Kenya - Multiple Indicator Cluster Survey Nyanza region 2011

Kenya National Bureau of Statistics

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Overview

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Overview

ABSTRACT
The Nyanza Province County-based MICS survey 2011 is a representative sample survey drawn using the 2009 Census Enumeration Areas (EAs) as the sampling frame. A stand-alone statistical frame for each of the Nyanza counties was constructed based on the 2009 census EAs for the purpose of this MICS survey. The 300 EAs were sampled using the probability proportional to size (PPS) sampling methodology, and information from a total of 6828 households were collected using structured questionnaires. The Nyanza Province County-based MICS survey is the first largest household sample surveys ever conducted with the inclusion of the County governance structures that came into effect as part of the Constitution of Kenya, 2010. The survey used a two stage design. In the first stage, EAs were selected and in the second stage households were selected systematically using a random start from the list of households1. The data was collected by twelve teams comprising of seven members each (one supervisor, one editor, one measurer and 4 interviewers). The survey was implemented by the Kenya National Bureau of Statistics (KNBS) with support from UNICEF.

The lives of children and women have improved significantly in the recent past, both at the global and national level. In spite of this, statistics and data presented at national levels often conceal disparities evident among the poor households in terms of access to basic services such as health care, education and protection. In addition, urban residents often present higher levels of achievement in most of the indicators compared to their rural counterparts. This may be attributed to their proximity to essential services ranging from infrastructure to provision of improved services like electricity and piped water.

The Multiple Indicator Cluster Survey (MICS) 2011 was conducted to provide comprehensive and disaggregated data to fill the existing gap, particularly at the county level. The survey, which was the first of its kind to be conducted at the devolved level, was a follow-up to the MICS 2008 conducted in 13 districts in Eastern Province and the 2009 Mombasa Informal Settlement Survey. The objective of Nyanza MICS 2011 was to provide lower-level estimates relating to children and women residing in the six counties of the region. Particular emphasis was on reproductive health, child health and mortality, nutrition, child protection, childhood development, water and sanitation, hand washing practices, education, disability and HIV/AIDS, and orphanhood.

The results of Nyanza MICS 2011 presented in this report will therefore provide requisite baseline information and facilitate evidence-based planning and programming by policymakers and stakeholders in the development sphere.

KIND OF DATA
Sample survey data [ssd]

UNITS OF ANALYSIS
Lists of households were prepared by the listing teams in the field for each enumeration area. The households were then sequentially numbered from 1 to n (the total number of households in each enumeration area) at the KNBS Office, where the selection of 25 households in each enumeration area was carried out using random systematic selection procedures.

Coverage

GEOGRAPHIC COVERAGE
The survey covered all the 6 constituent counties of Nyanza, namely: Siaya, Kisumu, Homa Bay, Migori, Kisii, and Nyamira.

UNIVERSE
This survey covered all households sampled. Households interviewed were 6828, number of women interviewed were 5908 and number of children under-5 years interviewed were 5045

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
Kenya National Bureau of Statistics	Ministry of Planning and Devolution

OTHER PRODUCER(S)

Name	Affiliation	Role
Kenya National Bureau of Statistics	Ministry of Planning and Devolution	Conducting and Documentantion of the Survey

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Sampling

Sampling Procedure

The sample for the Nyanza Province Multiple Indicator Cluster Survey (MICS) was designed to provide estimates for a large number of indicators on the situation of children and women at the provincial level, for urban and rural areas, and for counties: Siaya, Migori, Kisumu, Homa Bay, Kisii, and Nyamira. The urban and rural areas within each County were identified as the main sampling strata and the sample was selected in two stages. The primary sampling units (PSUs) for the survey were the recently created enumeration areas (EAs) based on the 2009 Kenya Population and Housing Census while the households were the ultimate sampling units. A stand-alone statistical frame for each of the Nyanza counties based on the 2009 census EAs was created for the purpose of MICS. Within each stratum, a specified number of census enumeration areas were selected systematically with probability proportional to size. A complete listing of all households in the selected EAs was undertaken by identifying and mapping all existing structures and households. The listing process ensured that the EAs had one measure of size (MOs). One MOs was defined as an EA having an average of 100 households. EA with less than 50 households was amalgamated with the most convenient adjoining EA. On the other hand, the EAs with more than 149 ouseholds were segmented during household listing and eventually one segment scientifically selected and developed into a cluster. After a household listing exercise within the selected enumeration areas, a systematic sample of 25 households was drawn from each of the sampled enumeration area. The sample was stratified by County, urban and rural areas, and is not self-weighting. For reporting provincial level results, sample weights are used.

