National Report

Exploring Kenya's Inequality

Pulling Apart or Pooling Together?

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Keeping you informed

SID
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Foreword

Kenya, like all African countries, focused on poverty alleviation at independence, perhaps due to the level of vulnerability of its populations but also as a result of the 'trickle down' economic discourses of the time, which assumed that poverty rather than distribution mattered – in other words, that it was only necessary to concentrate on economic growth because, as the country grew richer, this wealth would trickle down to benefit the poorest sections of society. Inequality therefore had a very low profile in political, policy and scholarly discourses. In recent years though, social dimensions such as levels of access to education, clean water and sanitation are important in assessing people's quality of life. Being deprived of these essential services deepens poverty and reduces people's well-being. Stark differences in accessing these essential services among different groups make it difficult to reduce poverty even when economies are growing. According to the Economist (June 1, 2013), a 1% increase in incomes in the most unequal countries produces a mere 0.6 percent reduction in poverty. In the most equal countries, the same 1% growth yields a 4.3% reduction in poverty. Poverty and inequality are thus part of the same problem, and there is a strong case to be made for both economic growth and redistributive policies. From this perspective, Kenya's quest in vision 2030 to grow by 10% per annum must also ensure that inequality is reduced along the way and all people benefit equitably from development initiatives and resources allocated.

Since 2004, the Society for International Development (SID) and Kenya National Bureau of Statistics (KNBS) have collaborated to spearhead inequality research in Kenya. Through their initial publications such as 'Pulling Apart: Facts and Figures on Inequality in Kenya,' which sought to present simple facts about various manifestations of inequality in Kenya, the understanding of Kenyans of the subject was deepened and a national debate on the dynamics, causes and possible responses started. The report 'Geographic Dimensions of Well-Being in Kenya: Who and Where are the Poor?' elevated the poverty and inequality discourse further while the publication 'Readings on Inequality in Kenya: Sectoral Dynamics and Perspectives' presented the causality, dynamics and other technical aspects of inequality.

KNBS and SID in this publication go further to present monetary measures of inequality such as expenditure patterns of groups and non-money metric measures of inequality in important livelihood parameters like employment, education, energy, housing, water and sanitation to show the levels of vulnerability and patterns of unequal access to essential social services at the national, county and constituency levels.

We envisage that this work will be particularly helpful to county leaders who are tasked with the responsibility of ensuring equitable social and economic development while addressing the needs of marginalized groups and regions. We also hope that it will help in informing public engagement with the devolution process and be instrumental in formulating strategies and actions to overcome exclusion of groups or individuals from the benefits of growth and development in Kenya.

It is therefore our great pleasure to present 'Exploring Kenya's Inequality: Pulling Apart or Pooling Together?'

Ali Hersi
Society for International Development (SID)
Regional Director

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Stefano Prato
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Striking features on inter-county inequalities in Kenya

Inequalities among counties in all the variables are extreme. In many cases, Kenyans living in different counties have completely different lifestyles and access to services.

Dependency

1. Nairobi County has the highest proportion of households (62.4 percent) with 3 or less members compared to Mandera County which has the highest proportion of households (79 percent) with 7 or more members. This explains the fact that the highest dependency ratio is in Mandera (1.25) and is about 2.7 times the dependency ratio of Nairobi County (0.465) which is the lowest in Kenya.

2. Overall, higher dependency ratios are observed in the northern counties compared to Nairobi and the central counties of Kenya.

Poverty

1. There is about 4 times the share of poor people in Turkana County (87.5 percent) as there is in Nairobi (21.8 percent). At the constituency level, the gap in share of poverty is 9 times between the poorest constituency (Turkana East Constituency in Turkana County where 93.1 percent of the people are poor) and the richest constituency (Embakasi West Constituency in Nairobi County where only 10.3 percent of the people are poor).

