THEORETICAL AND METHODOLOGICAL ISSUES IN MEASURING QUALITY OF LIFE IN AFRICA

Akpan H. Ekpo

Department of Economics, University of Uyo, Uyo, Akwa Ibom State, Nigeria

Foundation for Economic Research and Training (FERT), Uyo and Lagos

ABSTRACT

This paper argues that measuring quality of life in Africa goes beyond growth and its per capita measure. The various models for measuring quality of life have implications for Africa. Measurement, analytics and ideology, among other factors, continue to affect how quality of life is measured in Africa. Given the underdeveloped state of the African continent, availability, reliability and consistency of data are essential elements in ensuring that measuring quality of life remains a permanent work in progress.

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1. Introduction

Appraisal of quality of life is becoming an area of interest in modern times since it has policy implications for any economy. Generally, quality of life implies a good life and a good life is the same as living a life with high quality.

Policy-makers and other stakeholders at all levels of government are faced with decisions (economic, environmental and social) which have impact on the quality of life of individuals in the society.

Most Africans have become more disturbed and feel less content with the quality of life in the continent. Despite the supposed rapid growth of per capita income in some countries in Africa, dissatisfaction among citizens grows because of social, political and environmental problems, political upheavals,

inflation, unemployment, etc. A report (AFDB, 2015) showed that only 71.6 percent and 39.4 percent of the populace have access to improved water and sanitation facilities respectively.

The illiteracy rate among the population has steadily been on the increase (AFDB, 2015). Although some countries in Africa boast of improvement in general economic indices, it is still necessary to evaluate the quality of life and issues that border on the concept. This is especially important since economic wealth does not guarantee high quality of life in the continent.

Most economists agree that measuring quality of life should go beyond GDP or income per capita. After all, GDP per capita is an average measure and hence does not reflect most of what would constitute inputs in measuring and/or explaining the quality of life. Quality of life goes beyond growth. An economy can grow its GDP, yet the quality of life may be poor (Ekpo, 2016; 2018). In a series of papers, Seers (1969) argued that even if GDP growth doubles but unemployment, poverty, inequality, etc. are worsening, then there is no development. Development must have a human face.

In recent times, the economics of happiness has become an area of study concentrating on explaining quality of life. The components of quality of life go beyond economics and includes other aspects of social sciences such as sociology, psychology and geography. Furthermore, issues of quality of life are often examined in the medical sciences. Consequently, theoretical and methodological issues concerning quality of life are multidimensional and multidisciplinary.

It is important to note that developed economies are also concerned about the quality of life of their citizens. Hence, research is regularly conducted and new methods of measuring the quality of life are determined with policy recommendations to the various governments.

In Africa, access to the basic needs of life such as food, shelter, water, sanitation, health, education and employment remain a tall order. Studies on the subject in Africa are very scanty.

Nonetheless, following the introduction, section 2 of this paper discusses conceptual and theoretical matters. Section 3 examines quality of life issues in Africa within the context of its measurement challenges. Section 4 discusses methods and implications while section 5 concludes the paper. It is anticipated that the inherent analysis would provoke interest on the subject.

2. Conceptual and Theoretical Underpinnings

Though several studies have addressed quality of life in recent times (Brauer and Dymitrow, 2014; Hrehorowicz-Gaber, 2013; Andrasko, 2013; Kacmarova, Babincak & Mikulasova, 2013; Tej, Sirkova & Taha, 2012; Masik, 2010; Angelovic & Isiok, 2016; Yonk, Smith and Wardle, 2017), the subject is still highly controversial. Quality of life has been explained by various authorities resulting in the conclusion that the phenomenon is multidimensional:

> Quality of life is a result of mutual interaction of social, health, economic and environmental conditions, which are connected to human and social development. It represents, on the one hand, the objective condition for a good life and on the other the subjective experience of living a good life. The objective side of quality of life is about the fulfilling of social and cultural needs, depending on sufficiency of sources, and social acceptance of an individual and their physical health. (Hornak and Rochovska, 2007, p. 55)

Murgaš (2005) conceptualized that quality of life

> . . . is formed by somatic, psychological, social and economic goods which result in a subjective feeling of happiness or satisfaction – challenged by health, sociopathological, economic and environmental 'bads' (Murgas, 2005, p. 66)