Response Rate

Of the 7500 households selected for the sample, 6994 were found to be occupied. Of these, 6828 were successfully interviewed for a household response rate of 97.6 per cent. In the interviewed households, 6581 women (age 15-49 years) were identified. Of these, 5908 were successfully interviewed, yielding a response rate of 89.8 per cent within interviewed households. In addition, 5157 children under age five were listed in the household questionnaire. Questionnaires were completed for 5045 of these children, which corresponds to a response rate of 97.8 per cent within interviewed households. Overall response rates of 87.6 and 95.5 are calculated for the women’s and under-5’s interviews respectively.

Overall household responses rates were 98 per cent for rural areas and 94 per cent for urban areas. The same trends was observed for overall women response rates and under-five overall response rates, in favour of rural areas. At the County levels, household response rates were all above 95 per cent, but differentials were observed for women response rates across counties. Overall women response rates were lowest in Nyamira County at 84 per cent and highest in Siaya at 95 per cent. Given the fact that Nyamira has response rates below 85 per cent, the results for this region or residence should be interpreted with some caution, as the response rate is low. Similarly overall under-five response rates were highest in Siaya County and lowest in Nyamira County. The reasons for the lower response rates for Nyamira County are not readily available, but a range of explanations for this lower performance include that a large section of the population who were not reachable on certain prayer days, in addition, heavy downpours affected availability of respondents during the whole day while working on farms.

Weighting

The Nyanza province Multiple Indicator Cluster Survey sample is not self-weighting. Essentially, by allocating equal numbers of households to each of the regions, different sampling fractions were used in each region since the size of the regions varied. For this reason, sample weights were calculated and these were used in the subsequent analyses of the survey data.

The major component of the weight is the reciprocal of the sampling fraction employed in selecting the number of sample households in that particular sampling stratum (h) and PSU (i):

The term fhi, the sampling fraction for the i-th sample PSU in the h-th stratum, is the product of probabilities of selection at every stage in each sampling stratum: where pshi is the probability of selection of the sampling unit at stage s for the i-th sample PSU in the h-th sampling stratum.

Since the estimated number of households in each enumeration area (PSU) in the sampling frame used for the first stage

selection and the updated number of households in the enumeration area from the listing were different, individual sampling fractions for households in each sample enumeration area (cluster) were calculated. The sampling fractions for households in each enumeration area (cluster) therefore included the first stage probability of selection of the enumeration area in that particular sampling stratum and the second stage probability of selection of a household in the sample enumeration area (cluster).

A second component in the calculation of sample weights takes into account the level of non-response for the household and individual interviews. The adjustment for household non-response is equal to the inverse value of: RRh = Number of interviewed households in stratum h/ Number of occupied households listed in stratum h After the completion of fieldwork, response rates were calculated for each sampling stratum. These were used to adjust the sample weights calculated for each cluster. Response rates in the Nyanza province Multiple Indicator Cluster Survey are shown in Table HH.1 in this report.

Similarly, the adjustment for non-response at the individual level (women and under-5 children) for each stratum is equal to the inverse value of: RRh = Completed women's (or under- 5's) questionnaires in stratum h / Eligible women (or under-5s) in stratum h The non-response adjustment factors for women's and under-5's questionnaires are applied to the adjusted household weights. Numbers of eligible women and under-5 children were obtained from the roster of household members in the Household Questionnaire for households where interviews were completed.

The design weights for the households were calculated by multiplying the above factors for each enumeration area. These weights were then standardized (or normalized), one purpose of which is to make the weighted sum of the interviewed sample units equal the total sample size at the national level. Normalization is performed by dividing the aforementioned design weights by the average design weight at the national level. The average design weight is calculated as the sum of the design weights divided by the unweighted total). A similar standardization procedure was followed in obtaining standardized weights for the women's and under-5's questionnaires. Sample weights were appended to all data sets and analyses were performed by weighting each household, woman or under-5 with these sample weights.