2. The poverty gap measures the intensity of poverty. It shows how far below the poverty line the poor are and therefore how much money is needed to eliminate poverty. The poverty gap between the county with the highest gap (Tana River at 46.1 percent) and the county with the lowest gap (Nairobi at 4.1 percent) is 11 times.

Income/expenditure inequalities

1. The North has quite low income inequality, with Turkana (0.283), Mandera (0.332) and Wajir (0.321) among the five counties with lowest income inequality as measured by the gini coefficient. By contrast, Coast has the top three counties with the highest income inequality i.e. Tana River (0.617), Kilifi (0.597) and Kwale (0.565). Income inequality is therefore highest at the Coast and poverty is highest in the North.

2. The poorest county (Turkana with a poverty level of 87.5%) is also the most equal county in Kenya (with a gini coefficient of 0.283).

3. The consumption expenditure share of the fifth quintile (with the highest expenditures of KSh7,200 and above) in Kenya, is 3.6 times more than that of the first quintile (with expenditure shares below KSh 1,440).

4. The variations in consumption expenditure are more pronounced in urban areas where expenditure shares in the fifth quintile are 121 times more than the expenditure shares of the first quintile

5. Nairobi and Mombasa counties display significant differences with the 5th quintile spending more than the first quintile by 691 times and 75 times respectively, thus illustrating a very skewed distribution in expenditures compared to the other eight top ranked counties.

6. In eight of the bottom 10 counties at least 50 percent of their population is in the bottom first quintile with expenditures below KSh 1,440 compared to only 0.6 percent of the population in Nairobi County.

7. 44.6 percent of the total rural population compared to only 2.6 percent of the urban population is in the first quintile and thus spends Ksh 1,440 and below. This is in comparison to 34.1 percent of the urban population and 1.5 percent of the rural population which is in the fifth decile and spends Ksh 7,200 and above, showing large income differentials between urban and rural areas.

8. 68.8 percent of the population in rural areas has an expenditure share of 45.4 percent compared to 31.2 percent of the population in urban areas that has an expenditure share of 55 percent

Access to education

1. The share of residents with secondary education or higher in Nairobi (50.8 percent) is 15.4 times more than that of Turkana County (3.3 percent) and 2.2 times more than that of an average Kenyan. Conversely, those living in Turkana County are seven times less likely to have any secondary education compared to an average Kenyan.

2. When the comparison is done across constituencies, the range is even greater. The share of residents with secondary education or higher in Loima constituency (0.8 percent), Turkana County is 79 times less than an individual in Embakasi West constituency (63 percent), Nairobi County. If the residents come from female headed households in Loima constituency, the share increases to 120 times less than an individual in Embakasi West constituency and 28.5 times less than an average Kenyan.

3. The proportion of individuals with secondary education in male headed households is higher than that for female headed households across all counties.

4. The counties with the highest share of primary education only are concentrated in the western part of the country, specifically in Migori, Siaya, Homa Bay, Vihiga and Busia.

5. Turkana County has the highest proportion of the population with no education (82.1 percent). This is seven times less than the of lowest ranked county, Nairobi.

6. At constituency level, Loima has the highest proportion of individuals with no education at 93.0 percent compared with Makadara constituency with the least at 8.2 percent, implying that a person in Loima is 11 times more likely to have no education than a person in Makadara.

Employment and level of education

1. When it comes to the structure of the work force, differences between genders and urban/rural areas are striking. In rural areas, female headed households (FHH) are more likely to be engaged in wage employment (work for pay) than male headed headed households (MHH) at 31.5 and 16.8 percent respectively. In urban areas, by contrast, MHH are more likely to be in wage employment than FHH (40.2 and 12.8 percent respectively).

2. For individuals with secondary education, employment for pay in urban areas (43.2 percent) is twice the employment for pay in rural areas (21.3 percent)

3. Overall, individuals living in urban areas who have no education are twice as likely to be without work as their rural counterparts. People with no education in Kenya are 1.7 times more likely to have no work than people with secondary education and above.

