.21558	-0.04861	0.048607	0.002363	-0.04861	-0.22547	0.050838
0.21558	-0.04861	0.048607	0.002363	-0.04861	-0.22547	0.050838
0.143597	-0.12059	0.12059	0.014542	-0.12059	-0.83978	0.705227
0.143597	-0.12059	0.12059	0.014542	-0.12059	-0.83978	0.705227
0.286524	0.022337	0.022337	0.000499	0.022337	0.077958	0.006077
0.230335	-0.03385	0.033852	0.001146	-0.03385	-0.14697	0.0216
0.230335	-0.03385	0.033852	0.001146	-0.03385	-0.14697	0.0216
0.21558	-0.04861	0.048607	0.002363	-0.04861	-0.22547	0.050838
0.235478	-0.02871	0.028709	0.000824	-0.02871	-0.12192	0.014864
0.21558	-0.04861	0.048607	0.002363	-0.04861	-0.22547	0.050838
0.21558	-0.04861	0.048607	0.002363	-0.04861	-0.22547	0.050838
0.308389	0.044202	0.044202	0.001954	0.044202	0.143331	0.020544
0.308389	0.044202	0.044202	0.001954	0.044202	0.143331	0.020544
0.212076	-0.05211	0.052111	0.002716	-0.05211	-0.24572	0.060378
0.21558	-0.04861	0.048607	0.002363	-0.04861	-0.22547	0.050838
0.311892	0.047705	0.047705	0.002276	0.047705	0.152955	0.023395
0.21558	-0.04861	0.048607	0.002363	-0.04861	-0.22547	0.050838
0.311892	0.047705	0.047705	0.002276	0.047705	0.152955	0.023395

0.235478	-0.02871	0.028709	0.000824	-0.02871	-0.12192	0.014864
0.286524	0.022337	0.022337	0.000499	0.022337	0.077958	0.006077
0.286524	0.022337	0.022337	0.000499	0.022337	0.077958	0.006077
0.282688	0.018501	0.018501	0.000342	0.018501	0.065447	0.004283
0.228827	-0.03536	0.03536	0.00125	-0.03536	-0.15453	0.023879
0.301481	0.037294	0.037294	0.001391	0.037294	0.123704	0.015303
0.382715	0.118528	0.118528	0.014049	0.118528	0.309704	0.095916
0.326526	0.062339	0.062339	0.003886	0.062339	0.190916	0.036449
0.204873	-0.05931	0.059314	0.003518	-0.05931	-0.28951	0.083818
0.231096	-0.03309	0.033091	0.001095	-0.03309	-0.14319	0.020504
0.330058	0.065871	0.065871	0.004339	0.065871	0.199573	0.039829
0.18161	-0.08258	0.082577	0.006819	-0.08258	-0.4547	0.20675
0.29537	0.031183	0.031183	0.000972	0.031183	0.105572	0.011145
0.409977	0.14579	0.14579	0.021255	0.14579	0.355606	0.126456
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.210861	-0.05333	0.053326	0.002844	-0.05333	-0.25289	0.063955
0.320051	0.055864	0.055864	0.003121	0.055864	0.174546	0.030466
0.208136	-0.05605	0.056051	0.003142	-0.05605	-0.2693	0.072522
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.210861	-0.05333	0.053326	0.002844	-0.05333	-0.25289	0.063955
0.133159	-0.13103	0.131028	0.017168	-0.13103	-0.984	0.968251
0.212005	-0.05218	0.052182	0.002723	-0.05218	-0.24613	0.060582
0.120935	-0.14325	0.143252	0.020521	-0.14325	-1.18454	1.403145
0.126902	-0.13728	0.137285	0.018847	-0.13728	-1.08181	1.170323
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.40759	0.143403	0.143403	0.020564	0.143403	0.351831	0.123785
0.40759	0.143403	0.143403	0.020564	0.143403	0.351831	0.123785
0.210861	-0.05333	0.053326	0.002844	-0.05333	-0.25289	0.063955
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.375727	0.11154	0.11154	0.012441	0.11154	0.296864	0.088128
0.297629	0.033442	0.033442	0.001118	0.033442	0.112361	0.012625
0.349955	0.085768	0.085768	0.007356	0.085768	0.245084	0.060066
0.3514	0.087213	0.087213	0.007606	0.087213	0.248188	0.061597
0.212815	-0.05137	0.051372	0.002639	-0.05137	-0.24139	0.058271
0.288928	0.024741	0.024741	0.000612	0.024741	0.08563	0.007333
0.320051	0.055864	0.055864	0.003121	0.055864	0.174546	0.030466
0.2458	-0.01839	0.018387	0.000338	-0.01839	-0.07481	0.005596
0.199443	-0.06474	0.064744	0.004192	-0.06474	-0.32462	0.105379
0.256446	-0.00774	0.007741	5.99E-05	-0.00774	-0.03019	0.000911
0.199443	-0.06474	0.064744	0.004192	-0.06474	-0.32462	0.105379
0.177124	-0.08706	0.087063	0.00758	-0.08706	-0.49154	0.241609
0.118209	-0.14598	0.145978	0.021309	-0.14598	-1.23491	1.524994

0.112776	-0.15141	0.151411	0.022925	-0.15141	-1.34257	1.802506
0.151566	-0.11262	0.112621	0.012683	-0.11262	-0.74305	0.552116
0.236672	-0.02752	0.027515	0.000757	-0.02752	-0.11626	0.013516
0.292861	0.028674	0.028674	0.000822	0.028674	0.09791	0.009586
0.2328	-0.03139	0.031387	0.000985	-0.03139	-0.13482	0.018177
0.236332	-0.02786	0.027855	0.000776	-0.02786	-0.11786	0.013892
0.236672	-0.02752	0.027515	0.000757	-0.02752	-0.11626	0.013516
0.236332	-0.02786	0.027855	0.000776	-0.02786	-0.11786	0.013892
0.236672	-0.02752	0.027515	0.000757	-0.02752	-0.11626	0.013516
0.232358	-0.03183	0.031829	0.001013	-0.03183	-0.13698	0.018764
0.379598	0.115411	0.115411	0.01332	0.115411	0.304036	0.092438
0.236672	-0.02752	0.027515	0.000757	-0.02752	-0.11626	0.013516
0.313932	0.049745	0.049745	0.002475	0.049745	0.158458	0.025109
0.155098	-0.10909	0.109089	0.0119	-0.10909	-0.70336	0.494712
0.310061	0.045874	0.045874	0.002104	0.045874	0.14795	0.021889
0.310061	0.045874	0.045874	0.002104	0.045874	0.14795	0.021889
0.228827	-0.03536	0.03536	0.00125	-0.03536	-0.15453	0.023879
0.452987	0.1888	0.1888	0.035646	0.1888	0.416789	0.173713
0.452987	0.1888	0.1888	0.035646	0.1888	0.416789	0.173713
0.452987	0.1888	0.1888	0.035646	0.1888	0.416789	0.173713
0.197923	-0.06626	0.066264	0.004391	-0.06626	-0.3348	0.112091
0.310061	0.045874	0.045874	0.002104	0.045874	0.14795	0.021889
0.232358	-0.03183	0.031829	0.001013	-0.03183	-0.13698	0.018764
0.452987	0.1888	0.1888	0.035646	0.1888	0.416789	0.173713
0.310061	0.045874	0.045874	0.002104	0.045874	0.14795	0.021889
0.197923	-0.06626	0.066264	0.004391	-0.06626	-0.3348	0.112091
0.197923	-0.06626	0.066264	0.004391	-0.06626	-0.3348	0.112091
0.310061	0.045874	0.045874	0.002104	0.045874	0.14795	0.021889
0.310061	0.045874	0.045874	0.002104	0.045874	0.14795	0.021889
0.281122	0.016935	0.016935	0.000287	0.016935	0.060242	0.003629
0.432863	0.168676	0.168676	0.028451	0.168676	0.389675	0.151846
0.422083	0.157896	0.157896	0.024931	0.157896	0.374088	0.139942
0.452987	0.1888	0.1888	0.035646	0.1888	0.416789	0.173713
0.339264	0.075077	0.075077	0.005637	0.075077	0.221294	0.048971
0.286264	0.022077	0.022077	0.000487	0.022077	0.077123	0.005948
0.382975	0.118788	0.118788	0.014111	0.118788	0.310172	0.096206
0.455847	0.19166	0.19166	0.036734	0.19166	0.420449	0.176777
0.375727	0.11154	0.11154	0.012441	0.11154	0.296864	0.088128
0.356989	0.092802	0.092802	0.008612	0.092802	0.259957	0.067578
0.217612	-0.04658	0.046575	0.002169	-0.04658	-0.21403	0.045808
0.260846	-0.00334	0.003341	1.12E-05	-0.00334	-0.01281	0.000164
0.270322	0.006135	0.006135	3.76E-05	0.006135	0.022694	0.000515
0.324681	0.060494	0.060494	0.003659	0.060494	0.186317	0.034714

0.210861	-0.05333	0.053326	0.002844	-0.05333	-0.25289	0.063955
0.437799	0.173612	0.173612	0.030141	0.173612	0.396556	0.157257
0.214887	-0.0493	0.0493	0.002431	-0.0493	-0.22942	0.052636
0.365682	0.101495	0.101495	0.010301	0.101495	0.277549	0.077033
0.437799	0.173612	0.173612	0.030141	0.173612	0.396556	0.157257
0.273801	0.009614	0.009614	9.24E-05	0.009614	0.035114	0.001233
0.217612	-0.04658	0.046575	0.002169	-0.04658	-0.21403	0.045808
0.360539	0.096352	0.096352	0.009284	0.096352	0.267243	0.071419
0.210861	-0.05333	0.053326	0.002844	-0.05333	-0.25289	0.063955
0.360539	0.096352	0.096352	0.009284	0.096352	0.267243	0.071419
0.274769	0.010582	0.010582	0.000112	0.010582	0.038511	0.001483
0.210861	-0.05333	0.053326	0.002844	-0.05333	-0.25289	0.063955
0.270612	0.006425	0.006425	4.13E-05	0.006425	0.023741	0.000564
0.367786	0.103599	0.103599	0.010733	0.103599	0.281684	0.079346
0.251617	-0.01257	0.01257	0.000158	-0.01257	-0.04996	0.002496
0.279156	0.014969	0.014969	0.000224	0.014969	0.053624	0.002876
0.118209	-0.14598	0.145978	0.021309	-0.14598	-1.23491	1.524994
0.353788	0.089601	0.089601	0.008028	0.089601	0.253262	0.064142
0.270612	0.006425	0.006425	4.13E-05	0.006425	0.023741	0.000564
0.200209	-0.06398	0.063978	0.004093	-0.06398	-0.31955	0.102115
0.219565	-0.04462	0.044622	0.001991	-0.04462	-0.20323	0.041301
0.414003	0.149816	0.149816	0.022445	0.149816	0.361871	0.130951
0.370906	0.106719	0.106719	0.011389	0.106719	0.287724	0.082785
0.379598	0.115411	0.115411	0.01332	0.115411	0.304036	0.092438
0.236672	-0.02752	0.027515	0.000757	-0.02752	-0.11626	0.013516
0.197436	-0.06675	0.066751	0.004456	-0.06675	-0.33809	0.114304
0.292861	0.028674	0.028674	0.000822	0.028674	0.09791	0.009586
0.375727	0.11154	0.11154	0.012441	0.11154	0.296864	0.088128
0.249744	-0.01444	0.014443	0.000209	-0.01444	-0.05783	0.003344
0.418645	0.154458	0.154458	0.023857	0.154458	0.368947	0.136122
0.263034	-0.00115	0.001153	1.33E-06	-0.00115	-0.00438	1.92E-05
0.275718	0.011531	0.011531	0.000133	0.011531	0.041823	0.001749
0.252514	-0.01167	0.011673	0.000136	-0.01167	-0.04623	0.002137
0.474834	0.210647	0.210647	0.044372	0.210647	0.443623	0.196801
0.243097	-0.02109	0.02109	0.000445	-0.02109	-0.08676	0.007527
0.292105	0.027918	0.027918	0.000779	0.027918	0.095576	0.009135
0.27383	0.009643	0.009643	9.3E-05	0.009643	0.035215	0.00124
0.419482	0.155295	0.155295	0.024116	0.155295	0.370206	0.137053
0.249016	-0.01517	0.015171	0.00023	-0.01517	-0.06092	0.003712
0.276555	0.012368	0.012368	0.000153	0.012368	0.044722	0.002
0.267153	0.002966	0.002966	8.8E-06	0.002966	0.011101	0.000123
0.386506	0.122319	0.122319	0.014962	0.122319	0.316474	0.100156
0.24358	-0.02061	0.020607	0.000425	-0.02061	-0.0846	0.007157

0.392392	0.128205	0.128205	0.016437	0.128205	0.326727	0.106751
0.283803	0.019616	0.019616	0.000385	0.019616	0.069119	0.004777
0.249016	-0.01517	0.015171	0.00023	-0.01517	-0.06092	0.003712
0.24358	-0.02061	0.020607	0.000425	-0.02061	-0.0846	0.007157
0.249016	-0.01517	0.015171	0.00023	-0.01517	-0.06092	0.003712
0.236332	-0.02786	0.027855	0.000776	-0.02786	-0.11786	0.013892
0.236332	-0.02786	0.027855	0.000776	-0.02786	-0.11786	0.013892
0.256891	-0.0073	0.007296	5.32E-05	-0.0073	-0.0284	0.000807
0.463284	0.199097	0.199097	0.039639	0.199097	0.429751	0.184686
0.323888	0.059701	0.059701	0.003564	0.059701	0.184327	0.033976
0.256891	-0.0073	0.007296	5.32E-05	-0.0073	-0.0284	0.000807
0.323888	0.059701	0.059701	0.003564	0.059701	0.184327	0.033976
0.247474	-0.01671	0.016713	0.000279	-0.01671	-0.06753	0.004561
0.329774	0.065587	0.065587	0.004302	0.065587	0.198885	0.039555
0.252514	-0.01167	0.011673	0.000136	-0.01167	-0.04623	0.002137
0.4506	0.186413	0.186413	0.03475	0.186413	0.413699	0.171147
0.256891	-0.0073	0.007296	5.32E-05	-0.0073	-0.0284	0.000807
0.323888	0.059701	0.059701	0.003564	0.059701	0.184327	0.033976
0.256891	-0.0073	0.007296	5.32E-05	-0.0073	-0.0284	0.000807
0.463284	0.199097	0.199097	0.039639	0.199097	0.429751	0.184686
0.334152	0.069965	0.069965	0.004895	0.069965	0.20938	0.04384
0.256891	-0.0073	0.007296	5.32E-05	-0.0073	-0.0284	0.000807
0.312213	0.048026	0.048026	0.002306	0.048026	0.153824	0.023662
0.301949	0.037762	0.037762	0.001426	0.037762	0.125062	0.015641
0.188668	-0.07552	0.075519	0.005703	-0.07552	-0.40028	0.160222
0.320357	0.05617	0.05617	0.003155	0.05617	0.175335	0.030742
0.323888	0.059701	0.059701	0.003564	0.059701	0.184327	0.033976
0.300806	0.036619	0.036619	0.001341	0.036619	0.121736	0.01482
0.320357	0.05617	0.05617	0.003155	0.05617	0.175335	0.030742
0.463284	0.199097	0.199097	0.039639	0.199097	0.429751	0.184686
0.312213	0.048026	0.048026	0.002306	0.048026	0.153824	0.023662
0.234953	-0.02923	0.029234	0.000855	-0.02923	-0.12443	0.015482
0.386023	0.121836	0.121836	0.014844	0.121836	0.315619	0.099615
0.276652	0.012465	0.012465	0.000155	0.012465	0.045057	0.00203
0.423892	0.159705	0.159705	0.025506	0.159705	0.376759	0.141947
0.346853	0.082666	0.082666	0.006834	0.082666	0.238331	0.056802
0.22281	-0.04138	0.041377	0.001712	-0.04138	-0.1857	0.034486
0.296513	0.032326	0.032326	0.001045	0.032326	0.109022	0.011886
0.296513	0.032326	0.032326	0.001045	0.032326	0.109022	0.011886
0.268194	0.004007	0.004007	1.61E-05	0.004007	0.014942	0.000223
0.275442	0.011255	0.011255	0.000127	0.011255	0.040863	0.00167
0.275442	0.011255	0.011255	0.000127	0.011255	0.040863	0.00167
0.174736	-0.08945	0.089451	0.008001	-0.08945	-0.51192	0.262061