Felce and Perry defined quality of life as

> . . . an overall general wellbeing that comprises objective descriptors and subjective evaluations of physical, material, social, and emotional wellbeing together with the extent of personal development and purposeful activity, all weighted by a personal set of values. (Felce & Perry, 1995, p. 51)

For its part, the World Health Organization (WHO) defines quality of life as

> . . . an individual's perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns. (WHOQOL Group, 1994, p. 24)

In economics, quality of life is viewed as an economic good. Wingo (1973) offers three reasons for this conclusion:

- Quality of life is scarce. Thus, there is often a trade-off between it and other economic goods to satisfy the needs of individuals.
- Decisions made by households and businesses are hugely determined by the quality of life.
- Community resources are often allocated to achieve better quality of life thus making the latter a public good.

According to Moller, Schlemmer and du Toit (1987), irrespective of the population or indicator(s) employed, quality of life should cover the following: food, shelter, education, wages, health and financial security.

After a thorough analysis of various studies on quality of life, Lambiri, Biagi and Royuela (2006) classified the similarities of the studies into six basic groups:

- natural environment (climate, state of natural environment, etc.)
- built environment (type and state of buildings, etc.)
- socio-political environment (community life, political participation, etc.)
- local economic environment (local income, unemployment, etc.)
- cultural and leisure environment (museums, restaurants, etc.)
- public policy environment (safety, health care, education provision, etc.)

The *Human Development Index* of the UNDP combines three indicators of well-being: life expectancy, GDP per capita and educational attainment, including adult literacy and enrolment in schools and universities. It is apparent that quality of life is broader than economic output and living standards. It includes what people value in life beyond its material aspect, job and health status to social relationships, security and governance.

The above discussion connotes that quality of life is difficult to analyse and measure. Nonetheless, let us examine the implications for Africa.

3. Measuring Quality of Life in Africa: Theoretical issues

In measuring quality of life in Africa, one basic theoretical issue to tackle is that of the appropriate approach to adopt. There are basically two approaches: the objective and the subjective.

Objective approach

This approach is also referred to as the "Scandinavian approach". It comprises the use of indicators or instruments which are both social and economic in nature. It looks at the quality of life in an environment based on the resources available to the individual to satisfy his needs. Such resources include, among others, income, education and security.

Subjective approach

The subjective approach is also known as the "American approach" which has its foundation in utilitarianism (level of satisfaction). Within this context, individuals are given the opportunity to evaluate the level of the quality of life they are living. Assessment of quality of life subjectively by individuals is adjudged likely to be biased due to individual-specific adaptation and response to the given environment (Bacova, 2008). The basic indicators of quality of life under this approach are seen as subjective and can only be assessed by the individual.

Eid and Diener (2003) asserted that the subjective approach to quality of life has to do with assessing one's life using cognitive and affective reactions to life in a multidimensional assessment profile.

Some of the theoretical issues emanating from this approach of measure of quality of life include the following:

1. Clarity between the boundary of objective and subjective indicators
2. Indices to measure subjective indicators
3. The relationship(s) between objective and subjective indicators

Several theories exist which examine the measurement of quality of life. However, this paper will adopt two of these models in an attempt to examine such theoretical issues as they relate to measuring quality of life in Africa. These are: (1) the Liu (1977) model and (2) the Bucur (2014) mathematical model. These models are briefly presented below.

Liu (1977) model of quality of life

Liu (1977) opined that the quality of life is influenced by the political structure of the economy, and it allows for comparison with other individuals. Liu (1977) thus stated that the state of the quality of life for any individual is dependent on:

- the intrapersonal capability of the individual,
- the interpersonal relations with other individuals, and,
- the political system or society in which they all live as members

From the above points, there are basic components in the quality of life analysis: the self, the other, and the societal system and the interactions among them. Consequently, quality of life varies depending on individuals, environment and time.