4. One measure of inequality in opportunity across counties is the share of those with secondary education or higher that are without work. This figure is highest in the northern and coastal counties (i.e. in Wajir, Garissa, Turkana, Mandera, Isiolo, Samburu, Mombasa, Marsabit, Tana River), but it is also high in Nairobi (10.1 percent).

Access to improved sources of water

1. Individuals in urban areas have one and half times more access to improved water sources than their rural counterparts.

2. In Nairobi, Mombasa and Kiambu, 7 in 10 households or more have access to improved water sources compared to only 2 in 10 households in Bomet, Baringo and Narok.

3. Disparities are bigger at the constituency level where 9 out of every 10 households or more have access to improved water sources in Embakasi North (the best ranked constituency) compared to only 4 in every 100 households in Mandera West constituency (the worst ranked constituency), a difference of 86 percentage points.

Access to improved sanitation

1. People living in urban areas have two times more access to improved sanitation than their rural counterparts

2. The share of those in Nairobi County (87.9 percent) with access to improved sanitation is 15 times greater than those in Wajir County (6.7 percent).

3. At constituency level the difference in share of those with access to improved sanitation in Kangema (the best ranked constituency with access levels of 98.5 percent) and Loima (the worst ranked constituency with access levels of 1.9 percent) is 52 times.

4. In most counties, MHH and FHH access to improved sanitation are not markedly different. However, in Kajiado, MHH have greater access to improved sanitation than FHH by 16 percentage points (60.5 and 44.3 percent respectively), while in Garissa, FHH have greater access than MHH by 11 percentage points (30.5 and 19.3 respectively).

Access to improved housing

1. The use of stone walls is six times more common in urban areas than in rural areas.

2. The use of cement flooring is 3 times more common in urban than in rural areas while the use of earth floors is 3 times more common in rural than in urban areas

3. Most Kenyans (74 percent) live in homes with corrugated iron roofs, both in urban and rural areas. However, there are still huge differences across counties, with 95 percent of households in Nyandarua using corrugated iron roofs, while only 10 percent in Wajir do the same. These differences reflect both access to resources and lifestyle differences stemming from pastoralist versus more sedentary living.

Access to improved sources of lighting

1. Only 23 percent of Kenyans use electricity for lighting. Urban areas (51 percent) have 10 times more electricity coverage than rural areas (5 percent).

2. Nairobi County (72 percent) has 36 times more coverage than Turkana and Tana River counties (each has 2 percent coverage).

3. At constituency level, no households have electricity in Eldas constituency (Wajir County), Loima constituency (Turkana County) and Wajir North constituency (Wajir County).

Access to improved sources of cooking fuel

1. When it comes to cooking fuel, 93 percent of Kenyans use either "transition" fuels like charcoal (17 percent) and paraffin (12 percent), or they use "primitive" fuels like firewood (64 percent). Only about 7 percent of Kenyans use "high" energy fuels like electricity, LPG or bio-fuels.

2. More than 90 percent of households in Wajir (95 percent), Mandera (93 percent), Bomet (92 percent), Marsabit (92 percent), West Pokot (91 percent), Vihiga (91 percent), Nyamira (91 percent) and Elgeyo-Marakwet (90 percent) use primitive fuels (i.e. firewood for cooking).

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Abbreviations

AMADPOC	African Migration and Development Policy Centre
CRA	Commission on Revenue Allocation
DANIDA	Danish International Development Agency
DAP	Drivers of Accountability Programme
FHH	Female Headed Household
HDI	Human Development Index
IBP	International Budget Partnership
IEA	Institute of Economic Affairs
IPAR	Institute of Policy Analysis and Research
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KNBS	Kenya National Bureau of Statistics
LPG	Liquefied Petroleum Gas
MHH	Male Headed Household
NCIC	National Cohesion and Integration Commission
NTA	National Taxpayers Association
OLS	Ordinary Least Squares
PCA	Principal Component Analysis
SAE	Small Area Estimation
SID	Society for International Development
TISA	The Institute for Social Accountability
WDR	World Development Report
VIP latrine	Ventilated-Improved Pit latrine
VOCs	Volatile Organic Carbons

