

Kazakhstan - Multiple Indicator Cluster Survey 2015

**The Statistics Committee of the Ministry of National Economy of the Republic of
Kazakhstan, United Nations Children's Fund**

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Sampling

Sampling Procedure

The database and cartographic materials of the 2009 National Population Census (2009 Census) in the Republic of Kazakhstan were used in the process forming the sampling frame. The census enumeration areas (EAs) formed for the Census were used as the primary sampling units (PSUs).

The urban and rural areas within each region were identified as the main sampling strata and the sample was selected in two stages. In total, 30 strata were formed - 16 urban including two large cities and 14 rural. At the first sampling stage within each stratum, 840 census enumeration areas were selected systematically with probability proportional to size. At the second sampling stage, upon conducting a household listing within the selected enumeration areas, a random systematic sample of 20 households was drawn in each sample enumeration area, for a total sample size of 16,800 households.

Out of 840 clusters, which were liable for verification, cluster #338, located in the Karaganda region, was inaccessible due to the fact that this territory is under a long-term lease to the Russian Federation and thus under its jurisdiction.

The sample was stratified by region, urban and rural areas, and is not self-weighted. The sample weights are used for reporting nationally representative results. A more detailed description of the sample design can be found in the Final Report (Appendix A, Sample Design) attached as Related Material.

Response Rate

Of the 16,791 households in the sample, 16,605 households were inhabited. Of these, 16,500 households were successfully interviewed: the proportion of interviewed households amounted to 99.4 percent. 12,910 women aged 15-49 years were identified in the interviewed households, of which 12,670 women were successfully interviewed: the proportion of female respondents in interviewed households was 98.1 percent. The list of household members in the household Questionnaire identified 5,561 children under 5. Questionnaires were completed for 5,510 children, which corresponds to 99.1 percent response rate for the interviewed households.

The household response rates in urban and rural areas were more than 99 percent, and by regions - more than 98 percent.

Weighting

In order for estimates from the sample of the 2015 Kazakhstan MICS to be representative of the population, it is necessary to multiply the data by a sampling weight, or expansion factor. The basic weight for each sample household would be equal to the inverse of its probability of selection (calculated by multiplying the probabilities at each sampling stage). A household weight was attached to each sample household record in the data files. In addition, woman weights and under-5 children weights were also calculated.

The 2015 Kazakhstan MICS sample is not self-weighting. A disproportionate number of households was allocated to each region because of the variability in their size, so different sampling fractions were used for each region. For this reason, sample weights were calculated and 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).

Since the number of households in each enumeration area (PSU) from the 2009 Census frame used for the first stage selection and the number of households in the enumeration area identified in the updated listing are generally different, individual probabilities of selection for households in each sample enumeration area (cluster) were calculated.

A final component in the calculation of sample weights takes into account the level of non-response for the household and individual interviews. Similarly, adjustment for non-response at the individual level (women and under-5 children) for each stratum.

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.

The non-response adjustment factors for the individual women and under-5 questionnaires were applied to the adjusted household weights. The 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 inverse of the probabilities of selection by the non-response adjustment factor for each enumeration area. These weights were then standardized (or normalized), one purpose of which is to make the weighted sum of the interviewed observation units equal to the total sample size at the national level. Normalization is achieved by dividing the full sample weights (adjusted for non-response) by the average of these weights at the national level. This is performed by multiplying the sample weights by a constant factor equal to the unweighted number of households at the national level divided by the weighted total number of households (using the full sample weights adjusted for non-response). A similar standardization procedure was followed in obtaining standardized weights for the individual women and under-5 questionnaires. Adjusted (normalized) weights for households varied between 0.078982831 and 15.69742236 in the 839 sample enumeration areas (clusters).

The standardized sample weights were appended to all data sets, and analyses were performed by weighting households, women and under-5 children with these sample weights.

Questionnaires

Overview

Three sets of questionnaires were used in the survey: 1) a household questionnaire which was used to collect basic demographic information on all de jure household members (usual residents), the household, and the dwelling; 2) a questionnaire for individual women administered in each household to all women aged 15-49 years; and 3) an under-5 questionnaire, administered to mothers (or primary caretakers) of all children under 5 living in the household that included a form for collecting vaccination records at Health Facilities for children under 3.

The Fertility module was included in order to be able to calculate indicators concerning total fertility rate and adolescent birth rate. From the onset, it was decided that childhood mortality indicators will not be calculated on the basis of this survey. Following the 2013 UN Inter-agency Group for Child Mortality Estimation (IGME) mission to Kazakhstan, which assessed that the official registration of births and deaths of children aged 0 to 5 years in the country was in line with international standards, the government made a decision to use infant and child mortality data generated by the official statistics, taking into account the adjustments of the IGME.

The Questionnaire for Children Under Five was administered to mothers (or primary caretakers) of children under 5 years of age living in the households. Normally, the questionnaire was administered to mothers of under-5 children; in cases when the mother was not listed in the household roster, a primary caretaker for the child was identified and interviewed.