Thus, an individual will seek to maximize his quality of life (QOL) at any given time. This can be expressed in an output function with two factor inputs. These factors are the physical (PH) and the psychological (PSu) input. The individual owns the former input, while he shares the latter with other individuals in his environment at any given point in time (t). The function can thus be expressed as:

$$QOL_{it} = F\,(PH_{it},\ _{Psit}) \tag{1}$$

The input factors in the above expression are not independent and they can be employed in the production of QOL in varying proportions. The physical inputs consist of goods and services which satisfy most basic needs of man. The psychological inputs include all subjective factors (for example, esteem, affection, love, self-actualization, etc) in the given environment.

These inputs substitute and complement each other in the production function. As in any other conventional production model, the optimal level of quality of life is produced only by combining both the physical and psychological inputs appropriately.

Liu (1977) extended the production function to capture the community by including the following factors in the model, holding all psychological inputs constant since they are not quantifiable: economic (EC), political and welfare

(PW), health and education (HE), and social (SO) inputs which are quantifiable. It is expressed thus:

$$QOL_{it} = F\,(EC_{it},\ PW_{it},\ EN_{it},\ HE_{it},\ SO_{it},\ _{Psit}) \tag{2}$$

In the model above, the economic component consists of factors representing individual economic well-being. The political component consists of factors which relate to the political activities of the individual as well as the performance of government. The environmental component relates to the quality of the environment.

The health and education component include indicators of individual health and education attainment, community educational investment and medical care provision. The social component encompasses the ratings of individual equality and individual concerns in addition to the level of community living conditions (Liu, 1977).

3.1 Implications for measuring quality of life in Africa

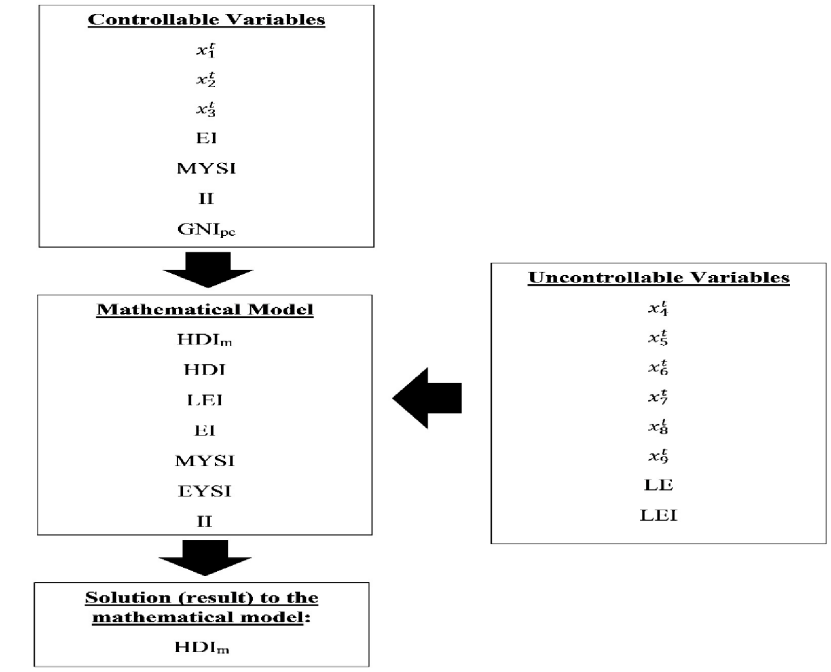
Given the model above, there are several implications for measuring quality of life in Africa. There are theoretical issues as they relate to the choice of indicators in the various categories (economic, political, environment, social and health). There is no clear theoretical foundation for the inclusion of variables under these subheadings.

Bucur (2014) mathematical model for quality of life

The model assumes both objective and subjective indicators (controllable and uncontrollable variables) as well as the need of the society to determine the quality of life. An important source of the model is represented by the indicator of the quality of life human capital index (HDI).

The model simplifies the task of comparing, assessing and evaluating the quality of life of a society, region, country or continent. Figure 1 depicts the model in its entirety. The figure clearly shows that several factors affect quality of life. These factors are classified under two broad categories: (1) controllable and (2) uncontrollable variables. While the former can be influenced by the individual, the latter is beyond the individual's control.

Figure 1. General elements of a mathematical model of the quality of life



Source: Bucur, 2014

where:

LE = life expectancy at birth;

LEI = life expectancy index;

EI = degree of access to education;

MYSI = education period;

II = revenue indicator;

GNIpc = gross national income at purchasing power parity per capita

3.2 Implication of the model for Africa

The relevance and importance of the model above lies in the fact that all the components for controllable and uncontrollable variables are already weighted.