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1. Introduction

1.1 Background

For more than half a century many people in the development sector in Kenya have worked at alleviating extreme poverty so that the poorest people can access basic goods and services for survival like food, safe drinking water, sanitation, shelter and education. However when the current national averages are disaggregated there are individuals and groups that still lag too behind. As a result, the gap between the rich and the poor, urban and rural areas, among ethnic groups or between genders reveal huge disparities between those who are well endowed and those who are deprived.

According to the world inequality statistics, Kenya was ranked 103 out of 169 countries making it the 66th most unequal country in the world in. Kenya's Inequality is rooted in its history, politics, economics and social organization and manifests itself in the lack of access to services, resources, power, voice and agency. Inequality continues to be driven by various factors such as: social norms, behaviours and practices that fuel discrimination and obstruct access at the local level and/ or at the larger societal level; the fact that services are not reaching those who are most in need of them due to intentional or unintentional barriers; the governance, accountability, policy or legislative issues that do not favor equal opportunities for the disadvantaged; and economic forces i.e. the unequal control of productive assets by the different socio-economic groups.

According to the 2005 report on the World Social Situation, sustained poverty reduction cannot be achieved unless equality of opportunity and access to basic services is ensured. Reducing inequality must therefore be explicitly incorporated in policies and programmes aimed at poverty reduction**.** In addition, specific interventions may be required, such as: affirmative action; targeted public investments in underserved areas and sectors; access to resources that are not conditional; and a conscious effort to ensure that policies and programmes implemented have to provide equitable opportunities for all.

This chapter presents the basic concepts on inequality and poverty, methods used for analysis, justification and choice of variables on inequality. The analysis is based on the 2009 Kenya housing and population census while the 2006 Kenya integrated household budget survey is combined with census to estimate poverty and inequality measures from the national to the ward level. Tabulation of both money metric measures of inequality such as mean expenditure and non-money metric measures of inequality in important livelihood parameters like, employment, education, energy, housing, water and sanitation are presented. These variables were selected from the census data and analyzed in detail and form the core of the inequality reports. Other variables such as migration or health indicators like mortality, fertility etc. are analyzed and presented in several monographs by Kenya National Bureau of Statistics and were therefore left out of this report.