0.275442	0.011255	0.011255	0.000127	0.011255	0.040863	0.00167
0.264663	0.000476	0.000476	2.27E-07	0.000476	0.001799	3.23E-06
0.268194	0.004007	0.004007	1.61E-05	0.004007	0.014942	0.000223
0.275442	0.011255	0.011255	0.000127	0.011255	0.040863	0.00167
0.275442	0.011255	0.011255	0.000127	0.011255	0.040863	0.00167
0.264663	0.000476	0.000476	2.27E-07	0.000476	0.001799	3.23E-06
0.264663	0.000476	0.000476	2.27E-07	0.000476	0.001799	3.23E-06
0.268194	0.004007	0.004007	1.61E-05	0.004007	0.014942	0.000223
0.275442	0.011255	0.011255	0.000127	0.011255	0.040863	0.00167
0.340295	0.076108	0.076108	0.005792	0.076108	0.223652	0.05002
0.340295	0.076108	0.076108	0.005792	0.076108	0.223652	0.05002
0.31709	0.052903	0.052903	0.002799	0.052903	0.166839	0.027835
0.340295	0.076108	0.076108	0.005792	0.076108	0.223652	0.05002
0.340295	0.076108	0.076108	0.005792	0.076108	0.223652	0.05002
0.340295	0.076108	0.076108	0.005792	0.076108	0.223652	0.05002
0.340295	0.076108	0.076108	0.005792	0.076108	0.223652	0.05002
0.340295	0.076108	0.076108	0.005792	0.076108	0.223652	0.05002
0.340295	0.076108	0.076108	0.005792	0.076108	0.223652	0.05002
0.31709	0.052903	0.052903	0.002799	0.052903	0.166839	0.027835
0.340295	0.076108	0.076108	0.005792	0.076108	0.223652	0.05002
0.31709	0.052903	0.052903	0.002799	0.052903	0.166839	0.027835
0.340295	0.076108	0.076108	0.005792	0.076108	0.223652	0.05002
0.340295	0.076108	0.076108	0.005792	0.076108	0.223652	0.05002
0.31709	0.052903	0.052903	0.002799	0.052903	0.166839	0.027835
0.472701	0.208514	0.208514	0.043478	0.208514	0.441112	0.194579
0.472701	0.208514	0.208514	0.043478	0.208514	0.441112	0.194579
0.472701	0.208514	0.208514	0.043478	0.208514	0.441112	0.194579
0.472701	0.208514	0.208514	0.043478	0.208514	0.441112	0.194579
0.472701	0.208514	0.208514	0.043478	0.208514	0.441112	0.194579
0.495905	0.231718	0.231718	0.053693	0.231718	0.467263	0.218335
0.472701	0.208514	0.208514	0.043478	0.208514	0.441112	0.194579
0.329774	0.065587	0.065587	0.004302	0.065587	0.198885	0.039555
0.256891	-0.0073	0.007296	5.32E-05	-0.0073	-0.0284	0.000807
0.329774	0.065587	0.065587	0.004302	0.065587	0.198885	0.039555
0.472701	0.208514	0.208514	0.043478	0.208514	0.441112	0.194579
0.334152	0.069965	0.069965	0.004895	0.069965	0.20938	0.04384
0.329774	0.065587	0.065587	0.004302	0.065587	0.198885	0.039555
0.334152	0.069965	0.069965	0.004895	0.069965	0.20938	0.04384
0.472701	0.208514	0.208514	0.043478	0.208514	0.441112	0.194579
0.063626	-0.20056	0.200561	0.040225	-0.20056	-3.15215	9.936077
0.191027	-0.07316	0.07316	0.005352	-0.07316	-0.38298	0.146677
0.071785	-0.1924	0.192402	0.037019	-0.1924	-2.68027	7.183831
0.171129	-0.09306	0.093058	0.00866	-0.09306	-0.54379	0.295708

0.141165	-0.12302	0.123022		0.015134	-0.12302	-0.87148	0.759477
0.112557	-0.15163	0.15163		0.022992	-0.15163	-1.34715	1.814803
0.098602	-0.16559	0.165585		0.027418	-0.16559	-1.67934	2.820168
0.095604	-0.16858	0.168583		0.02842	-0.16858	-1.76336	3.10944
0.249016	-0.01517	0.015171		0.00023	-0.01517	-0.06092	0.003712
0.071785	-0.1924	0.192402		0.037019	-0.1924	-2.68027	7.183831
0.16886	-0.09533	0.095327		0.009087	-0.09533	-0.56454	0.3187
0.095604	-0.16858	0.168583		0.02842	-0.16858	-1.76336	3.10944
0.088192	-0.17599	0.175995		0.030974	-0.17599	-1.99558	3.982339
0.091683	-0.1725	0.172504		0.029758	-0.1725	-1.88153	3.540171
0.101037	-0.16315	0.16315		0.026618	-0.16315	-1.61477	2.607468
0.210861	-0.05333	0.053326		0.002844	-0.05333	-0.25289	0.063955
0.091683	-0.1725	0.172504		0.029758	-0.1725	-1.88153	3.540171
0.100376	-0.16381	0.163811		0.026834	-0.16381	-1.63198	2.663372
0.227077	-0.03711	0.03711		0.001377	-0.03711	-0.16343	0.026708
0.092878	-0.17131	0.171309		0.029347	-0.17131	-1.84444	3.401965
0.188238	-0.07595	0.075949		0.005768	-0.07595	-0.40347	0.162789
0.232963	-0.03122	0.031224		0.000975	-0.03122	-0.13403	0.017964
0.095604	-0.16858	0.168583		0.02842	-0.16858	-1.76336	3.10944
0.194495	-0.06969	0.069692		0.004857	-0.06969	-0.35832	0.128396
0.165243	-0.09894	0.098944		0.00979	-0.09894	-0.59878	0.358536
0.207179	-0.05701	0.057008		0.00325	-0.05701	-0.27516	0.075715
0.101037	-0.16315	0.16315		0.026618	-0.16315	-1.61477	2.607468
0.214393	-0.04979	0.049794		0.002479	-0.04979	-0.23226	0.053943
0.092878	-0.17131	0.171309		0.029347	-0.17131	-1.84444	3.401965
0.207179	-0.05701	0.057008		0.00325	-0.05701	-0.27516	0.075715
0.380602	0.116415	0.116415		0.013552	0.116415	0.305871	0.093557
0.467265	0.203078	0.203078		0.041241	0.203078	0.43461	0.188886
0.243111	-0.02108	0.021076		0.000444	-0.02108	-0.08669	0.007515
0.467265	0.203078	0.203078		0.041241	0.203078	0.43461	0.188886
0.320372	0.056185	0.056185		0.003157	0.056185	0.175374	0.030756
0.472701	0.208514	0.208514		0.043478	0.208514	0.441112	0.194579
0.395441	0.131254	0.131254		0.017227	0.131254	0.331917	0.110169
0.467265	0.203078	0.203078		0.041241	0.203078	0.43461	0.188886
0.467265	0.203078	0.203078		0.041241	0.203078	0.43461	0.188886
0.334152	0.069965	0.069965		0.004895	0.069965	0.20938	0.04384
0.334152	0.069965	0.069965		0.004895	0.069965	0.20938	0.04384
0.329774	0.065587	0.065587		0.004302	0.065587	0.198885	0.039555
0.467265	0.203078	0.203078		0.041241	0.203078	0.43461	0.188886
0.467265	0.203078	0.203078		0.041241	0.203078	0.43461	0.188886
0.329774	0.065587	0.065587		0.004302	0.065587	0.198885	0.039555
0.264187		1281.726		147.4372			4704.831
	QMAD	**0.00952**	**QMSD**	**0.069795**		**QMPE**	**0.034944**

APPENDIX IV
Table of Assessment Criteria using Varying Reciprocal Mean

Poverty ratio per household		QUASI MAD	QUASI MSD	QUASI MPE		
0.327274	0.074176	0.074176	0.005502	0.074176	0.226649	0.05137
0.24556	-0.00754	0.007538	5.68E-05	-0.00754	-0.0307	0.000942
0.252252	-0.00085	0.000846	7.15E-07	-0.00085	-0.00335	1.12E-05
0.252252	-0.00085	0.000846	7.15E-07	-0.00085	-0.00335	1.12E-05
0.305446	0.052348	0.052348	0.00274	0.052348	0.171383	0.029372
0.163637	-0.08946	0.089461	0.008003	-0.08946	-0.5467	0.298881
0.387369	0.134271	0.134271	0.018029	0.134271	0.346623	0.120148
0.241485	-0.01161	0.011613	0.000135	-0.01161	-0.04809	0.002313
0.247573	-0.00552	0.005525	3.05E-05	-0.00552	-0.02232	0.000498
0.213791	-0.03931	0.039307	0.001545	-0.03931	-0.18386	0.033804
0.34014	0.087042	0.087042	0.007576	0.087042	0.255901	0.065485
0.24556	-0.00754	0.007538	5.68E-05	-0.00754	-0.0307	0.000942
0.346665	0.093567	0.093567	0.008755	0.093567	0.269906	0.072849
0.24556	-0.00754	0.007538	5.68E-05	-0.00754	-0.0307	0.000942
0.305446	0.052348	0.052348	0.00274	0.052348	0.171383	0.029372
0.320634	0.067536	0.067536	0.004561	0.067536	0.210632	0.044366
0.194609	-0.05849	0.058489	0.003421	-0.05849	-0.30054	0.090327
0.112686	-0.14041	0.140412	0.019715	-0.14041	-1.24604	1.552612
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.404369	0.151271	0.151271	0.022883	0.151271	0.374091	0.139944
0.24556	-0.00754	0.007538	5.68E-05	-0.00754	-0.0307	0.000942
0.112686	-0.14041	0.140412	0.019715	-0.14041	-1.24604	1.552612
0.112686	-0.14041	0.140412	0.019715	-0.14041	-1.24604	1.552612
0.112686	-0.14041	0.140412	0.019715	-0.14041	-1.24604	1.552612
0.194609	-0.05849	0.058489	0.003421	-0.05849	-0.30054	0.090327
0.423806	0.170708	0.170708	0.029141	0.170708	0.40279	0.162246
0.112686	-0.14041	0.140412	0.019715	-0.14041	-1.24604	1.552612
0.279997	0.02689	0.026899	0.000724	0.026899	0.09606	0.009229
0.194609	-0.05849	0.058489	0.003421	-0.05849	-0.30054	0.090327
0.112686	-0.14041	0.140412	0.019715	-0.14041	-1.24604	1.552612
0.256512	0.00341	0.003414	1.17E-05	0.003414	0.013311	0.000177
0.268936	0.015838	0.015838	0.000251	0.015838	0.058893	0.003468
0.268936	0.015838	0.015838	0.000251	0.015838	0.058893	0.003468
0.245936	-0.00716	0.007162	5.13E-05	-0.00716	-0.02912	0.000848

0.320799	0.067701	0.067701	0.004583	0.067701	0.21104	0.044538
0.220649	-0.03245	0.032449	0.001053	-0.03245	-0.14706	0.021627
0.256512	0.003414	0.003414	1.17E-05	0.003414	0.013311	0.000177
0.314107	0.061009	0.061009	0.003722	0.061009	0.194231	0.037726
0.256512	0.003414	0.003414	1.17E-05	0.003414	0.013311	0.000177
0.220649	-0.03245	0.032449	0.001053	-0.03245	-0.14706	0.021627
0.362458	0.10936	0.10936	0.01196	0.10936	0.301717	0.091033
0.391955	0.138857	0.138857	0.019281	0.138857	0.354268	0.125506
0.362458	0.10936	0.10936	0.01196	0.10936	0.301717	0.091033
0.271386	0.018288	0.018288	0.000334	0.018288	0.067387	0.004541
0.168223	-0.08487	0.084875	0.007204	-0.08487	-0.50454	0.254556
0.182422	-0.07068	0.070676	0.004995	-0.07068	-0.38743	0.150104
0.218632	-0.03447	0.034466	0.001188	-0.03447	-0.15765	0.024852
0.427468	0.17437	0.17437	0.030405	0.17437	0.407913	0.166393
0.360884	0.107786	0.107786	0.011618	0.107786	0.298672	0.089205
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.431238	0.17814	0.17814	0.031734	0.17814	0.41309	0.170643
0.42178	0.168682	0.168682	0.028454	0.168682	0.399929	0.159943
0.428391	0.175293	0.175293	0.030728	0.175293	0.409189	0.167436
0.37017	0.117072	0.117072	0.013706	0.117072	0.316265	0.100024
0.37017	0.117072	0.117072	0.013706	0.117072	0.316265	0.100024
0.457345	0.204247	0.204247	0.041717	0.204247	0.446593	0.199445
0.365304	0.112206	0.112206	0.01259	0.112206	0.307159	0.094347
0.42178	0.168682	0.168682	0.028454	0.168682	0.399929	0.159943
0.457345	0.204247	0.204247	0.041717	0.204247	0.446593	0.199445
0.239706	-0.01339	0.013392	0.000179	-0.01339	-0.05587	0.003121
0.413908	0.16081	0.16081	0.02586	0.16081	0.388516	0.150945
0.381515	0.128417	0.128417	0.016491	0.128417	0.336598	0.113298
0.365304	0.112206	0.112206	0.01259	0.112206	0.307159	0.094347
0.440015	0.186917	0.186917	0.034938	0.186917	0.424797	0.180452
0.462211	0.209113	0.209113	0.043728	0.209113	0.452419	0.204683
0.239706	-0.01339	0.013392	0.000179	-0.01339	-0.05587	0.003121
0.140453	-0.11264	0.112645	0.012689	-0.11264	-0.80201	0.643221
0.213436	-0.03966	0.039662	0.001573	-0.03966	-0.18582	0.03453
0.218302	-0.0348	0.034796	0.001211	-0.0348	-0.15939	0.025406
0.190176	-0.06292	0.062922	0.003959	-0.06292	-0.33086	0.10947
0.176562	-0.07654	0.076536	0.005858	-0.07654	-0.43348	0.187905
0.219529	-0.03357	0.033569	0.001127	-0.03357	-0.15291	0.023382
0.295359	0.042261	0.042261	0.001786	0.042261	0.143085	0.020473
0.187329	-0.06577	0.065769	0.004326	-0.06577	-0.35109	0.123262
0.295359	0.042261	0.042261	0.001786	0.042261	0.143085	0.020473
0.303243	0.050145	0.050145	0.002514	0.050145	0.165361	0.027344
0.264818	0.01172	0.01172	0.000137	0.01172	0.044258	0.001959

0.258485	0.005387	0.005387	2.9E-05	0.005387	0.02084	0.000434
0.418933	0.165835	0.165835	0.027501	0.165835	0.395851	0.156698
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.392987	0.139889	0.139889	0.019569	0.139889	0.355963	0.126709
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.396094	0.142996	0.142996	0.020448	0.142996	0.361015	0.130332
0.396094	0.142996	0.142996	0.020448	0.142996	0.361015	0.130332
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.392987	0.139889	0.139889	0.019569	0.139889	0.355963	0.126709
0.392987	0.139889	0.139889	0.019569	0.139889	0.355963	0.126709
0.277285	0.024187	0.024187	0.000585	0.024187	0.087228	0.007609
0.277285	0.024187	0.024187	0.000585	0.024187	0.087228	0.007609
0.392987	0.139889	0.139889	0.019569	0.139889	0.355963	0.126709
0.392987	0.139889	0.139889	0.019569	0.139889	0.355963	0.126709
0.277285	0.024187	0.024187	0.000585	0.024187	0.087228	0.007609
0.277285	0.024187	0.024187	0.000585	0.024187	0.087228	0.007609
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.396094	0.142996	0.142996	0.020448	0.142996	0.361015	0.130332
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.312243	0.059145	0.059145	0.003498	0.059145	0.189421	0.03588
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.201455	-0.05164	0.051643	0.002667	-0.05164	-0.25635	0.065716
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.201455	-0.05164	0.051643	0.002667	-0.05164	-0.25635	0.065716
0.396094	0.142996	0.142996	0.020448	0.142996	0.361015	0.130332
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996

0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.271355	0.018257	0.018257	0.000333	0.018257	0.06728	0.004527
0.421941	0.168843	0.168843	0.028508	0.168843	0.400157	0.160126
0.392987	0.139889	0.139889	0.019569	0.139889	0.355963	0.126709
0.421941	0.168843	0.168843	0.028508	0.168843	0.400157	0.160126
0.410317	0.157219	0.157219	0.024718	0.157219	0.383164	0.146815
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.304371	0.051273	0.051273	0.002629	0.051273	0.168457	0.028378
0.337171	0.084073	0.084073	0.007068	0.084073	0.249348	0.062174
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.410317	0.157219	0.157219	0.024718	0.157219	0.383164	0.146815
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.277285	0.024187	0.024187	0.000585	0.024187	0.087228	0.007609
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.392987	0.139889	0.139889	0.019569	0.139889	0.355963	0.126709
0.439271	0.186173	0.186173	0.03466	0.186173	0.423822	0.179625
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.345957	0.092859	0.092859	0.008623	0.092859	0.268412	0.072045
0.400858	0.14776	0.14776	0.021833	0.14776	0.36861	0.135873
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.409523	0.156425	0.156425	0.024469	0.156425	0.381969	0.1459
0.201301	-0.0518	0.051797	0.002683	-0.0518	-0.25731	0.066208
0.320799	0.067701	0.067701	0.004583	0.067701	0.21104	0.044538
0.400705	0.147607	0.147607	0.021788	0.147607	0.368368	0.135695
0.201301	-0.0518	0.051797	0.002683	-0.0518	-0.25731	0.066208
0.402722	0.149624	0.149624	0.022387	0.149624	0.371532	0.138036
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.301208	0.04811	0.04811	0.002315	0.04811	0.159723	0.025512
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.188974	-0.06412	0.064124	0.004112	-0.06412	-0.33933	0.115144
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.306445	0.053347	0.053347	0.002846	0.053347	0.174084	0.030305
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.303072	0.049974	0.049974	0.002497	0.049974	0.164891	0.027189