However, of relevance to this paper is the fact that in measuring quality of life in Africa, all factors (uncontrollable and controllable) should be considered to arrive at a holistic model.

Indicators under the controllable variables include health, family life, community life, degree of access to education, education period, revenue indicator and GNI at purchasing power parity per capita, while indicators classified under uncontrollable variables include financial situation, political stability and security, job security, life expectancy index, etc. Failure to consider all such factors will adversely affect policies and will have far-reaching effects on quality of life.

Quality of life is a multi-dimensional concept, hence a well-developed theoretical background to validate its analysis is crucial. In general, the theoretical approaches available are distinguished by the concept adopted as the basis for consideration of quality of life. This has made studies on quality of life inconclusive because each study is based on the adopted definition of the quality of life.

Imperfection in the definition of the concept of quality of life covers all spheres of human existence, and the multitude of variables and indicators available, given numerous theoretical assumptions, are issues that constantly hinder the study of quality of life in Africa.

Thus, the basic framework revolves around the choice of appropriate indicators to be selected and included in the index and its aggregation over individuals and countries in Africa. Another issue is how to classify the concept of quality of life, either as multidimensional or uni-dimensional, and whether the concept can be quantified relatively or in absolute terms.

4. Methodological Issues

In measuring quality of life in Africa, there are basically three methodological issues to be addressed. These are:

(i) Measurement issues

(ii) Analytical issues

(iii) Ideology

4.1 Measurement issues

Owing to the complexity of the quality of life indicator, it is difficult to obtain a single quantitative measure to capture the quality of life. There are basically six criteria that a holistic measure must possess. According to Morris (1979, p. 21), these are identified as follows:

- Indicator should measure results, not inputs
- Indicator should not assume a particular pattern of development
- Indicator should reflect the distribution of social results
- Indicator should avoid standards that reflect the values of specific societies
- Indicator should lend itself to international comparison
- Indicator should be simple to construct and easy to comprehend

In addition, Hagerty et al. (2001, p. 2) provided 14 criteria for evaluating any quality of life indicator. These include:

- The index must have a clear practical purpose, i.e., a public policy purpose.
- The index should help public policymakers develop and assess programmes at all levels of aggregation.
- The index should be based on time series to allow periodic monitoring and control.
- The index should be grounded in well-established theory.
- The components of the index should be reliable, valid, and sensitive.
- The index should be reported as a single number, but can be broken down into components
- The domains in aggregate must encompass the totality of life experience, not just some component part.
- Each domain must encompass a substantial but discrete portion of the QOL construct.
- Each domain must have the potential to be measured in both objective and subjective dimensions.

- Each domain within a generic QOL instrument must have relevance for most people. The validity of a generic measure of QOL has to be demonstrated across a variety of populations in different contexts.
- If a specific domain is proposed for a non-generic instrument, it must be demonstrated to contribute unique variance to the QOL construct beyond the generic domains for the target group.
- Domains must be potentially neutral, positive, or negative in their contribution to the QOL construct. This is an important issue because QOL measures are designed to capture the totality of life experiences, both positive and negative.
- Domains differ from the dimensions of personality, cognitive processes, and affect in that they cannot be measured objectively since QOL is an end product, thus measures of QOL have to focus on this end state, not factors that may affect it.
- The subjective dimension of each domain has both a cognitive and an affective component. They are measured by questions concerning "satisfaction".

Even when variables are accurately measured and there is agreement about what should be counted, there is still the question of whether they unequivocally represent the society's notion of "good". As the term indicates, subjective well-being is primarily concerned with the respondents' own internal judgment of well-being, rather than what policymakers, academics, or others consider important.

In economics, consumers' choices are used as measure of utility that is based on the individual's behaviour rather than on the judgments of experts. In subjective well-being, the concept that is analogous to utility based on choice in economics is experience – how people internally react to and experience the events and situations in their lives.

Although self-reported measures of well-being have adequate validity and reliability, it is naive to assume that every individual's response is totally valid and accurate. Therefore, whenever possible, subjective well-being should be measured by multiple methods (e.g., informant reports, daily reports of moods, and, memory recall for positive and negative events) that do not share common methodological shortcomings.