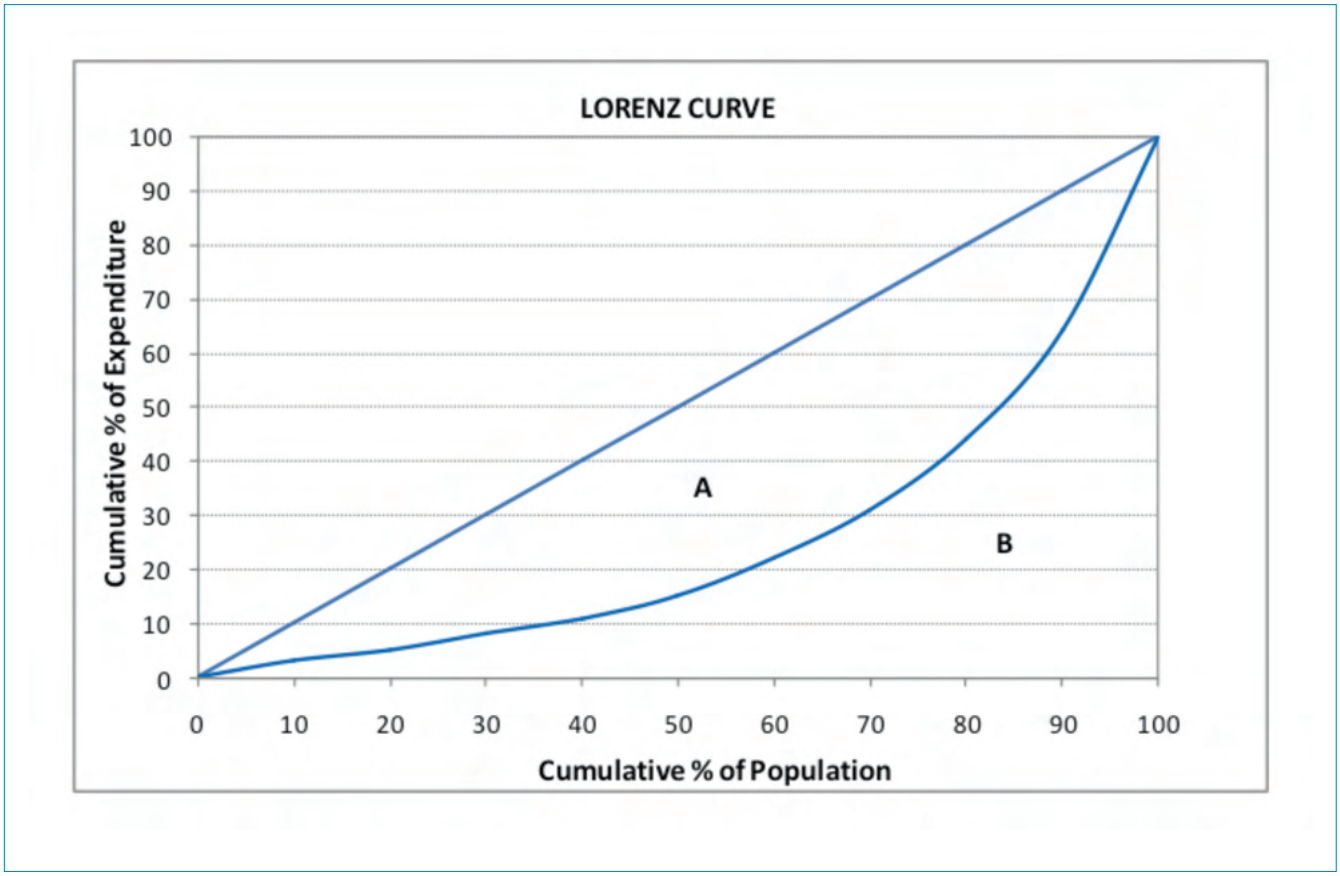
1.2 Methodology

Gini-coefficient of inequality

This is the most commonly used measure of inequality. The coefficient varies between '0', which reflects complete equality and '1' which indicates complete inequality. Graphically, the Gini coefficient can be easily represented by the area between the Lorenz curve and the line of equality. On the figure below, the Lorenz curve maps the cumulative income share on the vertical axis against the distribution of the population on the horizontal axis. The Gini coefficient is calculated as the area (A) divided by the sum of areas (A and B) i.e. A/(A+B). If A=0 the Gini coefficient becomes 0 which means perfect equality, whereas if B=0 the Gini coefficient becomes 1 which means complete inequality. Let x_i be a point on the X-axis, and y_i a point on the Y-axis, the Gini coefficient formula is:

$$Gini = 1 - \sum_{i=1}^{N} (x_i - x_{i-1})(y_i + y_{i-1})$$

An Illustration of the Lorenz Curve



Small Area Estimation (SAE)

The small area problem essentially concerns obtaining reliable estimates of quantities of interest — totals or means of study variables, for example — for geographical regions, when the regional sample sizes are small in the survey data set. In the context of small area estimation, an area or domain becomes small when its sample size is too small for direct estimation of adequate precision. If the regional estimates are to be obtained by the traditional direct survey estimators, based only on the sample data from the area of interest itself, small sample sizes lead to undesirably large standard errors for them. For instance, due to their low precision the estimates might not satisfy the generally accepted publishing criteria in official statistics. It may even happen that there are no sample members at all from some areas, making the direct estimation impossible. All this gives rise to the need of special small area estimation methodology.