0.404369	0.151271	0.151271	0.022883	0.151271	0.374091	0.139944
0.295359	0.042261	0.042261	0.001786	0.042261	0.143085	0.020473
0.381515	0.128417	0.128417	0.016491	0.128417	0.336598	0.113298
0.437168	0.18407	0.18407	0.033882	0.18407	0.421051	0.177284
0.404369	0.151271	0.151271	0.022883	0.151271	0.374091	0.139944
0.411061	0.157963	0.157963	0.024952	0.157963	0.384281	0.147672
0.298361	0.045263	0.045263	0.002049	0.045263	0.151706	0.023015
0.298206	0.045108	0.045108	0.002035	0.045108	0.151265	0.022881
0.408166	0.155068	0.155068	0.024046	0.155068	0.379914	0.144334
0.411061	0.157963	0.157963	0.024952	0.157963	0.384281	0.147672
0.437168	0.18407	0.18407	0.033882	0.18407	0.421051	0.177284
0.417069	0.163971	0.163971	0.026887	0.163971	0.393151	0.154568
0.366204	0.113106	0.113106	0.012793	0.113106	0.30886	0.095394
0.137606	-0.11549	0.115492	0.013338	-0.11549	-0.83929	0.704409
0.227242	-0.02586	0.025856	0.000669	-0.02586	-0.11378	0.012947
0.227242	-0.02586	0.025856	0.000669	-0.02586	-0.11378	0.012947
0.361338	0.10824	0.10824	0.011716	0.10824	0.299553	0.089732
0.219529	-0.03357	0.033569	0.001127	-0.03357	-0.15291	0.023382
0.219529	-0.03357	0.033569	0.001127	-0.03357	-0.15291	0.023382
0.227242	-0.02586	0.025856	0.000669	-0.02586	-0.11378	0.012947
0.217512	-0.03559	0.035586	0.001266	-0.03559	-0.1636	0.026766
0.219529	-0.03357	0.033569	0.001127	-0.03357	-0.15291	0.023382
0.361338	0.10824	0.10824	0.011716	0.10824	0.299553	0.089732
0.222376	-0.03072	0.030722	0.000944	-0.03072	-0.13815	0.019086
0.217512	-0.03559	0.035586	0.001266	-0.03559	-0.1636	0.026766
0.361338	0.10824	0.10824	0.011716	0.10824	0.299553	0.089732
0.442034	0.188936	0.188936	0.035697	0.188936	0.427424	0.182691
0.300542	0.047444	0.047444	0.002251	0.047444	0.157862	0.02492
0.187965	-0.06513	0.065133	0.004242	-0.06513	-0.34651	0.120071
0.199438	-0.05366	0.05366	0.002879	-0.05366	-0.26906	0.072392
0.201301	-0.0518	0.051797	0.002683	-0.0518	-0.25731	0.066208
0.257032	0.003934	0.003934	1.55E-05	0.003934	0.015307	0.000234
0.201455	-0.05164	0.051643	0.002667	-0.05164	-0.25635	0.065716
0.25034	-0.00276	0.002758	7.6E-06	-0.00276	-0.01102	0.000121
0.201455	-0.05164	0.051643	0.002667	-0.05164	-0.25635	0.065716
0.252204	-0.00089	0.000894	7.99E-07	-0.00089	-0.00354	1.26E-05
0.192745	-0.06035	0.060353	0.003642	-0.06035	-0.31312	0.098044
0.252204	-0.00089	0.000894	7.99E-07	-0.00089	-0.00354	1.26E-05
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.258896	0.005798	0.005798	3.36E-05	0.005798	0.022396	0.000502
0.254867	0.001769	0.001769	3.13E-06	0.001769	0.006942	4.82E-05
0.279149	0.026051	0.026051	0.000679	0.026051	0.093322	0.008709
0.199438	-0.05366	0.05366	0.002879	-0.05366	-0.26906	0.072392

0.244332	-0.00877	0.008766	7.68E-05	-0.00877	-0.03588	0.001287
0.213791	-0.03931	0.039307	0.001545	-0.03931	-0.18386	0.033804
0.39485	0.141752	0.141752	0.020094	0.141752	0.359003	0.128883
0.420958	0.16786	0.16786	0.028177	0.16786	0.398757	0.159007
0.289621	0.036523	0.036523	0.001334	0.036523	0.126106	0.015903
0.420958	0.16786	0.16786	0.028177	0.16786	0.398757	0.159007
0.194609	-0.05849	0.058489	0.003421	-0.05849	-0.30054	0.090327
0.114704	-0.13839	0.138394	0.019153	-0.13839	-1.20654	1.455739
0.279149	0.026051	0.026051	0.000679	0.026051	0.093322	0.008709
0.201301	-0.0518	0.051797	0.002683	-0.0518	-0.25731	0.066208
0.218785	-0.03431	0.034313	0.001177	-0.03431	-0.15683	0.024597
0.420958	0.16786	0.16786	0.028177	0.16786	0.398757	0.159007
0.194609	-0.05849	0.058489	0.003421	-0.05849	-0.30054	0.090327
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.304716	0.051618	0.051618	0.002664	0.051618	0.169398	0.028696
0.273743	0.020645	0.020645	0.000426	0.020645	0.075419	0.005688
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.191609	-0.06149	0.061489	0.003781	-0.06149	-0.32091	0.102983
0.333418	0.08032	0.08032	0.006451	0.08032	0.240898	0.058032
0.189592	-0.06351	0.063506	0.004033	-0.06351	-0.33496	0.1122
0.333418	0.08032	0.08032	0.006451	0.08032	0.240898	0.058032
0.222629	-0.03047	0.030469	0.000928	-0.03047	-0.13686	0.01873
0.222629	-0.03047	0.030469	0.000928	-0.03047	-0.13686	0.01873
0.364438	0.11134	0.11134	0.012397	0.11134	0.305512	0.093337
0.364438	0.11134	0.11134	0.012397	0.11134	0.305512	0.093337
0.220612	-0.03249	0.032486	0.001055	-0.03249	-0.14725	0.021684
0.220612	-0.03249	0.032486	0.001055	-0.03249	-0.14725	0.021684
0.222629	-0.03047	0.030469	0.000928	-0.03047	-0.13686	0.01873
0.222629	-0.03047	0.030469	0.000928	-0.03047	-0.13686	0.01873
0.331401	0.078303	0.078303	0.006131	0.078303	0.236278	0.055827
0.364438	0.11134	0.11134	0.012397	0.11134	0.305512	0.093337
0.422033	0.168935	0.168935	0.028539	0.168935	0.400288	0.160231

0.367323	0.114225	0.114225	0.013047	0.114225	0.310966	0.0967
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.367323	0.114225	0.114225	0.013047	0.114225	0.310966	0.0967
0.34311	0.090012	0.090012	0.008102	0.090012	0.262342	0.068823
0.34311	0.090012	0.090012	0.008102	0.090012	0.262342	0.068823
0.400858	0.14776	0.14776	0.021833	0.14776	0.36861	0.135873
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.357948	0.10485	0.10485	0.010994	0.10485	0.29292	0.085802
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.25905	0.005952	0.005952	3.54E-05	0.005952	0.022975	0.000528
0.25905	0.005952	0.005952	3.54E-05	0.005952	0.022975	0.000528
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.419094	0.165996	0.165996	0.027555	0.165996	0.396083	0.156882
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.223772	-0.02933	0.029326	0.00086	-0.02933	-0.13106	0.017176
0.298459	0.045361	0.045361	0.002058	0.045361	0.151985	0.023099
0.140453	-0.11264	0.112645	0.012689	-0.11264	-0.80201	0.643221
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.400858	0.14776	0.14776	0.021833	0.14776	0.36861	0.135873
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.260913	0.007815	0.007815	6.11E-05	0.007815	0.029954	0.000897
0.402722	0.149624	0.149624	0.022387	0.149624	0.371532	0.138036
0.400858	0.14776	0.14776	0.021833	0.14776	0.36861	0.135873
0.203319	-0.04978	0.049779	0.002478	-0.04978	-0.24483	0.059944
0.310226	0.057128	0.057128	0.003264	0.057128	0.18415	0.033911
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.201301	-0.0518	0.051797	0.002683	-0.0518	-0.25731	0.066208
0.400858	0.14776	0.14776	0.021833	0.14776	0.36861	0.135873
0.312243	0.059145	0.059145	0.003498	0.059145	0.189421	0.03588
0.201455	-0.05164	0.051643	0.002667	-0.05164	-0.25635	0.065716
0.34311	0.090012	0.090012	0.008102	0.090012	0.262342	0.068823

0.203319	-0.04978	0.049779	0.002478	-0.04978	-0.24483	0.059944
0.260913	0.007815	0.007815	6.11E-05	0.007815	0.029954	0.000897
0.34311	0.090012	0.090012	0.008102	0.090012	0.262342	0.068823
0.34311	0.090012	0.090012	0.008102	0.090012	0.262342	0.068823
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.199438	-0.05366	0.05366	0.002879	-0.05366	-0.26906	0.072392
0.199438	-0.05366	0.05366	0.002879	-0.05366	-0.26906	0.072392
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.203319	-0.04978	0.049779	0.002478	-0.04978	-0.24483	0.059944
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.344093	0.090995	0.090995	0.00828	0.090995	0.26445	0.069934
0.201455	-0.05164	0.051643	0.002667	-0.05164	-0.25635	0.065716
0.392987	0.139889	0.139889	0.019569	0.139889	0.355963	0.126709
0.347974	0.094876	0.094876	0.009002	0.094876	0.272653	0.07434
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.209167	-0.04393	0.043931	0.00193	-0.04393	-0.21003	0.044112
0.403705	0.150607	0.150607	0.022683	0.150607	0.373063	0.139176
0.206165	-0.04693	0.046933	0.002203	-0.04693	-0.22765	0.051822
0.203319	-0.04978	0.049779	0.002478	-0.04978	-0.24483	0.059944
0.286861	0.033763	0.033763	0.00114	0.033763	0.117698	0.013853
0.347974	0.094876	0.094876	0.009002	0.094876	0.272653	0.07434
0.251178	-0.00192	0.00192	3.69E-06	-0.00192	-0.00765	5.84E-05
0.403705	0.150607	0.150607	0.022683	0.150607	0.373063	0.139176
0.254025	0.000927	0.000927	8.58E-07	0.000927	0.003647	1.33E-05
0.395833	0.142735	0.142735	0.020373	0.142735	0.360595	0.130028
0.218785	-0.03431	0.034313	0.001177	-0.03431	-0.15683	0.024597
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.34611	0.093012	0.093012	0.008651	0.093012	0.268736	0.072219
0.199438	-0.05366	0.05366	0.002879	-0.05366	-0.26906	0.072392
0.199438	-0.05366	0.05366	0.002879	-0.05366	-0.26906	0.072392
0.196675	-0.05642	0.056423	0.003184	-0.05642	-0.28689	0.082303
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.201455	-0.05164	0.051643	0.002667	-0.05164	-0.25635	0.065716

0.199438	-0.05366	0.05366	0.002879	-0.05366	-0.26906	0.072392
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.201455	-0.05164	0.051643	0.002667	-0.05164	-0.25635	0.065716
0.201455	-0.05164	0.051643	0.002667	-0.05164	-0.25635	0.065716
0.310226	0.057128	0.057128	0.003264	0.057128	0.18415	0.033911
0.359474	0.106376	0.106376	0.011316	0.106376	0.295922	0.08757
0.417069	0.163971	0.163971	0.026887	0.163971	0.393151	0.154568
0.217665	-0.03543	0.035433	0.001255	-0.03543	-0.16278	0.026499
0.346689	0.093591	0.093591	0.008759	0.093591	0.269957	0.072877
0.361338	0.10824	0.10824	0.011716	0.10824	0.299553	0.089732
0.222629	-0.03047	0.030469	0.000928	-0.03047	-0.13686	0.01873
0.219529	-0.03357	0.033569	0.001127	-0.03357	-0.15291	0.023382
0.254649	0.001551	0.001551	2.4E-06	0.001551	0.006089	3.71E-05
0.268648	0.01555	0.01555	0.000242	0.01555	0.057882	0.00335
0.137606	-0.11549	0.115492	0.013338	-0.11549	-0.83929	0.704409
0.137606	-0.11549	0.115492	0.013338	-0.11549	-0.83929	0.704409
0.140453	-0.11264	0.112645	0.012689	-0.11264	-0.80201	0.643221
0.140453	-0.11264	0.112645	0.012689	-0.11264	-0.80201	0.643221
0.11284	-0.14026	0.140258	0.019672	-0.14026	-1.24299	1.545016
0.254649	0.001551	0.001551	2.4E-06	0.001551	0.006089	3.71E-05
0.219529	-0.03357	0.033569	0.001127	-0.03357	-0.15291	0.023382
0.285015	0.031917	0.031917	0.001019	0.031917	0.111983	0.01254
0.285015	0.031917	0.031917	0.001019	0.031917	0.111983	0.01254
0.244357	-0.00874	0.008741	7.64E-05	-0.00874	-0.03577	0.00128
0.244357	-0.00874	0.008741	7.64E-05	-0.00874	-0.03577	0.00128
0.223772	-0.02933	0.029326	0.00086	-0.02933	-0.13106	0.017176
0.226221	-0.02688	0.026877	0.000722	-0.02688	-0.11881	0.014116
0.226221	-0.02688	0.026877	0.000722	-0.02688	-0.11881	0.014116
0.143206	-0.10989	0.109892	0.012076	-0.10989	-0.76737	0.588856
0.143206	-0.10989	0.109892	0.012076	-0.10989	-0.76737	0.588856
0.285015	0.031917	0.031917	0.001019	0.031917	0.111983	0.01254
0.22742	-0.02568	0.025678	0.000659	-0.02568	-0.11291	0.012749
0.22742	-0.02568	0.025678	0.000659	-0.02568	-0.11291	0.012749
0.226221	-0.02688	0.026877	0.000722	-0.02688	-0.11881	0.014116
0.244311	-0.00879	0.008787	7.72E-05	-0.00879	-0.03597	0.001294
0.226221	-0.02688	0.026877	0.000722	-0.02688	-0.11881	0.014116
0.226221	-0.02688	0.026877	0.000722	-0.02688	-0.11881	0.014116
0.305566	0.052468	0.052468	0.002753	0.052468	0.171707	0.029483
0.305566	0.052468	0.052468	0.002753	0.052468	0.171707	0.029483
0.223772	-0.02933	0.029326	0.00086	-0.02933	-0.13106	0.017176
0.226221	-0.02688	0.026877	0.000722	-0.02688	-0.11881	0.014116
0.308015	0.054917	0.054917	0.003016	0.054917	0.178293	0.031788
0.226221	-0.02688	0.026877	0.000722	-0.02688	-0.11881	0.014116

0.308015	0.054917	0.054917	0.003016	0.054917	0.178293	0.031788
0.244311	-0.00879	0.008787	7.72E-05	-0.00879	-0.03597	0.001294
0.285015	0.031917	0.031917	0.001019	0.031917	0.111983	0.01254
0.285015	0.031917	0.031917	0.001019	0.031917	0.111983	0.01254
0.272099	0.019001	0.019001	0.000361	0.019001	0.069831	0.004876
0.213436	-0.03966	0.039662	0.001573	-0.03966	-0.18582	0.03453
0.293105	0.040007	0.040007	0.001601	0.040007	0.136495	0.018631
0.375028	0.12193	0.12193	0.014867	0.12193	0.325123	0.105705
0.317433	0.064335	0.064335	0.004139	0.064335	0.202674	0.041077
0.199178	-0.05392	0.05392	0.002907	-0.05392	-0.27072	0.073287
0.226527	-0.02657	0.026571	0.000706	-0.02657	-0.1173	0.013758
0.32028	0.067182	0.067182	0.004513	0.067182	0.209761	0.044
0.17398	-0.07912	0.079118	0.00626	-0.07912	-0.45475	0.2068
0.284014	0.030916	0.030916	0.000956	0.030916	0.108855	0.011849
0.402722	0.149624	0.149624	0.022387	0.149624	0.371532	0.138036
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.203319	-0.04978	0.049779	0.002478	-0.04978	-0.24483	0.059944
0.314107	0.061009	0.061009	0.003722	0.061009	0.194231	0.037726
0.201301	-0.0518	0.051797	0.002683	-0.0518	-0.25731	0.066208
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.203319	-0.04978	0.049779	0.002478	-0.04978	-0.24483	0.059944
0.124243	-0.12886	0.128855	0.016604	-0.12886	-1.03713	1.075636
0.204302	-0.0488	0.048796	0.002381	-0.0488	-0.23884	0.057047
0.114704	-0.13839	0.138394	0.019153	-0.13839	-1.20654	1.455739
0.119379	-0.13372	0.133719	0.017881	-0.13372	-1.12013	1.254691
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.400858	0.14776	0.14776	0.021833	0.14776	0.36861	0.135873
0.400858	0.14776	0.14776	0.021833	0.14776	0.36861	0.135873
0.203319	-0.04978	0.049779	0.002478	-0.04978	-0.24483	0.059944
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.361338	0.10824	0.10824	0.011716	0.10824	0.299553	0.089732
0.300542	0.047444	0.047444	0.002251	0.047444	0.157862	0.02492
0.341437	0.088339	0.088339	0.007804	0.088339	0.258727	0.06694
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.215808	-0.03729	0.03729	0.001391	-0.03729	-0.17279	0.029857
0.279978	0.02688	0.02688	0.000723	0.02688	0.096009	0.009218
0.314107	0.061009	0.061009	0.003722	0.061009	0.194231	0.037726
0.244332	-0.00877	0.008766	7.68E-05	-0.00877	-0.03588	0.001287
0.194609	-0.05849	0.058489	0.003421	-0.05849	-0.30054	0.090327
0.263514	0.010416	0.010416	0.000108	0.010416	0.039527	0.001562
0.194609	-0.05849	0.058489	0.003421	-0.05849	-0.30054	0.090327
0.172298	-0.0808	0.0808	0.006529	-0.0808	-0.46895	0.219916