Second, subjective well-being measures may not fully reflect the objective quality of community life in a locale because they may be more dependent on temperament and personal relationships than on societal factors. Also, because people naturally adapt to situations, social expectations may influence individuals' subjective well-being. For example, poor economic conditions may be perceived less negatively if experts remind citizens about the nation's economic improvement from the past instead of focusing on the problems of the current economy. Thus, subjective well-being findings are important, but are insufficient by themselves for evaluating a society.

Quality of life indicators will also likely face certain methodological problems, especially with the development context in which the indicator needs to operate. There will be comparisons between different development contexts, especially between urban and rural settings. This can be problematic to the indicator measuring quality of life, since the need for certain basic services/facilities has different perspectives in different environmental domains. For instance, the level of importance attached to access to electricity might be greater in urban centres when compared to rural communities.

In order to capture this need adequately, separate indices need to be constructed for the different spatial domains. Available data on such are difficult to obtain in Africa making studies on quality of life in the continent frustrating. Even in rare cases where data might be available, such data is often not aggregated to capture spatial characteristics. In addition, domains of quality of life can be considered as related spheres, but they are different conceptually.

In this case, it is appropriate to measure these domains separately. However, the issue lies in the aggregation of these domains because there is no common weighting system or measurement unit making it almost impossible to obtain an aggregate measure. The need for this has long been highlighted in several studies (Smith, 1981).

Before a quality of life indicator can become a commonly accepted variable in Africa, countries in the continent would have to first resolve measurement issues around such an indicator. These include:

- Method and indicators to be used for QOL measurement should be identified. The countries must mutually agree on measures of specific domains of objective and subjective indicators of QOL.

- Methodology employed should be in consonance with new realities of QOL measurement which are under constant review;
- Formulation of guidelines for data collection, standardization of concepts and definitions of all domains, and methods
- Identification and update of data gaps at country level
- Preparation of data series for indicators
- Interpolation and extrapolation of certain indicators with a base year value
- Translation of subjective or qualitative indicators into monetary values

4.2 Analytical issues

In most social science research, a social problem is hardly affected by a singular variable. For instance, when indicators of quality of life are considered in terms of households, we are likely analysing variables households are able to assess for consumption. In that case, it will be appropriate to compare indicators and quality of life in a multiple correlation context. This is purely a multivariate model since it involves analysing the simultaneous effects of the indicators of interest on quality of life. The process of analysing quality of life in different settings is shown in figure 2.

The figure shows that the method of analysis is a function of the objective of each study. For instance, if the main objective of the study is to analyse the presence of a relationship between the indicator and quality of life, then a canonical correlation or multiple correlation is highly suggested. In this case, a group of units is analysed to identify the possibility of individual differences. This group forms a stratum or a cluster since they are assessed on similar indicators (Van Ryzin, 1977).

In other cases, when appropriate, multiple regression/correlation analysis, predictive or descriptive analysis, factor analysis, cluster analysis, metric multidimensional scaling or non-metric scale techniques can be adopted. The principle factor analysis (PCA) technique can also be adopted.