Most of KNBS surveys are designed to provide statistically reliable, design-based estimates only at the national, provincial and district levels such as the Kenya Intergraded Household Budget Survey of 2005/06 (KIHBS). The sheer practical difficulties and cost of implementing and conducting sample surveys that would provide reliable estimates at levels finer than the district are generally prohibitive, both in terms of the increased sample size required and in terms of the added burden on providers of survey data (respondents). Through this process and using the census and other survey datasets, accurate small area poverty estimates for 2009 for all the counties are obtain.

The sample in the 2005/06 KIHBS, which was a representative subset of the population, collected detailed information regarding consumption expenditures. The survey gives poverty estimate of urban and rural poverty at the National level, the provincial level and, albeit with less precision, at the district level. However, the sample sizes of such household surveys preclude estimation of meaningful poverty measures for smaller areas such as divisions, locations or wards. Data collected through censuses are sufficiently large to provide representative measurements below the district level such as divisions, locations and sub-locations. However, this data does not contain the detailed information on consumption expenditures required to estimate poverty indicators. In small area estimation methodology, the first step of the analysis involves exploring the relationship between a set of characteristics of households and the welfare level of the same households, which has detailed information about household expenditure and consumption. A regression equation is then estimated to explain daily per capita consumption and expenditure of a household using a number of socio-economic variables such as household size, education levels, housing characteristics and access to basic services.

While the census does not contain household expenditure data, it does contain these socio-economic variables. Therefore, it will be possible to statistically impute household expenditures for the census households by applying the socio-economic variables from the census data on the estimated relationship based on the survey data. This will give estimates of the welfare level of all households in the census, which in turn allows for estimation of the proportion of households that are poor and other poverty measures for relatively small geographic areas. To determine how many people are poor in each area, the study would then utilize the 2005/06 monetary poverty lines for rural and urban households respectively.

In terms of actual process, the following steps were undertaken:

Cluster Matching: Matching of the KIHBS clusters, which were created using the 1999 Population and Housing Census Enumeration Areas (EA) to 2009 Population and Housing Census EAs. The purpose was to trace the KIBHS 2005/06 clusters to the 2009 Enumeration Areas.

Zero Stage: The first step of the analysis involved finding out comparable variables from the survey (Kenya Integrated Household Budget 2005/06) and the census (Kenya 2009 Population and Housing Census). This required the use of the survey and census questionnaires as well as their manuals.

First Stage (Consumption Model): This stage involved the use of regression analysis to explore the relationship between an agreed set of characteristics in the household and the consumption levels of the same households from the survey data. The regression equation was then used to estimate and explain daily per capita consumption and expenditure of households using socio-economic variables such as household size, education levels, housing characteristics and access to basic services, and other auxiliary variables. While the census did not contain household expenditure data, it did contain these socio-economic variables.

Second Stage (Simulation): Analysis at this stage involved statistical imputation of household expenditures for the census households, by applying the socio-economic variables from the census data on the estimated relationship based on the survey data.

Identification of poor households (Principal Component Analysis (PCA)

In order to attain the objective of the poverty targeting in this study, the household needed to be established. There are three principal indicators of welfare; household income; household consumption expenditures; and household wealth. Household income is the theoretical indicator of choice of welfare/economic status. However, it is extremely difficult to measure accurately due to the fact that many people do not remember all the sources of their income or better still would not want to divulge this information. Measuring consumption expenditures has many drawbacks such as the fact that household consumption expenditures typically are obtained from recall method usually for a period of not more than four weeks. In all cases a well planned and large scale survey is needed, which is time consuming and costly to collect. The estimation of wealth is a difficult concept due to both the quantitative as well as the qualitative aspects of it. It can also be difficult to compute especially when wealth is looked at as both tangible and intangible.