0.112686	-0.14041	0.140412	0.019715	-0.14041	-1.24604	1.552612
0.108611	-0.14449	0.144487	0.020876	-0.14449	-1.33031	1.769724
0.137606	-0.11549	0.115492	0.013338	-0.11549	-0.83929	0.704409
0.222629	-0.03047	0.030469	0.000928	-0.03047	-0.13686	0.01873
0.280224	0.027126	0.027126	0.000736	0.027126	0.096801	0.00937
0.219529	-0.03357	0.033569	0.001127	-0.03357	-0.15291	0.023382
0.222376	-0.03072	0.030722	0.000944	-0.03072	-0.13815	0.019086
0.222629	-0.03047	0.030469	0.000928	-0.03047	-0.13686	0.01873
0.222376	-0.03072	0.030722	0.000944	-0.03072	-0.13815	0.019086
0.222629	-0.03047	0.030469	0.000928	-0.03047	-0.13686	0.01873
0.216283	-0.03681	0.036815	0.001355	-0.03681	-0.17022	0.028973
0.364438	0.11134	0.11134	0.012397	0.11134	0.305512	0.093337
0.222629	-0.03047	0.030469	0.000928	-0.03047	-0.13686	0.01873
0.298459	0.045361	0.045361	0.002058	0.045361	0.151985	0.023099
0.140453	-0.11264	0.112645	0.012689	-0.11264	-0.80201	0.643221
0.295359	0.042261	0.042261	0.001786	0.042261	0.143085	0.020473
0.295359	0.042261	0.042261	0.001786	0.042261	0.143085	0.020473
0.213436	-0.03966	0.039662	0.001573	-0.03966	-0.18582	0.03453
0.437168	0.18407	0.18407	0.033882	0.18407	0.421051	0.177284
0.437168	0.18407	0.18407	0.033882	0.18407	0.421051	0.177284
0.437168	0.18407	0.18407	0.033882	0.18407	0.421051	0.177284
0.187329	-0.06577	0.065769	0.004326	-0.06577	-0.35109	0.123262
0.295359	0.042261	0.042261	0.001786	0.042261	0.143085	0.020473
0.216283	-0.03681	0.036815	0.001355	-0.03681	-0.17022	0.028973
0.437168	0.18407	0.18407	0.033882	0.18407	0.421051	0.177284
0.295359	0.042261	0.042261	0.001786	0.042261	0.143085	0.020473
0.187329	-0.06577	0.065769	0.004326	-0.06577	-0.35109	0.123262
0.187329	-0.06577	0.065769	0.004326	-0.06577	-0.35109	0.123262
0.295359	0.042261	0.042261	0.001786	0.042261	0.143085	0.020473
0.295359	0.042261	0.042261	0.001786	0.042261	0.143085	0.020473
0.282149	0.029051	0.029051	0.000844	0.029051	0.102962	0.010601
0.418773	0.165675	0.165675	0.027448	0.165675	0.395621	0.156516
0.411061	0.157963	0.157963	0.024952	0.157963	0.384281	0.147672
0.437168	0.18407	0.18407	0.033882	0.18407	0.421051	0.177284
0.328301	0.075203	0.075203	0.005655	0.075203	0.229066	0.052471
0.275107	0.022009	0.022009	0.000484	0.022009	0.080001	0.0064
0.366204	0.113106	0.113106	0.012793	0.113106	0.30886	0.095394
0.438644	0.185546	0.185546	0.034427	0.185546	0.422999	0.178928
0.361338	0.10824	0.10824	0.011716	0.10824	0.299553	0.089732
0.360178	0.10708	0.10708	0.011466	0.10708	0.297298	0.088386
0.208171	-0.04493	0.044927	0.002018	-0.04493	-0.21582	0.046577
0.267311	0.014213	0.014213	0.000202	0.014213	0.053169	0.002827
0.27418	0.021082	0.021082	0.000444	0.021082	0.076892	0.005912

0.320634	0.067536	0.067536	0.004561	0.067536	0.210632	0.044366
0.203319	-0.04978	0.049779	0.002478	-0.04978	-0.24483	0.059944
0.42581	0.172712	0.172712	0.029829	0.172712	0.405608	0.164518
0.206154	-0.04694	0.046944	0.002204	-0.04694	-0.22771	0.051854
0.36687	0.113772	0.113772	0.012944	0.113772	0.310116	0.096172
0.42581	0.172712	0.172712	0.029829	0.172712	0.405608	0.164518
0.265766	0.012668	0.012668	0.00016	0.012668	0.047665	0.002272
0.208171	-0.04493	0.044927	0.002018	-0.04493	-0.21582	0.046577
0.34998	0.096882	0.096882	0.009386	0.096882	0.276821	0.07663
0.203319	-0.04978	0.049779	0.002478	-0.04978	-0.24483	0.059944
0.34998	0.096882	0.096882	0.009386	0.096882	0.276821	0.07663
0.265862	0.012764	0.012764	0.000163	0.012764	0.048011	0.002305
0.203319	-0.04978	0.049779	0.002478	-0.04978	-0.24483	0.059944
0.261365	0.008267	0.008267	6.83E-05	0.008267	0.031629	0.001
0.354845	0.101747	0.101747	0.010353	0.101747	0.286737	0.082218
0.23347	-0.01963	0.019628	0.000385	-0.01963	-0.08407	0.007068
0.269252	0.016154	0.016154	0.000261	0.016154	0.059996	0.0036
0.112686	-0.14041	0.140412	0.019715	-0.14041	-1.24604	1.552612
0.345127	0.092029	0.092029	0.008469	0.092029	0.266654	0.071104
0.261365	0.008267	0.008267	6.83E-05	0.008267	0.031629	0.001
0.189592	-0.06351	0.063506	0.004033	-0.06351	-0.33496	0.1122
0.22066	-0.03244	0.032438	0.001052	-0.03244	-0.147	0.02161
0.405557	0.152459	0.152459	0.023244	0.152459	0.375926	0.14132
0.357746	0.104648	0.104648	0.010951	0.104648	0.29252	0.085568
0.364438	0.11134	0.11134	0.012397	0.11134	0.305512	0.093337
0.222629	-0.03047	0.030469	0.000928	-0.03047	-0.13686	0.01873
0.187845	-0.06525	0.065253	0.004258	-0.06525	-0.34738	0.120672
0.280224	0.027126	0.027126	0.000736	0.027126	0.096801	0.00937
0.361338	0.10824	0.10824	0.011716	0.10824	0.299553	0.089732
0.201301	-0.0518	0.051797	0.002683	-0.0518	-0.25731	0.066208
0.27418	0.021082	0.021082	0.000444	0.021082	0.076892	0.005912
0.277716	0.024618	0.024618	0.000606	0.024618	0.088645	0.007858
0.279733	0.026635	0.026635	0.000709	0.026635	0.095217	0.009066
0.227631	-0.02547	0.025467	0.000649	-0.02547	-0.11188	0.012516
0.210301	-0.0428	0.042797	0.001832	-0.0428	-0.2035	0.041413
0.210301	-0.0428	0.042797	0.001832	-0.0428	-0.2035	0.041413
0.226639	-0.02646	0.026459	0.0007	-0.02646	-0.11675	0.01363
0.210301	-0.0428	0.042797	0.001832	-0.0428	-0.2035	0.041413
0.227631	-0.02547	0.025467	0.000649	-0.02547	-0.11188	0.012516
0.210301	-0.0428	0.042797	0.001832	-0.0428	-0.2035	0.041413
0.210301	-0.0428	0.042797	0.001832	-0.0428	-0.2035	0.041413
0.365459	0.112361	0.112361	0.012625	0.112361	0.307452	0.094527
0.425901	0.172803	0.172803	0.029861	0.172803	0.405735	0.164621

0.311315	0.058217	0.058217	0.003389	0.058217	0.187004	0.034971
0.343264	0.090166	0.090166	0.00813	0.090166	0.262672	0.068996
0.259032	0.005934	0.005934	3.52E-05	0.005934	0.022907	0.000525
0.310196	0.057098	0.057098	0.00326	0.057098	0.18407	0.033882
0.226512	-0.02659	0.026586	0.000707	-0.02659	-0.11737	0.013776
0.234366	-0.01873	0.018732	0.000351	-0.01873	-0.07993	0.006389
0.234366	-0.01873	0.018732	0.000351	-0.01873	-0.07993	0.006389
0.30531	0.052212	0.052212	0.002726	0.052212	0.171012	0.029245
0.447119	0.194021	0.194021	0.037644	0.194021	0.433935	0.1883
0.251696	-0.0014	0.001402	1.97E-06	-0.0014	-0.00557	3.1E-05
0.234366	-0.01873	0.018732	0.000351	-0.01873	-0.07993	0.006389
0.23196	-0.02114	0.021138	0.000447	-0.02114	-0.09113	0.008304
0.393505	0.140407	0.140407	0.019714	0.140407	0.35681	0.127314
0.242849	-0.01025	0.010249	0.000105	-0.01025	-0.0422	0.001781
0.251696	-0.0014	0.001402	1.97E-06	-0.0014	-0.00557	3.1E-05
0.234366	-0.01873	0.018732	0.000351	-0.01873	-0.07993	0.006389
0.451099	0.198001	0.198001	0.039205	0.198001	0.438931	0.19266
0.226512	-0.02659	0.026586	0.000707	-0.02659	-0.11737	0.013776
0.277551	0.024453	0.024453	0.000598	0.024453	0.088104	0.007762
0.265628	0.01253	0.01253	0.000157	0.01253	0.047171	0.002225
0.409454	0.156356	0.156356	0.024447	0.156356	0.381865	0.145821
0.231222	-0.02188	0.021876	0.000479	-0.02188	-0.09461	0.008951
0.267645	0.014547	0.014547	0.000212	0.014547	0.054353	0.002954
0.260505	0.007407	0.007407	5.49E-05	0.007407	0.028432	0.000808
0.36905	0.115952	0.115952	0.013445	0.115952	0.314191	0.098716
0.227242	-0.02586	0.025856	0.000669	-0.02586	-0.11378	0.012947
0.374057	0.120959	0.120959	0.014631	0.120959	0.323371	0.104569
0.272511	0.019413	0.019413	0.000377	0.019413	0.071237	0.005075
0.231222	-0.02188	0.021876	0.000479	-0.02188	-0.09461	0.008951
0.227242	-0.02586	0.025856	0.000669	-0.02586	-0.11378	0.012947
0.231222	-0.02188	0.021876	0.000479	-0.02188	-0.09461	0.008951
0.222376	-0.03072	0.030722	0.000944	-0.03072	-0.13815	0.019086
0.222376	-0.03072	0.030722	0.000944	-0.03072	-0.13815	0.019086
0.237874	-0.01522	0.015224	0.000232	-0.01522	-0.064	0.004096
0.444151	0.191053	0.191053	0.036501	0.191053	0.430153	0.185032
0.305189	0.052091	0.052091	0.002713	0.052091	0.170684	0.029133
0.237874	-0.01522	0.015224	0.000232	-0.01522	-0.064	0.004096
0.305189	0.052091	0.052091	0.002713	0.052091	0.170684	0.029133
0.23002	-0.02308	0.023078	0.000533	-0.02308	-0.10033	0.010066
0.310196	0.057098	0.057098	0.00326	0.057098	0.18407	0.033882
0.234366	-0.01873	0.018732	0.000351	-0.01873	-0.07993	0.006389
0.435304	0.182206	0.182206	0.033199	0.182206	0.418572	0.175203
0.237874	-0.01522	0.015224	0.000232	-0.01522	-0.064	0.004096

0.305189	0.052091	0.052091	0.002713	0.052091	0.170684	0.029133
0.237874	-0.01522	0.015224	0.000232	-0.01522	-0.064	0.004096
0.444151	0.191053	0.191053	0.036501	0.191053	0.430153	0.185032
0.313704	0.060606	0.060606	0.003673	0.060606	0.193195	0.037324
0.237874	-0.01522	0.015224	0.000232	-0.01522	-0.064	0.004096
0.297493	0.044395	0.044395	0.001971	0.044395	0.149232	0.02227
0.288978	0.03588	0.03588	0.001287	0.03588	0.124162	0.015416
0.179965	-0.07313	0.073133	0.005348	-0.07313	-0.40637	0.16514
0.302342	0.049244	0.049244	0.002425	0.049244	0.162875	0.026528
0.305189	0.052091	0.052091	0.002713	0.052091	0.170684	0.029133
0.287995	0.034897	0.034897	0.001218	0.034897	0.121173	0.014683
0.302342	0.049244	0.049244	0.002425	0.049244	0.162875	0.026528
0.444151	0.191053	0.191053	0.036501	0.191053	0.430153	0.185032
0.297493	0.044395	0.044395	0.001971	0.044395	0.149232	0.02227
0.221663	-0.03143	0.031435	0.000988	-0.03143	-0.14181	0.020111
0.368321	0.115223	0.115223	0.013276	0.115223	0.312832	0.097864
0.26674	0.013642	0.013642	0.000186	0.013642	0.051144	0.002616
0.41143	0.158332	0.158332	0.025069	0.158332	0.384833	0.148096
0.333225	0.080127	0.080127	0.00642	0.080127	0.24046	0.057821
0.211792	-0.04131	0.041306	0.001706	-0.04131	-0.19503	0.038036
0.284997	0.031899	0.031899	0.001018	0.031899	0.111928	0.012528
0.284997	0.031899	0.031899	0.001018	0.031899	0.111928	0.012528
0.261896	0.008798	0.008798	7.74E-05	0.008798	0.033595	0.001129
0.266762	0.013664	0.013664	0.000187	0.013664	0.051222	0.002624
0.266762	0.013664	0.013664	0.000187	0.013664	0.051222	0.002624
0.170435	-0.08266	0.082663	0.006833	-0.08266	-0.48502	0.23524
0.266762	0.013664	0.013664	0.000187	0.013664	0.051222	0.002624
0.25905	0.005952	0.005952	3.54E-05	0.005952	0.022975	0.000528
0.261896	0.008798	0.008798	7.74E-05	0.008798	0.033595	0.001129
0.266762	0.013664	0.013664	0.000187	0.013664	0.051222	0.002624
0.266762	0.013664	0.013664	0.000187	0.013664	0.051222	0.002624
0.25905	0.005952	0.005952	3.54E-05	0.005952	0.022975	0.000528
0.25905	0.005952	0.005952	3.54E-05	0.005952	0.022975	0.000528
0.261896	0.008798	0.008798	7.74E-05	0.008798	0.033595	0.001129
0.266762	0.013664	0.013664	0.000187	0.013664	0.051222	0.002624
0.31868	0.065582	0.065582	0.004301	0.065582	0.205791	0.04235
0.31868	0.065582	0.065582	0.004301	0.065582	0.205791	0.04235
0.301349	0.048251	0.048251	0.002328	0.048251	0.160118	0.025638
0.31868	0.065582	0.065582	0.004301	0.065582	0.205791	0.04235
0.31868	0.065582	0.065582	0.004301	0.065582	0.205791	0.04235
0.31868	0.065582	0.065582	0.004301	0.065582	0.205791	0.04235
0.31868	0.065582	0.065582	0.004301	0.065582	0.205791	0.04235
0.31868	0.065582	0.065582	0.004301	0.065582	0.205791	0.04235