Questionnaires

Overview

Three sets of questionnaires were used in the survey:
(1) a household questionnaire which was used to collect information on all de jure household members, the household and the dwelling;
(2) a women's questionnaire administered in each household to women aged 15-49 years; and
(3) an under-5 questionnaire, administered to mothers or caretakers of all children under 5 children living in the household.

Data Collection

Data Collection Dates

Start	End	Cycle
2011-10-01	2012-01-31	N/A

Data Collection Mode

Face-to-face [f2f]

Questionnaires

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Data Processing

Other Processing

Data were entered using the CSPro software. The data were entered into microcomputers by 23 data entry operators and 4 data entry supervisors. In order to ensure quality control, all questionnaires were double entered and internal consistency checks were performed. Procedures and standard programs developed under the global MICS4 programme and adapted to the Nyanza Province questionnaire were used throughout. Data processing began three weeks after commencing data collection in October 2011 and was completed in January 2012. Data were analysed using the Statistical Package for Social Sciences (SPSS) software program, Version 18, and the model syntax and tabulation plans developed by UNICEF were used for this purpose.

Data Appraisal

Estimates of Sampling Error

The sample of respondents selected in the Nyanza province Multiple Indicator Cluster Survey is only one of the samples that could have been selected from the same population, using the same design and size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. Sampling errors are a measure of the variability between the estimates from all possible samples. The extent of variability is not known exactly, but can be estimated statistically from the survey data.

The following sampling error measures are presented in this appendix for each of the selected indicators:

· Standard error (se): Sampling errors are usually measured in terms of standard errors for particular indicators (means, proportions etc). Standard error is the square root of the variance of the estimate. The Taylor linearization method is used for the estimation of standard errors.
· Coefficient of variation (se/r) is the ratio of the standard error to the value of the indicator, and is a measure of the relative sampling error.
· Design effect (deff) is the ratio of the actual variance of an indicator, under the sampling method used in the survey, to the variance calculated under the assumption of simple random sampling. The square root of the design effect (deft) is used to show the efficiency of the sample design in relation to the precision. A deft value of 1.0 indicates that the sample design is as efficient as a simple random sample, while a deft value above 1.0 indicates the increase in the standard error due to the use of a more complex sample design.
· Confidence limits are calculated to show the interval within which the true value for the population can be reasonably assumed to fall, with a specified level of confidence. For any given statistic calculated from the survey, the value of that statistic will fall within a range of plus or minus two times the standard error (r + 2.se or r - 2.se) of the statistic in 95 per cent of all possible samples of identical size and design.
For the calculation of sampling errors from MICS data, SPSS Version 18 Complex Samples module has been used. The results are shown in the tables that follow. In addition to the sampling error measures described above, the tables also include weighted and unweighted counts of denominators for each indicator.

Sampling errors are calculated for indicators of primary interest, for the national level, for the regions, and for urban and rural areas. Three of the selected indicators are based on households, 8 are based on household members, 13 are based on women, and 15 are based on children under 5. All indicators presented here are in the form of proportions.

File Description

Variable List

Documentation

Questionnaires

2011 Nyanza Province Multiple Indicator Cluster Survey Questionnaires

Title 2011 Nyanza Province Multiple Indicator Cluster Survey Questionnaires
Filename Docs/KEN-KNBS-MICS-Nyanza-2011-Questionnaires.pdf

Technical documents

MICS4 Nyanza Report

Title MICS4 Nyanza Report
Filename Docs/MICS4 Nyanza Report.pdf

MICS4 Report Homa Bay

Title MICS4 Report Homa Bay
Filename Docs/MICS4 Report Homa Bay.pdf

MICS4 Report Kisii

Title MICS4 Report Kisii
Filename Docs/MICS4 Report Kisii.pdf

MICS4 Report Kisumu

Title MICS4 Report Kisumu
Filename Docs/MICS4 Report Kisumu.pdf

MICS4 Report Migori

Title MICS4 Report Migori
Filename Docs/MICS4 Report Migori.pdf

MICS4 Report Nyamira

Title MICS4 Report Nyamira
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MICS4 Report Siaya

Title MICS4 Report Siaya
Filename Docs/MICS4 Report Siaya.pdf

Other materials

MICS4 Nyanza Facts & Figures

Title	MICS4 Nyanza Facts & Figures
Filename	Docs/MICS4 Nyanza Facts & Figures.pdf

MICS4 Nyanza Factsheet

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