Given that the three main indicators of welfare cannot be determined in shorter time, an alternative method that would more quick is needed. The alternative approach then in measuring welfare is generally through the asset

index. In measuring the asset index, multivariate statistical procedures such the factor analysis, discriminate analysis, cluster analysis or the principal component analysis methods are used. Principal components analysis transforms the original set of variables into a smaller set of linear combinations that account for most of the variance in the original set. The purpose of PCA is to determine factors (i.e., principal components) in order to explain as much of the total variation in the data as possible.

In this project the Principal component analysis was utilized in order to generate the asset (wealth) index for each household the study area. The PCA can be used as an exploratory tool to investigate patterns in the data; in identify natural groupings of the population for further analysis and; to reduce several dimensionalities in the number of known dimensions. In generating this index information from the datasets such as the tenure status of main dwelling units; roof, wall, and floor materials of main dwelling; main source of water; means of human waste disposal; cooking and lighting fuels; household items such radio TV, fridge etc was required. The recent available dataset that contains this information for the project area is the Kenya Population and Housing Census 2009.

There are four main approaches to handling multivariate data for the construction of the asset index in surveys and censuses. The first three may be regarded as exploratory techniques leading to index construction. This are graphical procedures and summary measures, and two popular multivariate procedures, cluster analysis and principal component analysis (PCA), these are two of the key procedures that have a useful preliminary role to play in index construction and lastly regression modeling approach.

In the recent past there has been increasingly routine application of PCA to asset data in creating welfare indices (Gwatkin et al. 2000, Filmer and Pritchett 2001 and McKenzie 2003). We review how PCA based indices are constructed and how they can be used, and assess their advantages and limitations by presenting a worked example. The multi-dimensional data is usually structured into rows and columns. The rows are always associated with households (cases) and the columns associated with the household assets (variables).

1.3 Concepts and definitions

Inequality

Inequality is characterized by the existence of unequal opportunities or life chances and unequal conditions such as incomes, goods and services. Inequality, usually structured and recurrent, results into an unfair or unjust gap between individuals, groups or households relative to others within a population. There are several methods of measuring inequality. In this study, we consider among other methods, the Gini-coefficient, the difference in expenditure shares and access to important basic services.

Equality and Equity

Although the two terms are sometimes used interchangeably, they are different concepts. Equality requires all to have same/ equal resources, while equity requires all to have the same opportunity to access same resources, survive, develop, and reach their full potential, without discrimination, bias, or favoritism. Equity also accepts differences that are earned fairly.

Poverty

The poverty line is a threshold below which people are deemed poor. Statistics summarizing the bottom of the consumption distribution (i.e. those that fall below the poverty line) are therefore provided. In 2005/06, the poverty line was estimated at Ksh1,562 and Ksh2,913 per adult equivalent[1] per month for rural and urban households

1 This is basically the idea that every person needs different levels of consumption because of their age, gender, height, weight, etc. and therefore we take this into account to create an adult equivalent based on the average needs of the different populations.

respectively. Nationally, 45.2 percent of the population lives below the poverty line (2009 estimates) down from 46 percent in 2005/06.

Spatial Dimensions

The reason poverty can be considered a spatial issue is two-fold. People of a similar socio-economic background tend to live in the same areas because the amount of money a person makes usually, but not always, influences their decision as to where to purchase or rent a home. At the same time, the area in which a person is born or lives can determine the level of access to opportunities like education and employment because income and education can influence settlement patterns and also be influenced by settlement patterns. They can therefore be considered causes and effects of spatial inequality and poverty.