0.31868	0.065582	0.065582	0.004301	0.065582	0.205791	0.04235
0.301349	0.048251	0.048251	0.002328	0.048251	0.160118	0.025638
0.31868	0.065582	0.065582	0.004301	0.065582	0.205791	0.04235
0.301349	0.048251	0.048251	0.002328	0.048251	0.160118	0.025638
0.31868	0.065582	0.065582	0.004301	0.065582	0.205791	0.04235
0.31868	0.065582	0.065582	0.004301	0.065582	0.205791	0.04235
0.301349	0.048251	0.048251	0.002328	0.048251	0.160118	0.025638
0.452005	0.198907	0.198907	0.039564	0.198907	0.440054	0.193648
0.452005	0.198907	0.198907	0.039564	0.198907	0.440054	0.193648
0.452005	0.198907	0.198907	0.039564	0.198907	0.440054	0.193648
0.452005	0.198907	0.198907	0.039564	0.198907	0.440054	0.193648
0.452005	0.198907	0.198907	0.039564	0.198907	0.440054	0.193648
0.469335	0.216237	0.216237	0.046758	0.216237	0.46073	0.212272
0.452005	0.198907	0.198907	0.039564	0.198907	0.440054	0.193648
0.310196	0.057098	0.057098	0.00326	0.057098	0.18407	0.033882
0.237874	-0.01522	0.015224	0.000232	-0.01522	-0.064	0.004096
0.310196	0.057098	0.057098	0.00326	0.057098	0.18407	0.033882
0.452005	0.198907	0.198907	0.039564	0.198907	0.440054	0.193648
0.313704	0.060606	0.060606	0.003673	0.060606	0.193195	0.037324
0.310196	0.057098	0.057098	0.00326	0.057098	0.18407	0.033882
0.313704	0.060606	0.060606	0.003673	0.060606	0.193195	0.037324
0.452005	0.198907	0.198907	0.039564	0.198907	0.440054	0.193648
0.061183	-0.19191	0.191915	0.036831	-0.19191	-3.13673	9.839068
0.181834	-0.07126	0.071264	0.005079	-0.07126	-0.39192	0.1536
0.067275	-0.18582	0.185823	0.03453	-0.18582	-2.76212	7.629308
0.163744	-0.08935	0.089354	0.007984	-0.08935	-0.54569	0.297779
0.140264	-0.11283	0.112834	0.012731	-0.11283	-0.80443	0.647116
0.115506	-0.13759	0.137592	0.018932	-0.13759	-1.19121	1.418989
0.090875	-0.16222	0.162223	0.026316	-0.16222	-1.78513	3.186672
0.092539	-0.16056	0.160559	0.025779	-0.16056	-1.73505	3.010384
0.231222	-0.02188	0.021876	0.000479	-0.02188	-0.09461	0.008951
0.067275	-0.18582	0.185823	0.03453	-0.18582	-2.76212	7.629308
0.168676	-0.08442	0.084422	0.007127	-0.08442	-0.5005	0.250496
0.092539	-0.16056	0.160559	0.025779	-0.16056	-1.73505	3.010384
0.082126	-0.17097	0.170972	0.029231	-0.17097	-2.08181	4.333941
0.085365	-0.16773	0.167733	0.028134	-0.16773	-1.96489	3.860801
0.096614	-0.15648	0.156484	0.024487	-0.15648	-1.61968	2.623378
0.203319	-0.04978	0.049779	0.002478	-0.04978	-0.24483	0.059944
0.085365	-0.16773	0.167733	0.028134	-0.16773	-1.96489	3.860801
0.092057	-0.16104	0.161041	0.025934	-0.16104	-1.74936	3.060252
0.215012	-0.03809	0.038086	0.001451	-0.03809	-0.17714	0.031377
0.090522	-0.16258	0.162576	0.026431	-0.16258	-1.79599	3.225591
0.183212	-0.06989	0.069886	0.004884	-0.06989	-0.38145	0.145504

0.220019	-0.03308	0.033079		0.001094	-0.03308	-0.15035	0.022604
0.092539	-0.16056	0.160559		0.025779	-0.16056	-1.73505	3.010384
0.188076	-0.06502	0.065022		0.004228	-0.06502	-0.34572	0.119525
0.158737	-0.09436	0.094361		0.008904	-0.09436	-0.59445	0.353366
0.196922	-0.05618	0.056176		0.003156	-0.05618	-0.28527	0.081379
0.096614	-0.15648	0.156484		0.024487	-0.15648	-1.61968	2.623378
0.206165	-0.04693	0.046933		0.002203	-0.04693	-0.22765	0.051822
0.090522	-0.16258	0.162576		0.026431	-0.16258	-1.79599	3.225591
0.196922	-0.05618	0.056176		0.003156	-0.05618	-0.28527	0.081379
0.365053	0.111955	0.111955		0.012534	0.111955	0.30668	0.094053
0.448024	0.194926	0.194926		0.037996	0.194926	0.43507	0.189294
0.227225	-0.02587	0.025873		0.000669	-0.02587	-0.11387	0.012965
0.448024	0.194926	0.194926		0.037996	0.194926	0.43507	0.189294
0.303055	0.049957	0.049957		0.002496	0.049957	0.164845	0.027174
0.452005	0.198907	0.198907		0.039564	0.198907	0.440054	0.193648
0.376174	0.123076	0.123076		0.015148	0.123076	0.327179	0.107046
0.448024	0.194926	0.194926		0.037996	0.194926	0.435079	0.189294
0.448024	0.194926	0.194926		0.037996	0.194926	0.435079	0.189294
0.313704	0.060606	0.060606		0.003673	0.060606	0.193195	0.037324
0.313704	0.060606	0.060606		0.003673	0.060606	0.193195	0.037324
0.310196	0.057098	0.057098		0.00326	0.057098	0.18407	0.033882
0.448024	0.194926	0.194926		0.037996	0.194926	0.435079	0.189294
0.448024	0.194926	0.194926		0.037996	0.194926	0.435079	0.189294
0.310196	0.057098	0.057098		0.00326	0.057098	0.18407	0.033882
0.253098		1253.571		140.5372			5048.995
	QMAD	**0.009311**	**QMSD**	**0.064059**		**QMPE**	**0.0375**

APPENDIX V

Assessment Criteria Using Varying Geometric Mean Approach

Poverty ratio per household		QUASI MAD	QUASI MSD	QUASI MPE		
0.338432	0.071882	0.071882	0.005167	0.071882	0.212398	0.045113
0.253712	-0.01284	0.012838	0.000165	-0.01284	-0.0506	0.002561
0.261436	-0.00511	0.005114	2.62E-05	-0.00511	-0.01956	0.000383
0.261436	-0.00511	0.005114	2.62E-05	-0.00511	-0.01956	0.000383
0.311523	0.044973	0.044973	0.002023	0.044973	0.144366	0.020841
0.172085	-0.09446	0.094465	0.008924	-0.09446	-0.54894	0.301339
0.39315	0.1266	0.1266	0.016028	0.1266	0.322014	0.103693
0.248891	-0.01766	0.017659	0.000312	-0.01766	-0.07095	0.005034
0.249162	-0.01739	0.017388	0.000302	-0.01739	-0.06979	0.00487
0.222825	-0.04373	0.043725	0.001912	-0.04373	-0.19623	0.038507
0.343986	0.077436	0.077436	0.005996	0.077436	0.225113	0.050676
0.253712	-0.01284	0.012838	0.000165	-0.01284	-0.0506	0.002561
0.353513	0.086963	0.086963	0.007563	0.086963	0.245996	0.060514
0.253712	-0.01284	0.012838	0.000165	-0.01284	-0.0506	0.002561
0.311523	0.044973	0.044973	0.002023	0.044973	0.144366	0.020841
0.334574	0.068024	0.068024	0.004627	0.068024	0.203315	0.041337
0.20465	-0.0619	0.0619	0.003832	-0.0619	-0.30247	0.091487
0.123023	-0.14353	0.143527	0.0206	-0.14353	-1.16666	1.361097
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.414457	0.147907	0.147907	0.021877	0.147907	0.35687	0.127356
0.253712	-0.01284	0.012838	0.000165	-0.01284	-0.0506	0.002561
0.123023	-0.14353	0.143527	0.0206	-0.14353	-1.16666	1.361097
0.123023	-0.14353	0.143527	0.0206	-0.14353	-1.16666	1.361097
0.123023	-0.14353	0.143527	0.0206	-0.14353	-1.16666	1.361097
0.20465	-0.0619	0.0619	0.003832	-0.0619	-0.30247	0.091487
0.434441	0.167891	0.167891	0.028188	0.167891	0.386453	0.149346
0.123023	-0.14353	0.143527	0.0206	-0.14353	-1.16666	1.361097
0.28254	0.01599	0.01599	0.000256	0.01599	0.056595	0.003203
0.20465	-0.0619	0.0619	0.003832	-0.0619	-0.30247	0.091487
0.123023	-0.14353	0.143527	0.0206	-0.14353	-1.16666	1.361097
0.266241	-0.00031	0.000309	9.55E-08	-0.00031	-0.00116	1.35E-06
0.275019	0.008469	0.008469	7.17E-05	0.008469	0.030795	0.000948

0.275019	0.008469	0.008469	7.17E-05	0.008469	0.030795	0.000948
0.250743	-0.01581	0.015807	0.00025	-0.01581	-0.06304	0.003974
0.330867	0.064317	0.064317	0.004137	0.064317	0.194389	0.037787
0.236481	-0.03007	0.030069	0.000904	-0.03007	-0.12715	0.016168
0.266241	-0.00031	0.000309	9.55E-08	-0.00031	-0.00116	1.35E-06
0.323142	0.056592	0.056592	0.003203	0.056592	0.175131	0.030671
0.266241	-0.00031	0.000309	9.55E-08	-0.00031	-0.00116	1.35E-06
0.236481	-0.03007	0.030069	0.000904	-0.03007	-0.12715	0.016168
0.375919	0.109369	0.109369	0.011962	0.109369	0.290938	0.084645
0.399949	0.133399	0.133399	0.017795	0.133399	0.333539	0.111249
0.375919	0.109369	0.109369	0.011962	0.109369	0.290938	0.084645
0.279726	0.013176	0.013176	0.000174	0.013176	0.047103	0.002219
0.178884	-0.08767	0.087666	0.007685	-0.08767	-0.49007	0.240172
0.193701	-0.07285	0.072849	0.005307	-0.07285	-0.37609	0.141443
0.232702	-0.03385	0.033848	0.001146	-0.03385	-0.14546	0.021158
0.440035	0.173485	0.173485	0.030097	0.173485	0.394253	0.155436
0.381312	0.114762	0.114762	0.01317	0.114762	0.300967	0.090581
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.4457	0.17915	0.17915	0.032095	0.17915	0.401952	0.161565
0.434304	0.167754	0.167754	0.028141	0.167754	0.386259	0.149196
0.442509	0.175959	0.175959	0.030961	0.175959	0.397639	0.158117
0.385156	0.118606	0.118606	0.014067	0.118606	0.307942	0.094828
0.385156	0.118606	0.118606	0.014067	0.118606	0.307942	0.094828
0.474312	0.207762	0.207762	0.043165	0.207762	0.438028	0.191869
0.37911	0.11256	0.11256	0.01267	0.11256	0.296906	0.088153
0.434304	0.167754	0.167754	0.028141	0.167754	0.386259	0.149196
0.474312	0.207762	0.207762	0.043165	0.207762	0.438028	0.191869
0.258291	-0.00826	0.008259	6.82E-05	-0.00826	-0.03198	0.001022
0.425373	0.158823	0.158823	0.025225	0.158823	0.373373	0.139407
0.397729	0.131179	0.131179	0.017208	0.131179	0.32982	0.108782
0.37911	0.11256	0.11256	0.01267	0.11256	0.296906	0.088153
0.453985	0.187435	0.187435	0.035132	0.187435	0.412866	0.170459
0.480358	0.213808	0.213808	0.045714	0.213808	0.445101	0.198115
0.258291	-0.00826	0.008259	6.82E-05	-0.00826	-0.03198	0.001022
0.156337	-0.11021	0.110213	0.012147	-0.11021	-0.70497	0.496979
0.229729	-0.03682	0.036821	0.001356	-0.03682	-0.16028	0.025689
0.235775	-0.03078	0.030775	0.000947	-0.03078	-0.13053	0.017038
0.204308	-0.06224	0.062242	0.003874	-0.06224	-0.30465	0.092811
0.188572	-0.07798	0.077978	0.006081	-0.07798	-0.41352	0.170997
0.234773	-0.03178	0.031777	0.00101	-0.03178	-0.13535	0.01832
0.311356	0.044806	0.044806	0.002008	0.044806	0.143906	0.020709
0.201117	-0.06543	0.065433	0.004282	-0.06543	-0.32535	0.105852
0.311356	0.044806	0.044806	0.002008	0.044806	0.143906	0.020709

0.312665	0.046115	0.046115	0.002127	0.046115	0.14749	0.021753
0.280779	0.014229	0.014229	0.000202	0.014229	0.050676	0.002568
0.270199	0.003649	0.003649	1.33E-05	0.003649	0.013504	0.000182
0.431113	0.164563	0.164563	0.027081	0.164563	0.381716	0.145707
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.40144	0.13489	0.13489	0.018195	0.13489	0.336015	0.112906
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.405776	0.139226	0.139226	0.019384	0.139226	0.343111	0.117725
0.405776	0.139226	0.139226	0.019384	0.139226	0.343111	0.117725
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.40144	0.13489	0.13489	0.018195	0.13489	0.336015	0.112906
0.40144	0.13489	0.13489	0.018195	0.13489	0.336015	0.112906
0.290614	0.024064	0.024064	0.000579	0.024064	0.082805	0.006857
0.290614	0.024064	0.024064	0.000579	0.024064	0.082805	0.006857
0.40144	0.13489	0.13489	0.018195	0.13489	0.336015	0.112906
0.40144	0.13489	0.13489	0.018195	0.13489	0.336015	0.112906
0.290614	0.024064	0.024064	0.000579	0.024064	0.082805	0.006857
0.290614	0.024064	0.024064	0.000579	0.024064	0.082805	0.006857
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.405776	0.139226	0.139226	0.019384	0.139226	0.343111	0.117725
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.32102	0.05447	0.05447	0.002967	0.05447	0.169677	0.02879
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.214031	-0.05252	0.052519	0.002758	-0.05252	-0.24538	0.060211
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.214031	-0.05252	0.052519	0.002758	-0.05252	-0.24538	0.060211

0.405776	0.139226	0.139226	0.019384	0.139226	0.343111	0.117725
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.28552	0.01897	0.01897	0.00036	0.01897	0.066439	0.004414
0.433243	0.166693	0.166693	0.027787	0.166693	0.384757	0.148038
0.40144	0.13489	0.13489	0.018195	0.13489	0.336015	0.112906
0.433243	0.166693	0.166693	0.027787	0.166693	0.384757	0.148038
0.421767	0.155217	0.155217	0.024092	0.155217	0.368016	0.135436
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.312089	0.045539	0.045539	0.002074	0.045539	0.145916	0.021291
0.348426	0.081876	0.081876	0.006704	0.081876	0.234988	0.055219
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.421767	0.155217	0.155217	0.024092	0.155217	0.368016	0.135436
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.290614	0.024064	0.024064	0.000579	0.024064	0.082805	0.006857
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.40144	0.13489	0.13489	0.018195	0.13489	0.336015	0.112906
0.45357	0.18702	0.18702	0.034977	0.18702	0.412329	0.170016
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.355004	0.088454	0.088454	0.007824	0.088454	0.249163	0.062082
0.410371	0.143821	0.143821	0.020684	0.143821	0.350465	0.122826
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.420013	0.153463	0.153463	0.023551	0.153463	0.365377	0.133501
0.212375	-0.05418	0.054175	0.002935	-0.05418	-0.25509	0.065073
0.330867	0.064317	0.064317	0.004137	0.064317	0.194389	0.037787
0.408714	0.142164	0.142164	0.020211	0.142164	0.347833	0.120988
0.212375	-0.05418	0.054175	0.002935	-0.05418	-0.25509	0.065073
0.412493	0.145943	0.145943	0.0213	0.145943	0.353808	0.12518
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.31847	0.05192	0.05192	0.002696	0.05192	0.163029	0.026578
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.202932	-0.06362	0.063618	0.004047	-0.06362	-0.3135	0.09828
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.325558	0.059008	0.059008	0.003482	0.059008	0.181252	0.032852
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016