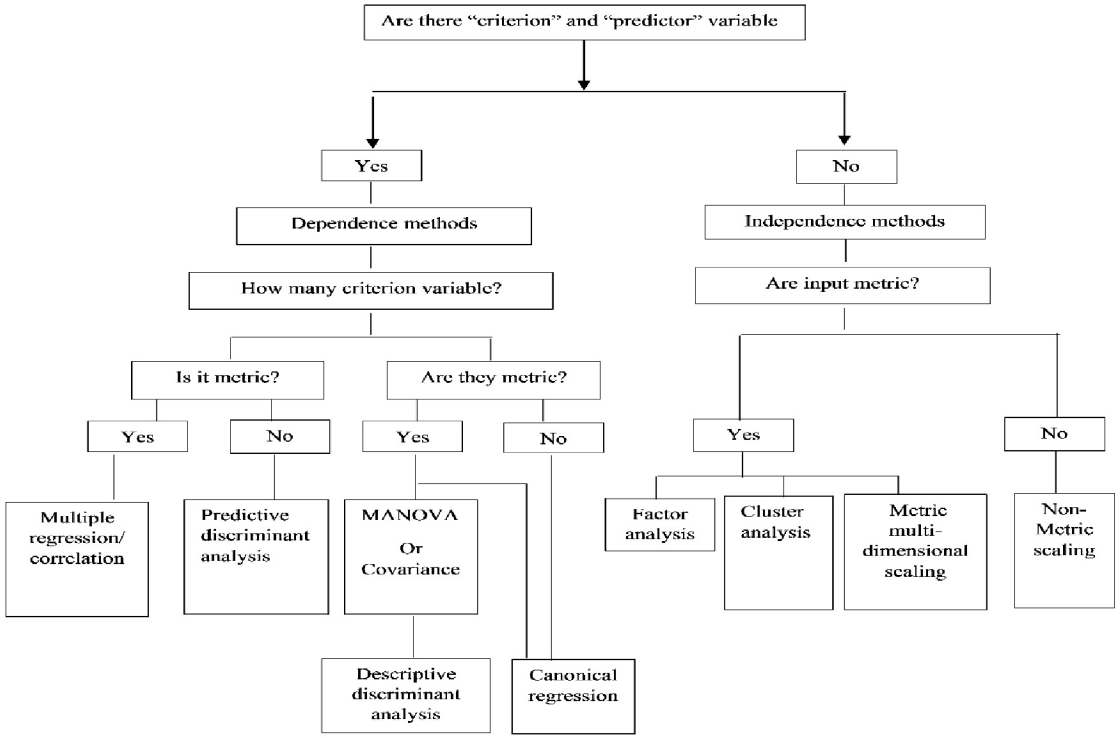


Figure 2. Quantitative analysis of quality of life indicator.

Source: Huberty (1994).

Some studies proposed the use of the two-stage factor analysis; conjoint analysis can help improve the weighting of the quality of life indicator. The two-stage factor analysis is a structural equation model (SEM) (Bollen, 1989; Joreskog and Sorbom, 1988) which can be used to measure the relative importance of indicators in each domain as well as the relative importance of each domain to overall quality of life.

The conjoint analysis modelling technique decomposes objects based on the value assigned to each attribute (Hair, Anderson, Tatham & Black, 1998). Basically, data are mainly analysed at the ordinal level. In this context, the variability within the indicators can be identified through the order of preference or the importance of the attributes which constitute the indicator.

A minimum value can be assign to an attribute considered to be poorest for the variable of interest, while the maximum value is assigned to the attribute considered to be best. For example, in analysing the indicator 'source of cooking fuel', an individual or household utilizing a gas cooker will take the highest value, while an individual or household utilizing for instance firewood will be assigned the lowest value.

4.3 Ideology

The perception of African leaders and policymakers on how to run an economy affects the determinants of quality of life. For example, while some countries stress human rights and freedom, others see food, clothing and shelter as basic human rights. Furthermore, whether the economy stresses more market or more government participation would affect the quality of life.

If an African economy is running a socialist system, then certain elements which affect the quality of life would be taken for granted and provided to the citizens. A good example is education and health services. Another system would use the market to provide these services.

Also, the current debate as to whether African countries should emphasize a developmental state ideology would determine, to a large extent, the quality of life for its citizens.

5. Conclusion

Given Africa's multifaceted environmental and socioeconomic context, this paper addressed the theoretical and methodological issues involved in the measurement of quality of life in Africa. Because of its significant influence, the concept of quality of life and its application need to have a more theoretical and methodology basis. Quality of life poses numerous issues. These include the semantic meaning of the concept, its scope, its indicators, issue of comparisons (individual or interpersonal), perspective of evaluation, and the method of evaluation, among others.

The study showed that both subjective and objective measures are needed unilaterally to comprehend the concept of quality of life and make viable policy decisions. Although the various measures each have a number of strengths and weaknesses, they are methodologically and conceptually complementary. Quality of life is a complex, multifaceted construct that requires multiple approaches from different theoretical angles.

Data availability, reliability and consistency are essential for measuring the quality of life in Africa. Based on the economic conditions in Africa – rising unemployment, high rates of inflation, high lending rates, dependence on export commodities and massive poverty, measuring the quality of life in Africa remains a permanent work in progress.

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