Employment

Access to jobs is essential for overcoming inequality and reducing poverty. People who cannot access productive work are unable to generate an income sufficient to cover their basic needs and those of their families, or to accumulate savings to protect their households from the vicissitudes of the economy. The unemployed are therefore among the most vulnerable in society and are prone to poverty. Levels and patterns of employment and wages are also significant in determining degrees of poverty and inequality. Macroeconomic policy needs to emphasize the need for increasing regular good quality 'work for pay' that is covered by basic labour protection. The population and housing census 2009 included questions on labour and employment for the population aged 15-64. The census, not being a labour survey, only had few categories of occupation which included work for pay, family business, family agricultural holdings, intern/volunteer, retired/home maker, full time student, incapacitated and no work. The tabulation was nested with education- for none, primary and secondary level.

Education

Education is typically seen as a means improving people's welfare. Studies indicate that inequality declines as the average level of educational attainment increases, with secondary education producing the greatest payoff, especially for women (Cornia and Court, 2001). There is considerable evidence that even in settings where people are deprived of other essential services like sanitation or clean water, children of educated mothers have much better prospects for survival than do the children of uneducated mothers. Education is therefore typically viewed as a powerful factor in leveling the field of opportunity as it provides individuals with the capacity to obtain a higher income and standard of living. By learning to read and write and acquiring technical or professional skills, people increase their chances of obtaining decent, better-paying jobs. Education however can also represent a medium through which the worst forms of social stratification and segmentation are created. Inequalities in quality and access to education often translate into differentials in employment, occupation, income, residence and social class. These disparities are prevalent and tend to be determined by socio-economic and family background. Because such disparities are typically transmitted from generation to generation, access to educational and employment opportunities are to a certain degree inherited, with segments of the population systematically suffering exclusion. The importance of equal access to a well-functioning education system, particularly in relation to reducing inequalities, cannot be overemphasized.

Water

According to UNICEF (2008), over 1.1 billion people lack access to an improved water source and over three million people, mostly children, die annually from water-related diseases. Water quality refers to the basic and physical characteristics of water that determines its suitability for life or for human uses. The quality of water has tremendous effects on human health both in the short term and in the long term. As indicated in this report, slightly over half of Kenya's population has access to improved sources of water.

Sanitation

Sanitation refers to the principles and practices relating to the collection, removal or disposal of human excreta, household waste, water and refuse as they impact upon people and the environment. Decent sanitation includes appropriate hygiene awareness and behavior as well as acceptable, affordable and sustainable sanitation services which is crucial for the health and wellbeing of people. Lack of access to safe human waste disposal facilities leads to higher costs to the community through pollution of rivers, ground water and higher incidence of air and water borne diseases. Other costs include reduced incomes as a result of disease and lower educational outcomes. Nationally, 61 percent of the population has access to improved methods of waste disposal. A sizeable population i.e. 39 percent of the population is disadvantaged. Investments made in the provision of safe water supplies need to be commensurate with investments in safe waste disposal investments and hygiene promotion to have significant impact.

Housing Conditions (Roof, Wall and Floor)

Housing conditions are an indicator of the degree to which people live in humane conditions. Materials used in the construction of the floor, roof and wall materials of a dwelling unit are also indicative of the extent to which they protect occupants from the elements and other environmental hazards. Housing conditions have implications for provision of other services such as connections to water supply, electricity, and waste disposal. They also determine the safety, health and well being of the occupants. Low provision of these essential services leads to higher incidence of diseases, fewer opportunities for business services, and lack of a conducive environment for learning. It is important to note that availability of materials, costs, weather and cultural conditions have a major influence on the type of materials used in different localities.

Energy fuel for cooking and lighting

Lack of access to clean sources of energy is a major impediment to development through health related complications such as increased respiratory infections and air pollution. The type of cooking fuel or lighting fuel used by households is related to the socio-economic status of households. High level energy sources are cleaner but cost more and are used by households with higher levels of income compared with primitive sources of fuel like firewood which are mainly used by households with a lower socio-economic profile. Globally about 2.5 billion people rely on biomass such as fuel-wood, charcoal, agricultural waste and animal dung to meet their energy needs for cooking.