0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.320592	0.054042	0.054042	0.002921	0.054042	0.16857	0.028416
0.414457	0.147907	0.147907	0.021877	0.147907	0.35687	0.127356
0.311356	0.044806	0.044806	0.002008	0.044806	0.143906	0.020709
0.397729	0.131179	0.131179	0.017208	0.131179	0.32982	0.108782
0.450794	0.184244	0.184244	0.033946	0.184244	0.40871	0.167044
0.414457	0.147907	0.147907	0.021877	0.147907	0.35687	0.127356
0.422182	0.155632	0.155632	0.024221	0.155632	0.368637	0.135893
0.315279	0.048729	0.048729	0.002374	0.048729	0.154558	0.023888
0.314547	0.047997	0.047997	0.002304	0.047997	0.152591	0.023284
0.418568	0.152018	0.152018	0.023109	0.152018	0.363186	0.131904
0.422182	0.155632	0.155632	0.024221	0.155632	0.368637	0.135893
0.450794	0.184244	0.184244	0.033946	0.184244	0.40871	0.167044
0.42899	0.16244	0.16244	0.026387	0.16244	0.378657	0.143381
0.380257	0.113707	0.113707	0.012929	0.113707	0.299026	0.089417
0.153146	-0.1134	0.113404	0.01286	-0.1134	-0.74049	0.548328
0.244009	-0.02254	0.022541	0.000508	-0.02254	-0.09238	0.008533
0.244009	-0.02254	0.022541	0.000508	-0.02254	-0.09238	0.008533
0.374211	0.107661	0.107661	0.011591	0.107661	0.287702	0.082772
0.234773	-0.03178	0.031777	0.00101	-0.03178	-0.13535	0.01832
0.234773	-0.03178	0.031777	0.00101	-0.03178	-0.13535	0.01832
0.244009	-0.02254	0.022541	0.000508	-0.02254	-0.09238	0.008533
0.230994	-0.03556	0.035556	0.001264	-0.03556	-0.15393	0.023694
0.234773	-0.03178	0.031777	0.00101	-0.03178	-0.13535	0.01832
0.374211	0.107661	0.107661	0.011591	0.107661	0.287702	0.082772
0.237964	-0.02859	0.028586	0.000817	-0.02859	-0.12013	0.014431
0.230994	-0.03556	0.035556	0.001264	-0.03556	-0.15393	0.023694
0.374211	0.107661	0.107661	0.011591	0.107661	0.287702	0.082772
0.45684	0.19029	0.19029	0.03621	0.19029	0.416535	0.173501
0.310053	0.043503	0.043503	0.001893	0.043503	0.140308	0.019686
0.19681	-0.06974	0.06974	0.004864	-0.06974	-0.35435	0.125564
0.210252	-0.0563	0.056298	0.003169	-0.0563	-0.26776	0.071698
0.212375	-0.05418	0.054175	0.002935	-0.05418	-0.25509	0.065073
0.267153	0.000603	0.000603	3.64E-07	0.000603	0.002258	5.1E-06
0.214031	-0.05252	0.052519	0.002758	-0.05252	-0.24538	0.060211
0.259429	-0.00712	0.007121	5.07E-05	-0.00712	-0.02745	0.000754
0.214031	-0.05252	0.052519	0.002758	-0.05252	-0.24538	0.060211
0.261551	-0.005	0.004999	2.5E-05	-0.005	-0.01911	0.000365
0.202527	-0.06402	0.064023	0.004099	-0.06402	-0.31612	0.099931
0.261551	-0.005	0.004999	2.5E-05	-0.005	-0.01911	0.000365
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.269276	0.002726	0.002726	7.43E-06	0.002726	0.010123	0.000102
0.264607	-0.00194	0.001943	3.77E-06	-0.00194	-0.00734	5.39E-05

0.292737	0.026187	0.026187	0.000686	0.026187	0.089455	0.008002
0.210252	-0.0563	0.056298	0.003169	-0.0563	-0.26776	0.071698
0.252621	-0.01393	0.013929	0.000194	-0.01393	-0.05514	0.00304
0.222825	-0.04373	0.043725	0.001912	-0.04373	-0.19623	0.038507
0.403563	0.137013	0.137013	0.018772	0.137013	0.339508	0.115265
0.432175	0.165625	0.165625	0.027432	0.165625	0.383236	0.14687
0.299408	0.032858	0.032858	0.00108	0.032858	0.109742	0.012043
0.432175	0.165625	0.165625	0.027432	0.165625	0.383236	0.14687
0.20465	-0.0619	0.0619	0.003832	-0.0619	-0.30247	0.091487
0.126803	-0.13975	0.139747	0.019529	-0.13975	-1.10209	1.214592
0.292737	0.026187	0.026187	0.000686	0.026187	0.089455	0.008002
0.212375	-0.05418	0.054175	0.002935	-0.05418	-0.25509	0.065073
0.234358	-0.03219	0.032192	0.001036	-0.03219	-0.13736	0.018868
0.432175	0.165625	0.165625	0.027432	0.165625	0.383236	0.14687
0.20465	-0.0619	0.0619	0.003832	-0.0619	-0.30247	0.091487
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.322407	0.055857	0.055857	0.00312	0.055857	0.173251	0.030016
0.287749	0.021199	0.021199	0.000449	0.021199	0.073673	0.005428
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.205784	-0.06077	0.060766	0.003693	-0.06077	-0.29529	0.087198
0.345222	0.078672	0.078672	0.006189	0.078672	0.227888	0.051933
0.202004	-0.06455	0.064546	0.004166	-0.06455	-0.31953	0.102097
0.345222	0.078672	0.078672	0.006189	0.078672	0.227888	0.051933
0.238233	-0.02832	0.028317	0.000802	-0.02832	-0.11886	0.014128
0.238233	-0.02832	0.028317	0.000802	-0.02832	-0.11886	0.014128
0.377672	0.111122	0.111122	0.012348	0.111122	0.294228	0.08657
0.377672	0.111122	0.111122	0.012348	0.111122	0.294228	0.08657
0.234454	-0.0321	0.032096	0.00103	-0.0321	-0.1369	0.01874
0.234454	-0.0321	0.032096	0.00103	-0.0321	-0.1369	0.01874
0.238233	-0.02832	0.028317	0.000802	-0.02832	-0.11886	0.014128
0.238233	-0.02832	0.028317	0.000802	-0.02832	-0.11886	0.014128
0.341443	0.074893	0.074893	0.005609	0.074893	0.219342	0.048111

0.377672	0.111122	0.111122	0.012348	0.111122	0.294228	0.08657
0.434573	0.168023	0.168023	0.028232	0.168023	0.386639	0.14949
0.381965	0.115415	0.115415	0.013321	0.115415	0.30216	0.091301
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.381965	0.115415	0.115415	0.013321	0.115415	0.30216	0.091301
0.351813	0.085263	0.085263	0.00727	0.085263	0.242353	0.058735
0.351813	0.085263	0.085263	0.00727	0.085263	0.242353	0.058735
0.410371	0.143821	0.143821	0.020684	0.143821	0.350465	0.122826
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.370351	0.103801	0.103801	0.010775	0.103801	0.280278	0.078556
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.270932	0.004382	0.004382	1.92E-05	0.004382	0.016176	0.000262
0.270932	0.004382	0.004382	1.92E-05	0.004382	0.016176	0.000262
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.430052	0.163502	0.163502	0.026733	0.163502	0.380192	0.144546
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.226908	-0.03964	0.039642	0.001571	-0.03964	-0.1747	0.030522
0.314817	0.048267	0.048267	0.00233	0.048267	0.153316	0.023506
0.156337	-0.11021	0.110213	0.012147	-0.11021	-0.70497	0.496979
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.410371	0.143821	0.143821	0.020684	0.143821	0.350465	0.122826
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.273055	0.006505	0.006505	4.23E-05	0.006505	0.023824	0.000568
0.412493	0.145943	0.145943	0.0213	0.145943	0.353808	0.12518
0.410371	0.143821	0.143821	0.020684	0.143821	0.350465	0.122826
0.216154	-0.0504	0.050396	0.00254	-0.0504	-0.23315	0.054359
0.31724	0.05069	0.05069	0.00257	0.05069	0.159785	0.025531
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.212375	-0.05418	0.054175	0.002935	-0.05418	-0.25509	0.065073
0.410371	0.143821	0.143821	0.020684	0.143821	0.350465	0.122826
0.32102	0.05447	0.05447	0.002967	0.05447	0.169677	0.02879

0.214031	-0.05252	0.052519	0.002758	-0.05252	-0.24538	0.060211
0.351813	0.085263	0.085263	0.00727	0.085263	0.242353	0.058735
0.216154	-0.0504	0.050396	0.00254	-0.0504	-0.23315	0.054359
0.273055	0.006505	0.006505	4.23E-05	0.006505	0.023824	0.000568
0.351813	0.085263	0.085263	0.00727	0.085263	0.242353	0.058735
0.351813	0.085263	0.085263	0.00727	0.085263	0.242353	0.058735
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.210252	-0.0563	0.056298	0.003169	-0.0563	-0.26776	0.071698
0.210252	-0.0563	0.056298	0.003169	-0.0563	-0.26776	0.071698
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.216154	-0.0504	0.050396	0.00254	-0.0504	-0.23315	0.054359
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.352881	0.086331	0.086331	0.007453	0.086331	0.244647	0.059852
0.214031	-0.05252	0.052519	0.002758	-0.05252	-0.24538	0.060211
0.40144	0.13489	0.13489	0.018195	0.13489	0.336015	0.112906
0.358783	0.092233	0.092233	0.008507	0.092233	0.257072	0.066086
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.223268	-0.04328	0.043282	0.001873	-0.04328	-0.19386	0.037581
0.413562	0.147012	0.147012	0.021612	0.147012	0.355477	0.126364
0.219345	-0.04721	0.047205	0.002228	-0.04721	-0.21521	0.046315
0.216154	-0.0504	0.050396	0.00254	-0.0504	-0.23315	0.054359
0.301973	0.035423	0.035423	0.001255	0.035423	0.117306	0.013761
0.358783	0.092233	0.092233	0.008507	0.092233	0.257072	0.066086
0.262002	-0.00455	0.004548	2.07E-05	-0.00455	-0.01736	0.000301
0.413562	0.147012	0.147012	0.021612	0.147012	0.355477	0.126364
0.265193	-0.00136	0.001357	1.84E-06	-0.00136	-0.00512	2.62E-05
0.404631	0.138081	0.138081	0.019066	0.138081	0.341251	0.116453
0.234358	-0.03219	0.032192	0.001036	-0.03219	-0.13736	0.018868
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.35666	0.09011	0.09011	0.00812	0.09011	0.25265	0.063832
0.210252	-0.0563	0.056298	0.003169	-0.0563	-0.26776	0.071698
0.210252	-0.0563	0.056298	0.003169	-0.0563	-0.26776	0.071698
0.208314	-0.05824	0.058236	0.003391	-0.05824	-0.27956	0.078153
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469

0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.214031	-0.05252	0.052519	0.002758	-0.05252	-0.24538	0.060211
0.210252	-0.0563	0.056298	0.003169	-0.0563	-0.26776	0.071698
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.214031	-0.05252	0.052519	0.002758	-0.05252	-0.24538	0.060211
0.214031	-0.05252	0.052519	0.002758	-0.05252	-0.24538	0.060211
0.31724	0.05069	0.05069	0.00257	0.05069	0.159785	0.025531
0.372089	0.105539	0.105539	0.011138	0.105539	0.283638	0.080451
0.42899	0.16244	0.16244	0.026387	0.16244	0.378657	0.143381
0.23265	-0.0339	0.0339	0.001149	-0.0339	-0.14571	0.021232
0.35932	0.09277	0.09277	0.008606	0.09277	0.258183	0.066658
0.374211	0.107661	0.107661	0.011591	0.107661	0.287702	0.082772
0.238233	-0.02832	0.028317	0.000802	-0.02832	-0.11886	0.014128
0.234773	-0.03178	0.031777	0.00101	-0.03178	-0.13535	0.01832
0.264118	-0.00243	0.002432	5.91E-06	-0.00243	-0.00921	8.48E-05
0.28004	0.01349	0.01349	0.000182	0.01349	0.048171	0.00232
0.153146	-0.1134	0.113404	0.01286	-0.1134	-0.74049	0.548328
0.153146	-0.1134	0.113404	0.01286	-0.1134	-0.74049	0.548328
0.156337	-0.11021	0.110213	0.012147	-0.11021	-0.70497	0.496979
0.156337	-0.11021	0.110213	0.012147	-0.11021	-0.70497	0.496979
0.12468	-0.14187	0.14187	0.020127	-0.14187	-1.13787	1.294758
0.264118	-0.00243	0.002432	5.91E-06	-0.00243	-0.00921	8.48E-05
0.234773	-0.03178	0.031777	0.00101	-0.03178	-0.13535	0.01832
0.290266	0.023716	0.023716	0.000562	0.023716	0.081706	0.006676
0.290266	0.023716	0.023716	0.000562	0.023716	0.081706	0.006676
0.250781	-0.01577	0.015769	0.000249	-0.01577	-0.06288	0.003954
0.250781	-0.01577	0.015769	0.000249	-0.01577	-0.06288	0.003954
0.226908	-0.03964	0.039642	0.001571	-0.03964	-0.1747	0.030522
0.231615	-0.03494	0.034935	0.00122	-0.03494	-0.15083	0.022751
0.231615	-0.03494	0.034935	0.00122	-0.03494	-0.15083	0.022751
0.150828	-0.11572	0.115722	0.013392	-0.11572	-0.76724	0.588661
0.150828	-0.11572	0.115722	0.013392	-0.11572	-0.76724	0.588661
0.290266	0.023716	0.023716	0.000562	0.023716	0.081706	0.006676
0.233365	-0.03318	0.033185	0.001101	-0.03318	-0.1422	0.020221
0.233365	-0.03318	0.033185	0.001101	-0.03318	-0.1422	0.020221
0.231615	-0.03494	0.034935	0.00122	-0.03494	-0.15083	0.022751
0.250629	-0.01592	0.015921	0.000253	-0.01592	-0.06352	0.004035
0.231615	-0.03494	0.034935	0.00122	-0.03494	-0.15083	0.022751
0.231615	-0.03494	0.034935	0.00122	-0.03494	-0.15083	0.022751
0.309836	0.043286	0.043286	0.001874	0.043286	0.139707	0.019518
0.309836	0.043286	0.043286	0.001874	0.043286	0.139707	0.019518
0.226908	-0.03964	0.039642	0.001571	-0.03964	-0.1747	0.030522
0.231615	-0.03494	0.034935	0.00122	-0.03494	-0.15083	0.022751

0.314543	0.047993	0.047993	0.002303	0.047993	0.15258	0.023281
0.231615	-0.03494	0.034935	0.00122	-0.03494	-0.15083	0.022751
0.314543	0.047993	0.047993	0.002303	0.047993	0.15258	0.023281
0.250629	-0.01592	0.015921	0.000253	-0.01592	-0.06352	0.004035
0.290266	0.023716	0.023716	0.000562	0.023716	0.081706	0.006676
0.290266	0.023716	0.023716	0.000562	0.023716	0.081706	0.006676
0.285934	0.019384	0.019384	0.000376	0.019384	0.067793	0.004596
0.229729	-0.03682	0.036821	0.001356	-0.03682	-0.16028	0.025689
0.303141	0.036591	0.036591	0.001339	0.036591	0.120706	0.01457
0.384768	0.118218	0.118218	0.013975	0.118218	0.307244	0.094399
0.327866	0.061316	0.061316	0.00376	0.061316	0.187016	0.034975
0.210531	-0.05602	0.056019	0.003138	-0.05602	-0.26608	0.0708
0.237605	-0.02895	0.028945	0.000838	-0.02895	-0.12182	0.01484
0.331057	0.064507	0.064507	0.004161	0.064507	0.194852	0.037967
0.186613	-0.07994	0.079937	0.00639	-0.07994	-0.42836	0.183488
0.298782	0.032232	0.032232	0.001039	0.032232	0.107879	0.011638
0.412493	0.145943	0.145943	0.0213	0.145943	0.353808	0.12518
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.216154	-0.0504	0.050396	0.00254	-0.0504	-0.23315	0.054359
0.323142	0.056592	0.056592	0.003203	0.056592	0.175131	0.030671
0.212375	-0.05418	0.054175	0.002935	-0.05418	-0.25509	0.065073
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.216154	-0.0504	0.050396	0.00254	-0.0504	-0.23315	0.054359
0.137718	-0.12883	0.128832	0.016598	-0.12883	-0.93547	0.875111
0.217222	-0.04933	0.049328	0.002433	-0.04933	-0.22709	0.051568
0.126803	-0.13975	0.139747	0.019529	-0.13975	-1.10209	1.214592
0.130748	-0.1358	0.135802	0.018442	-0.1358	-1.03865	1.078802
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.410371	0.143821	0.143821	0.020684	0.143821	0.350465	0.122826
0.410371	0.143821	0.143821	0.020684	0.143821	0.350465	0.122826
0.216154	-0.0504	0.050396	0.00254	-0.0504	-0.23315	0.054359
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.374211	0.107661	0.107661	0.011591	0.107661	0.287702	0.082772
0.310053	0.043503	0.043503	0.001893	0.043503	0.140308	0.019686
0.35179	0.08524	0.08524	0.007266	0.08524	0.242304	0.058711
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.226604	-0.03995	0.039946	0.001596	-0.03995	-0.17628	0.031075
0.292149	0.025599	0.025599	0.000655	0.025599	0.087622	0.007678
0.323142	0.056592	0.056592	0.003203	0.056592	0.175131	0.030671
0.252621	-0.01393	0.013929	0.000194	-0.01393	-0.05514	0.00304
0.20465	-0.0619	0.0619	0.003832	-0.0619	-0.30247	0.091487
0.270795	0.004245	0.004245	1.8E-05	0.004245	0.015676	0.000246

0.20465	-0.0619	0.0619	0.003832	-0.0619	-0.30247	0.091487
0.183704	-0.08285	0.082846	0.006863	-0.08285	-0.45098	0.203379
0.123023	-0.14353	0.143527	0.0206	-0.14353	-1.16666	1.361097
0.118203	-0.14835	0.148347	0.022007	-0.14835	-1.25501	1.575062
0.153146	-0.1134	0.113404	0.01286	-0.1134	-0.74049	0.548328
0.238233	-0.02832	0.028317	0.000802	-0.02832	-0.11886	0.014128
0.295135	0.028585	0.028585	0.000817	0.028585	0.096854	0.009381
0.234773	-0.03178	0.031777	0.00101	-0.03178	-0.13535	0.01832
0.237964	-0.02859	0.028586	0.000817	-0.02859	-0.12013	0.014431
0.238233	-0.02832	0.028317	0.000802	-0.02832	-0.11886	0.014128
0.237964	-0.02859	0.028586	0.000817	-0.02859	-0.12013	0.014431
0.238233	-0.02832	0.028317	0.000802	-0.02832	-0.11886	0.014128
0.23292	-0.03363	0.03363	0.001131	-0.03363	-0.14438	0.020846
0.377672	0.111122	0.111122	0.012348	0.111122	0.294228	0.08657
0.238233	-0.02832	0.028317	0.000802	-0.02832	-0.11886	0.014128
0.314817	0.048267	0.048267	0.00233	0.048267	0.153316	0.023506
0.156337	-0.11021	0.110213	0.012147	-0.11021	-0.70497	0.496979
0.311356	0.044806	0.044806	0.002008	0.044806	0.143906	0.020709
0.311356	0.044806	0.044806	0.002008	0.044806	0.143906	0.020709
0.229729	-0.03682	0.036821	0.001356	-0.03682	-0.16028	0.025689
0.450794	0.184244	0.184244	0.033946	0.184244	0.40871	0.167044
0.450794	0.184244	0.184244	0.033946	0.184244	0.40871	0.167044
0.450794	0.184244	0.184244	0.033946	0.184244	0.40871	0.167044
0.201117	-0.06543	0.065433	0.004282	-0.06543	-0.32535	0.105852
0.311356	0.044806	0.044806	0.002008	0.044806	0.143906	0.020709
0.23292	-0.03363	0.03363	0.001131	-0.03363	-0.14438	0.020846
0.450794	0.184244	0.184244	0.033946	0.184244	0.40871	0.167044
0.311356	0.044806	0.044806	0.002008	0.044806	0.143906	0.020709
0.201117	-0.06543	0.065433	0.004282	-0.06543	-0.32535	0.105852
0.201117	-0.06543	0.065433	0.004282	-0.06543	-0.32535	0.105852
0.311356	0.044806	0.044806	0.002008	0.044806	0.143906	0.020709
0.311356	0.044806	0.044806	0.002008	0.044806	0.143906	0.020709
0.293444	0.026894	0.026894	0.000723	0.026894	0.09165	0.0084
0.431418	0.164868	0.164868	0.027181	0.164868	0.382154	0.146042
0.422182	0.155632	0.155632	0.024221	0.155632	0.368637	0.135893
0.450794	0.184244	0.184244	0.033946	0.184244	0.40871	0.167044
0.337982	0.071432	0.071432	0.005103	0.071432	0.211349	0.044668
0.287895	0.021345	0.021345	0.000456	0.021345	0.074142	0.005497
0.380257	0.113707	0.113707	0.012929	0.113707	0.299026	0.089417
0.45298	0.18643	0.18643	0.034756	0.18643	0.411563	0.169384
0.374211	0.107661	0.107661	0.011591	0.107661	0.287702	0.082772
0.370547	0.103997	0.103997	0.010815	0.103997	0.280658	0.078769
0.221569	-0.04498	0.044981	0.002023	-0.04498	-0.20301	0.041213

0.274906	0.008356	0.008356	6.98E-05	0.008356	0.030395	0.000924
0.2841	0.01755	0.01755	0.000308	0.01755	0.061775	0.003816
0.334574	0.068024	0.068024	0.004627	0.068024	0.203315	0.041337
0.216154	-0.0504	0.050396	0.00254	-0.0504	-0.23315	0.054359
0.43759	0.17104	0.17104	0.029255	0.17104	0.390869	0.152778
0.21779	-0.04876	0.04876	0.002378	-0.04876	-0.22389	0.050125
0.378272	0.111722	0.111722	0.012482	0.111722	0.295348	0.08723
0.43759	0.17104	0.17104	0.029255	0.17104	0.390869	0.152778
0.278471	0.011921	0.011921	0.000142	0.011921	0.042807	0.001832
0.221569	-0.04498	0.044981	0.002023	-0.04498	-0.20301	0.041213
0.361007	0.094457	0.094457	0.008922	0.094457	0.26165	0.068461
0.216154	-0.0504	0.050396	0.00254	-0.0504	-0.23315	0.054359
0.361007	0.094457	0.094457	0.008922	0.094457	0.26165	0.068461
0.278884	0.012334	0.012334	0.000152	0.012334	0.044225	0.001956
0.216154	-0.0504	0.050396	0.00254	-0.0504	-0.23315	0.054359
0.271656	0.005106	0.005106	2.61E-05	0.005106	0.018797	0.000353
0.367053	0.100503	0.100503	0.010101	0.100503	0.27381	0.074972
0.25124	-0.01531	0.01531	0.000234	-0.01531	-0.06094	0.003713
0.282743	0.016193	0.016193	0.000262	0.016193	0.057273	0.00328
0.123023	-0.14353	0.143527	0.0206	-0.14353	-1.16666	1.361097
0.355592	0.089042	0.089042	0.007929	0.089042	0.250405	0.062703
0.271656	0.005106	0.005106	2.61E-05	0.005106	0.018797	0.000353
0.202004	-0.06455	0.064546	0.004166	-0.06455	-0.31953	0.102097
0.232019	-0.03453	0.034531	0.001192	-0.03453	-0.14883	0.02215
0.41413	0.14758	0.14758	0.02178	0.14758	0.356361	0.126993
0.369947	0.103397	0.103397	0.010691	0.103397	0.279492	0.078116
0.377672	0.111122	0.111122	0.012348	0.111122	0.294228	0.08657
0.238233	-0.02832	0.028317	0.000802	-0.02832	-0.11886	0.014128
0.201163	-0.06539	0.065387	0.004275	-0.06539	-0.32505	0.105654
0.295135	0.028585	0.028585	0.000817	0.028585	0.096854	0.009381
0.374211	0.107661	0.107661	0.011591	0.107661	0.287702	0.082772
0.212375	-0.05418	0.054175	0.002935	-0.05418	-0.25509	0.065073
0.2841	0.01755	0.01755	0.000308	0.01755	0.061775	0.003816
0.289272	0.022722	0.022722	0.000516	0.022722	0.078549	0.00617
0.293051	0.026501	0.026501	0.000702	0.026501	0.090432	0.008178
0.216346	-0.0502	0.050204	0.00252	-0.0502	-0.23205	0.053848
0.207706	-0.05884	0.058844	0.003463	-0.05884	-0.28331	0.080262
0.323919	0.057369	0.057369	0.003291	0.057369	0.177109	0.031368
0.323919	0.057369	0.057369	0.003291	0.057369	0.177109	0.031368
0.323919	0.057369	0.057369	0.003291	0.057369	0.177109	0.031368
0.323919	0.057369	0.057369	0.003291	0.057369	0.177109	0.031368
0.463357	0.196807	0.196807	0.038733	0.196807	0.424742	0.180406
0.323919	0.057369	0.057369	0.003291	0.057369	0.177109	0.031368

0.323919	0.057369	0.057369	0.003291	0.057369	0.177109	0.031368
0.344246	0.077696	0.077696	0.006037	0.077696	0.225699	0.05094
0.323919	0.057369	0.057369	0.003291	0.057369	0.177109	0.031368
0.323919	0.057369	0.057369	0.003291	0.057369	0.177109	0.031368
0.323919	0.057369	0.057369	0.003291	0.057369	0.177109	0.031368
0.32707	0.06052	0.06052	0.003663	0.06052	0.185037	0.034239
0.295307	0.028757	0.028757	0.000827	0.028757	0.097379	0.009483
0.323919	0.057369	0.057369	0.003291	0.057369	0.177109	0.031368
0.386774	0.120224	0.120224	0.014454	0.120224	0.310838	0.096621
0.241291	-0.02526	0.025259	0.000638	-0.02526	-0.10468	0.010959
0.477639	0.211089	0.211089	0.044559	0.211089	0.441943	0.195313
0.261618	-0.00493	0.004932	2.43E-05	-0.00493	-0.01885	0.000355
0.272354	0.005804	0.005804	3.37E-05	0.005804	0.02131	0.000454
0.241291	-0.02526	0.025259	0.000638	-0.02526	-0.10468	0.010959
0.241291	-0.02526	0.025259	0.000638	-0.02526	-0.10468	0.010959
0.252977	-0.01357	0.013573	0.000184	-0.01357	-0.05365	0.002879
0.257838	-0.00871	0.008712	7.59E-05	-0.00871	-0.03379	0.001142
0.241291	-0.02526	0.025259	0.000638	-0.02526	-0.10468	0.010959
0.241291	-0.02526	0.025259	0.000638	-0.02526	-0.10468	0.010959
0.241291	-0.02526	0.025259	0.000638	-0.02526	-0.10468	0.010959
0.241291	-0.02526	0.025259	0.000638	-0.02526	-0.10468	0.010959
0.318519	0.051969	0.051969	0.002701	0.051969	0.163158	0.026621
0.299997	0.033447	0.033447	0.001119	0.033447	0.111492	0.01243
0.241291	-0.02526	0.025259	0.000638	-0.02526	-0.10468	0.010959
0.19538	-0.07117	0.07117	0.005065	-0.07117	-0.36426	0.132688
0.261618	-0.00493	0.004932	2.43E-05	-0.00493	-0.01885	0.000355
0.302154	0.035604	0.035604	0.001268	0.035604	0.117834	0.013885
0.298192	0.031642	0.031642	0.001001	0.031642	0.106113	0.01126
0.241291	-0.02526	0.025259	0.000638	-0.02526	-0.10468	0.010959
0.312001	0.045451	0.045451	0.002066	0.045451	0.145677	0.021222
0.235841	-0.03071	0.030709	0.000943	-0.03071	-0.13021	0.016955
0.241291	-0.02526	0.025259	0.000638	-0.02526	-0.10468	0.010959
0.31307	0.04652	0.04652	0.002164	0.04652	0.148592	0.02208
0.241291	-0.02526	0.025259	0.000638	-0.02526	-0.10468	0.010959
0.241291	-0.02526	0.025259	0.000638	-0.02526	-0.10468	0.010959
0.309879	0.043329	0.043329	0.001877	0.043329	0.139825	0.019551
0.241291	-0.02526	0.025259	0.000638	-0.02526	-0.10468	0.010959
0.298192	0.031642	0.031642	0.001001	0.031642	0.106113	0.01126
0.457957	0.191407	0.191407	0.036637	0.191407	0.417959	0.17469
0.224767	-0.04178	0.041783	0.001746	-0.04178	-0.18589	0.034556
0.214031	-0.05252	0.052519	0.002758	-0.05252	-0.24538	0.060211
0.245094	-0.02146	0.021456	0.00046	-0.02146	-0.08754	0.007663
0.224767	-0.04178	0.041783	0.001746	-0.04178	-0.18589	0.034556

0.224767	-0.04178	0.041783	0.001746	-0.04178	-0.18589	0.034556
0.242999	-0.02355	0.023551	0.000555	-0.02355	-0.09692	0.009393
0.224767	-0.04178	0.041783	0.001746	-0.04178	-0.18589	0.034556
0.245094	-0.02146	0.021456	0.00046	-0.02146	-0.08754	0.007663
0.224767	-0.04178	0.041783	0.001746	-0.04178	-0.18589	0.034556
0.224767	-0.04178	0.041783	0.001746	-0.04178	-0.18589	0.034556
0.379842	0.113292	0.113292	0.012835	0.113292	0.298261	0.088959
0.439934	0.173384	0.173384	0.030062	0.173384	0.394114	0.155326
0.330318	0.063768	0.063768	0.004066	0.063768	0.19305	0.037268
0.353469	0.086919	0.086919	0.007555	0.086919	0.245904	0.060469
0.270642	0.004092	0.004092	1.67E-05	0.004092	0.01512	0.000229
0.32861	0.06206	0.06206	0.003851	0.06206	0.188856	0.035667
0.243386	-0.02316	0.023164	0.000537	-0.02316	-0.09517	0.009058
0.252027	-0.01452	0.014523	0.000211	-0.01452	-0.05763	0.003321
0.252027	-0.01452	0.014523	0.000211	-0.01452	-0.05763	0.003321
0.324564	0.058014	0.058014	0.003366	0.058014	0.178746	0.03195
0.464003	0.197453	0.197453	0.038988	0.197453	0.425542	0.181086
0.272354	0.005804	0.005804	3.37E-05	0.005804	0.02131	0.000454
0.252027	-0.01452	0.014523	0.000211	-0.01452	-0.05763	0.003321
0.249438	-0.01711	0.017112	0.000293	-0.01711	-0.0686	0.004706
0.411792	0.145242	0.145242	0.021095	0.145242	0.352707	0.124403
0.261618	-0.00493	0.004932	2.43E-05	-0.00493	-0.01885	0.000355
0.272354	0.005804	0.005804	3.37E-05	0.005804	0.02131	0.000454
0.252027	-0.01452	0.014523	0.000211	-0.01452	-0.05763	0.003321
0.468694	0.202144	0.202144	0.040862	0.202144	0.431291	0.186012
0.243386	-0.02316	0.023164	0.000537	-0.02316	-0.09517	0.009058
0.290462	0.023912	0.023912	0.000572	0.023912	0.082324	0.006777
0.276625	0.010075	0.010075	0.000101	0.010075	0.03642	0.001326
0.419842	0.153292	0.153292	0.023498	0.153292	0.365119	0.133312
0.2487	-0.01785	0.01785	0.000319	-0.01785	-0.07177	0.005151
0.280404	0.013854	0.013854	0.000192	0.013854	0.049407	0.002441
0.272189	0.005639	0.005639	3.18E-05	0.005639	0.020716	0.000429
0.383448	0.116898	0.116898	0.013665	0.116898	0.304859	0.092939
0.244009	-0.02254	0.022541	0.000508	-0.02254	-0.09238	0.008533
0.388897	0.122347	0.122347	0.014969	0.122347	0.3146	0.098973
0.286449	0.019899	0.019899	0.000396	0.019899	0.069469	0.004826
0.2487	-0.01785	0.01785	0.000319	-0.01785	-0.07177	0.005151
0.244009	-0.02254	0.022541	0.000508	-0.02254	-0.09238	0.008533
0.2487	-0.01785	0.01785	0.000319	-0.01785	-0.07177	0.005151
0.237964	-0.02859	0.028586	0.000817	-0.02859	-0.12013	0.014431
0.237964	-0.02859	0.028586	0.000817	-0.02859	-0.12013	0.014431
0.255964	-0.01059	0.010586	0.000112	-0.01059	-0.04136	0.00171
0.459408	0.192858	0.192858	0.037194	0.192858	0.419796	0.176229

0.32316	0.05661	0.05661	0.003205	0.05661	0.175178	0.030687
0.255964	-0.01059	0.010586	0.000112	-0.01059	-0.04136	0.00171
0.32316	0.05661	0.05661	0.003205	0.05661	0.175178	0.030687
0.247324	-0.01923	0.019226	0.00037	-0.01923	-0.07774	0.006043
0.32861	0.06206	0.06206	0.003851	0.06206	0.188856	0.035667
0.252027	-0.01452	0.014523	0.000211	-0.01452	-0.05763	0.003321
0.448672	0.182122	0.182122	0.033168	0.182122	0.405913	0.164765
0.255964	-0.01059	0.010586	0.000112	-0.01059	-0.04136	0.00171
0.32316	0.05661	0.05661	0.003205	0.05661	0.175178	0.030687
0.255964	-0.01059	0.010586	0.000112	-0.01059	-0.04136	0.00171
0.459408	0.192858	0.192858	0.037194	0.192858	0.419796	0.176229
0.332547	0.065997	0.065997	0.004356	0.065997	0.19846	0.039387
0.255964	-0.01059	0.010586	0.000112	-0.01059	-0.04136	0.00171
0.313928	0.047378	0.047378	0.002245	0.047378	0.150921	0.022777
0.304541	0.037991	0.037991	0.001443	0.037991	0.124749	0.015562
0.193234	-0.07332	0.073316	0.005375	-0.07332	-0.37942	0.143956
0.319969	0.053419	0.053419	0.002854	0.053419	0.166952	0.027873
0.32316	0.05661	0.05661	0.003205	0.05661	0.175178	0.030687
0.303473	0.036923	0.036923	0.001363	0.036923	0.121669	0.014803
0.319969	0.053419	0.053419	0.002854	0.053419	0.166952	0.027873
0.459408	0.192858	0.192858	0.037194	0.192858	0.419796	0.176229
0.313928	0.047378	0.047378	0.002245	0.047378	0.150921	0.022777
0.237345	-0.0292	0.029205	0.000853	-0.0292	-0.12305	0.015141
0.382825	0.116275	0.116275	0.01352	0.116275	0.303728	0.092251
0.280276	0.013726	0.013726	0.000188	0.013726	0.048973	0.002398
0.423006	0.156456	0.156456	0.024479	0.156456	0.369867	0.136802
0.345555	0.079005	0.079005	0.006242	0.079005	0.228631	0.052272
0.224926	-0.04162	0.041624	0.001733	-0.04162	-0.18506	0.034246
0.299851	0.033301	0.033301	0.001109	0.033301	0.111057	0.012334
0.299851	0.033301	0.033301	0.001109	0.033301	0.111057	0.012334
0.274123	0.007573	0.007573	5.74E-05	0.007573	0.027628	0.000763
0.280169	0.013619	0.013619	0.000185	0.013619	0.048609	0.002363
0.280169	0.013619	0.013619	0.000185	0.013619	0.048609	0.002363
0.181581	-0.08497	0.084969	0.00722	-0.08497	-0.46794	0.218966
0.280169	0.013619	0.013619	0.000185	0.013619	0.048609	0.002363
0.270932	0.004382	0.004382	1.92E-05	0.004382	0.016176	0.000262
0.274123	0.007573	0.007573	5.74E-05	0.007573	0.027628	0.000763
0.280169	0.013619	0.013619	0.000185	0.013619	0.048609	0.002363
0.280169	0.013619	0.013619	0.000185	0.013619	0.048609	0.002363
0.270932	0.004382	0.004382	1.92E-05	0.004382	0.016176	0.000262
0.270932	0.004382	0.004382	1.92E-05	0.004382	0.016176	0.000262
0.274123	0.007573	0.007573	5.74E-05	0.007573	0.027628	0.000763
0.280169	0.013619	0.013619	0.000185	0.013619	0.048609	0.002363

0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.317874	0.051324	0.051324	0.002634	0.051324	0.161459	0.026069
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.317874	0.051324	0.051324	0.002634	0.051324	0.161459	0.026069
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.317874	0.051324	0.051324	0.002634	0.051324	0.161459	0.026069
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.317874	0.051324	0.051324	0.002634	0.051324	0.161459	0.026069
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.488375	0.221825	0.221825	0.049206	0.221825	0.454211	0.206307
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.32861	0.06206	0.06206	0.003851	0.06206	0.188856	0.035667
0.255964	-0.01059	0.010586	0.000112	-0.01059	-0.04136	0.00171
0.32861	0.06206	0.06206	0.003851	0.06206	0.188856	0.035667
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.332547	0.065997	0.065997	0.004356	0.065997	0.19846	0.039387
0.32861	0.06206	0.06206	0.003851	0.06206	0.188856	0.035667
0.332547	0.065997	0.065997	0.004356	0.065997	0.19846	0.039387
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.069648	-0.1969	0.196902	0.03877	-0.1969	-2.8271	7.992482
0.195254	-0.0713	0.071296	0.005083	-0.0713	-0.36515	0.133333
0.078248	-0.1883	0.188302	0.035458	-0.1883	-2.4065	5.791233
0.176239	-0.09031	0.090311	0.008156	-0.09031	-0.51243	0.262588
0.149294	-0.11726	0.117256	0.013749	-0.11726	-0.7854	0.616857
0.120984	-0.14557	0.145566	0.021189	-0.14557	-1.20318	1.44764
0.103509	-0.16304	0.163041	0.026582	-0.16304	-1.57514	2.481081
0.102968	-0.16358	0.163582	0.026759	-0.16358	-1.58867	2.523869
0.2487	-0.01785	0.01785	0.000319	-0.01785	-0.07177	0.005151
0.078248	-0.1883	0.188302	0.035458	-0.1883	-2.4065	5.791233
0.177157	-0.08939	0.089393	0.007991	-0.08939	-0.5046	0.254617
0.102968	-0.16358	0.163582	0.026759	-0.16358	-1.58867	2.523869
0.093818	-0.17273	0.172732	0.029836	-0.17273	-1.84113	3.389751

0.097262	-0.16929	0.169288	0.028658	-0.16929	-1.74054	3.029467
0.107788	-0.15876	0.158762	0.025205	-0.15876	-1.47291	2.169451
0.216154	-0.0504	0.050396	0.00254	-0.0504	-0.23315	0.054359
0.097262	-0.16929	0.169288	0.028658	-0.16929	-1.74054	3.029467
0.104987	-0.16156	0.161563	0.026103	-0.16156	-1.5389	2.3682
0.230081	-0.03647	0.036469	0.00133	-0.03647	-0.1585	0.025124
0.099189	-0.16736	0.167361	0.02801	-0.16736	-1.6873	2.846984
0.19336	-0.07319	0.07319	0.005357	-0.07319	-0.37852	0.143274
0.235531	-0.03102	0.031019	0.000962	-0.03102	-0.1317	0.017345
0.102968	-0.16358	0.163582	0.026759	-0.16358	-1.58867	2.523869
0.20033	-0.06622	0.06622	0.004385	-0.06622	-0.33055	0.109265
0.17079	-0.09576	0.09576	0.00917	-0.09576	-0.56069	0.314375
0.211067	-0.05548	0.055483	0.003078	-0.05548	-0.26287	0.069101
0.107788	-0.15876	0.158762	0.025205	-0.15876	-1.47291	2.169451
0.219345	-0.04721	0.047205	0.002228	-0.04721	-0.21521	0.046315
0.099189	-0.16736	0.167361	0.02801	-0.16736	-1.6873	2.846984
0.211067	-0.05548	0.055483	0.003078	-0.05548	-0.26287	0.069101
0.378559	0.112009	0.112009	0.012546	0.112009	0.295883	0.087547
0.463357	0.196807	0.196807	0.038733	0.196807	0.424742	0.180406
0.243812	-0.02274	0.022738	0.000517	-0.02274	-0.09326	0.008698
0.463357	0.196807	0.196807	0.038733	0.196807	0.424742	0.180406
0.320395	0.053845	0.053845	0.002899	0.053845	0.168057	0.028243
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.391465	0.124915	0.124915	0.015604	0.124915	0.319096	0.101823
0.2487	-0.01785	0.01785	0.000319	-0.01785	-0.07177	0.005151
0.280404	0.013854	0.013854	0.000192	0.013854	0.049407	0.002441
0.272189	0.005639	0.005639	3.18E-05	0.005639	0.020716	0.000429
0.383448	0.116898	0.116898	0.013665	0.116898	0.304859	0.092939
0.244009	-0.02254	0.022541	0.000508	-0.02254	-0.09238	0.008533
0.388897	0.122347	0.122347	0.014969	0.122347	0.3146	0.098973
0.286449	0.019899	0.019899	0.000396	0.019899	0.069469	0.004826
0.2487	-0.01785	0.01785	0.000319	-0.01785	-0.07177	0.005151
0.244009	-0.02254	0.022541	0.000508	-0.02254	-0.09238	0.008533
0.2487	-0.01785	0.01785	0.000319	-0.01785	-0.07177	0.005151
0.237964	-0.02859	0.028586	0.000817	-0.02859	-0.12013	0.014431
0.237964	-0.02859	0.028586	0.000817	-0.02859	-0.12013	0.014431
0.255964	-0.01059	0.010586	0.000112	-0.01059	-0.04136	0.00171
0.459408	0.192858	0.192858	0.037194	0.192858	0.419796	0.176229
0.32316	0.05661	0.05661	0.003205	0.05661	0.175178	0.030687
0.255964	-0.01059	0.010586	0.000112	-0.01059	-0.04136	0.00171
0.32316	0.05661	0.05661	0.003205	0.05661	0.175178	0.030687
0.247324	-0.01923	0.019226	0.00037	-0.01923	-0.07774	0.006043
0.32861	0.06206	0.06206	0.003851	0.06206	0.188856	0.035667

0.252027	-0.01452	0.014523	0.000211	-0.01452	-0.05763	0.003321
0.448672	0.182122	0.182122	0.033168	0.182122	0.405913	0.164765
0.255964	-0.01059	0.010586	0.000112	-0.01059	-0.04136	0.00171
0.32316	0.05661	0.05661	0.003205	0.05661	0.175178	0.030687
0.255964	-0.01059	0.010586	0.000112	-0.01059	-0.04136	0.00171
0.459408	0.192858	0.192858	0.037194	0.192858	0.419796	0.176229
0.332547	0.065997	0.065997	0.004356	0.065997	0.19846	0.039387
0.255964	-0.01059	0.010586	0.000112	-0.01059	-0.04136	0.00171
0.313928	0.047378	0.047378	0.002245	0.047378	0.150921	0.022777
0.304541	0.037991	0.037991	0.001443	0.037991	0.124749	0.015562
0.193234	-0.07332	0.073316	0.005375	-0.07332	-0.37942	0.143956
0.319969	0.053419	0.053419	0.002854	0.053419	0.166952	0.027873
0.32316	0.05661	0.05661	0.003205	0.05661	0.175178	0.030687
0.303473	0.036923	0.036923	0.001363	0.036923	0.121669	0.014803
0.319969	0.053419	0.053419	0.002854	0.053419	0.166952	0.027873
0.459408	0.192858	0.192858	0.037194	0.192858	0.419796	0.176229
0.313928	0.047378	0.047378	0.002245	0.047378	0.150921	0.022777
0.237345	-0.0292	0.029205	0.000853	-0.0292	-0.12305	0.015141
0.382825	0.116275	0.116275	0.01352	0.116275	0.303728	0.092251
0.280276	0.013726	0.013726	0.000188	0.013726	0.048973	0.002398
0.423006	0.156456	0.156456	0.024479	0.156456	0.369867	0.136802
0.345555	0.079005	0.079005	0.006242	0.079005	0.228631	0.052272
0.224926	-0.04162	0.041624	0.001733	-0.04162	-0.18506	0.034246
0.299851	0.033301	0.033301	0.001109	0.033301	0.111057	0.012334
0.299851	0.033301	0.033301	0.001109	0.033301	0.111057	0.012334
0.274123	0.007573	0.007573	5.74E-05	0.007573	0.027628	0.000763
0.280169	0.013619	0.013619	0.000185	0.013619	0.048609	0.002363
0.280169	0.013619	0.013619	0.000185	0.013619	0.048609	0.002363
0.181581	-0.08497	0.084969	0.00722	-0.08497	-0.46794	0.218966
0.280169	0.013619	0.013619	0.000185	0.013619	0.048609	0.002363
0.270932	0.004382	0.004382	1.92E-05	0.004382	0.016176	0.000262
0.274123	0.007573	0.007573	5.74E-05	0.007573	0.027628	0.000763
0.280169	0.013619	0.013619	0.000185	0.013619	0.048609	0.002363
0.280169	0.013619	0.013619	0.000185	0.013619	0.048609	0.002363
0.270932	0.004382	0.004382	1.92E-05	0.004382	0.016176	0.000262
0.270932	0.004382	0.004382	1.92E-05	0.004382	0.016176	0.000262
0.274123	0.007573	0.007573	5.74E-05	0.007573	0.027628	0.000763
0.280169	0.013619	0.013619	0.000185	0.013619	0.048609	0.002363
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.317874	0.051324	0.051324	0.002634	0.051324	0.161459	0.026069
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884

0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.317874	0.051324	0.051324	0.002634	0.051324	0.161459	0.026069
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.317874	0.051324	0.051324	0.002634	0.051324	0.161459	0.026069
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.338201	0.071651	0.071651	0.005134	0.071651	0.211859	0.044884
0.317874	0.051324	0.051324	0.002634	0.051324	0.161459	0.026069
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.488375	0.221825	0.221825	0.049206	0.221825	0.454211	0.206307
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.32861	0.06206	0.06206	0.003851	0.06206	0.188856	0.035667
0.255964	-0.01059	0.010586	0.000112	-0.01059	-0.04136	0.00171
0.32861	0.06206	0.06206	0.003851	0.06206	0.188856	0.035667
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.332547	0.065997	0.065997	0.004356	0.065997	0.19846	0.039387
0.32861	0.06206	0.06206	0.003851	0.06206	0.188856	0.035667
0.332547	0.065997	0.065997	0.004356	0.065997	0.19846	0.039387
0.468048	0.201498	0.201498	0.040602	0.201498	0.430507	0.185337
0.069648	-0.1969	0.196902	0.03877	-0.1969	-2.8271	7.992482
0.195254	-0.0713	0.071296	0.005083	-0.0713	-0.36515	0.133333
0.078248	-0.1883	0.188302	0.035458	-0.1883	-2.4065	5.791233
0.176239	-0.09031	0.090311	0.008156	-0.09031	-0.51243	0.262588
0.149294	-0.11726	0.117256	0.013749	-0.11726	-0.7854	0.616857
0.120984	-0.14557	0.145566	0.021189	-0.14557	-1.20318	1.44764
0.103509	-0.16304	0.163041	0.026582	-0.16304	-1.57514	2.481081
0.102968	-0.16358	0.163582	0.026759	-0.16358	-1.58867	2.523869
0.2487	-0.01785	0.01785	0.000319	-0.01785	-0.07177	0.005151
0.078248	-0.1883	0.188302	0.035458	-0.1883	-2.4065	5.791233
0.177157	-0.08939	0.089393	0.007991	-0.08939	-0.5046	0.254617
0.102968	-0.16358	0.163582	0.026759	-0.16358	-1.58867	2.523869
0.093818	-0.17273	0.172732	0.029836	-0.17273	-1.84113	3.389751
0.097262	-0.16929	0.169288	0.028658	-0.16929	-1.74054	3.029467
0.107788	-0.15876	0.158762	0.025205	-0.15876	-1.47291	2.169451
0.216154	-0.0504	0.050396	0.00254	-0.0504	-0.23315	0.054359
0.097262	-0.16929	0.169288	0.028658	-0.16929	-1.74054	3.029467
0.104987	-0.16156	0.161563	0.026103	-0.16156	-1.5389	2.3682

0.230081	-0.03647	0.036469	0.00133	-0.03647	-0.1585	0.025124
0.099189	-0.16736	0.167361	0.02801	-0.16736	-1.6873	2.846984
0.19336	-0.07319	0.07319	0.005357	-0.07319	-0.37852	0.143274
0.235531	-0.03102	0.031019	0.000962	-0.03102	-0.1317	0.017345
0.102968	-0.16358	0.163582	0.026759	-0.16358	-1.58867	2.523869
0.20033	-0.06622	0.06622	0.004385	-0.06622	-0.33055	0.109265
0.17079	-0.09576	0.09576	0.00917	-0.09576	-0.56069	0.314375
0.211067	-0.05548	0.055483	0.003078	-0.05548	-0.26287	0.069101
0.107788	-0.15876	0.158762	0.025205	-0.15876	-1.47291	2.169451
0.219345	-0.04721	0.047205	0.002228	-0.04721	-0.21521	0.046315
0.099189	-0.16736	0.167361	0.02801	-0.16736	-1.6873	2.846984
0.211067	-0.05548	0.055483	0.003078	-0.05548	-0.26287	0.069101
0.378559	0.112009	0.112009	0.012546	0.112009	0.295883	0.087547
0.463357	0.196807	0.196807	0.038733	0.196807	0.424742	0.180406
0.243812	-0.02274	0.022738	0.000517	-0.02274	-0.09326	0.008698
0.463357	0.196807	0.196807	0.038733	0.196807	0.424742	0.180406
0.391465	0.124915	0.124915	0.015604	0.124915	0.319096	0.101823
0.463357	0.196807	0.196807	0.038733	0.196807	0.424742	0.180406
0.463357	0.196807	0.196807	0.038733	0.196807	0.424742	0.180406
0.32861	0.06206	0.06206	0.003851	0.06206	0.188856	0.035667
0.463357	0.196807	0.196807	0.038733	0.196807	0.424742	0.18041
0.463357	0.196807	0.196807	0.038733	0.196807	0.424742	0.18041
0.32861	0.06206	0.06206	0.003851	0.06206	0.188856	0.03567
0.266548		1258.089	141.8823			4253.25
	QMAD	**0.009344**	**QMSD**	**0.001054**	**QMPE**	**0.03159**

Appendix VI

Description of the acronyms used in the research work

Acronym	Description
FSSs	Fuzzy set schemes
FSMFSs	Fuzzy set membership function schemes
DAs	Deprivation attributes
QMAD	Quasi mean absolute deviation
QMPE	Quasi mean percentage error
QMSD	Quasi mean square deviation
CZ	Cerioli and Zani
CL	Cheli and Lenmi
VMFSMFS	Varying mean fuzzy set membership function scheme
VGMFSMFS	Varying geometric mean fuzzy set membership function scheme
VRMFSMFS	Varying reciprocal mean fuzzy set membership function scheme
MFs	Membership functions