An additional form was used for all children aged 0-2 years with a completed Questionnaire for Children Under Five, the Appendix for Data Collection at Health Facility About Immunization, to record vaccinations from the registries at health facilities.

The questionnaires are based on the MICS5 model questionnaires. From the MICS5 model English and Russian versions, the questionnaires were customised for 2015 Kazakhstan MICS and translated into the Kazakh language. The questionnaires in the Kazakh and Russian languages were pre-tested in Astana city and in the urban and rural settlements of Karaganda region in May 2015. Based on the results of the pre-test, modifications were made to the wording and translation of the questionnaires. A copy of the 2015 Kazakhstan MICS questionnaires is provided as Related Material.

In addition to the administration of questionnaires, fieldwork teams tested salt used for cooking in the households for iodine content, observed the place for handwashing, and measured the weight and height of children under 5 years of age.

Data Collection

Data Collection Dates

Start	End	Cycle
2015-09	2015-11	N/A

Data Collection Mode

Face-to-face [f2f]

DATA COLLECTION NOTES

Training of teams for fieldwork data collection was conducted for 13 days - from 17 to 29 August 2015. Training included lectures and presentations on the rules and interviewing techniques, the contents of the questionnaires, as well as role playing games, pilot interviews and testing the knowledge of participants.

Toward the end of the training period, participants spent 2 days in practice interviewing in the clusters of Almaty city and Almaty oblast (urban and rural).

16 teams performed data collection; each comprised of one supervisor, one editor, one measurer and 4 interviewers. Furthermore, each team had one driver. Fieldwork began in early September and concluded in late November 2015.

Data Processing

Data Editing

Data entry was done using the CSPro software, Version 5.0. The data entry was done on 10 desktop computers by 10 data entry operators and overseen by 2 office editors (questionnaire administrator and data entry editor), as well as by one data entry supervisor. For quality assurance purposes, all questionnaires were entered twice and internal consistency checks were performed. Procedures and standard programmes developed under the global MICS programme and adapted to the 2015 Kazakhstan MICS questionnaires were used throughout. Data processing began in parallel with data collection on 15 September and was completed in December 2015. Data was analysed using the Statistical Package for Social Sciences (SPSS) software, Version 21. Model syntaxes and tabulation plans developed by UNICEF were customized and used for this purpose.

Data Appraisal

Estimates of Sampling Error

The sample of respondents selected in the Multiple Indicator Cluster Survey - 2015 Kazakhstan MICS - 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 variation or 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): Standard error is the square root of the variance of the estimate. For survey indicators that are means, proportions or ratios, the Taylor series linearization method is used for the estimation of standard errors. For more complex statistics, such as fertility and mortality rates, the Jackknife repeated replication method is used for standard error estimation.
- Coefficient of variation (se/r) is the ratio of the standard error to the value (r) 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 based on the same sample size. 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 of the survey is as efficient as a simple random sample for a particular indicator, while a deft value above 1.0 indicates an 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 percent of all possible samples of identical size and design.

For the calculation of sampling errors from MICS data, programmes developed in CSPro Version 5.0 and SPSS Version 21 Complex Samples module have been used.

Sampling errors are calculated for indicators of primary interest, for the national level, for urban and rural areas, and for all 16 regions. Of the selected indicators, 9 are based on household members, 17 are based on women, and 14 are based on children under 5.

Related Materials

Questionnaires

Kazakhstan - Multiple Indicator Cluster Survey 2015: Questionnaire (English)

Title Kazakhstan - Multiple Indicator Cluster Survey 2015: Questionnaire (English)
 Country Kazakhstan
 Language English
 Filename Kazakhstan 2015 MICS_English_Questionnaire.pdf

Kazakhstan - Multiple Indicator Cluster Survey 2015: Questionnaire (Russian)

Title Kazakhstan - Multiple Indicator Cluster Survey 2015: Questionnaire (Russian)
 Country Kazakhstan
 Language Russian
 Filename Kazakhstan 2015 MICS_Russian_Questionnaire.pdf

Reports

Kazakhstan - Multiple Indicator Cluster Survey 2015: Final Report (English)

Title Kazakhstan - Multiple Indicator Cluster Survey 2015: Final Report (English)
 Country Kazakhstan
 Language English
 Description The objective of this report is to facilitate the timely dissemination and use of detailed results from the 2015 Kazakhstan MICS by various demographic, social, economic and cultural characteristics.
 Filename Kazakhstan 2015 MICS_English.pdf

Kazakhstan - Multiple Indicator Cluster Survey 2015: Final Report (Russian)

Title Kazakhstan - Multiple Indicator Cluster Survey 2015: Final Report (Russian)
 Country Kazakhstan
 Language Russian
 Filename Kazakhstan 2015 MICS_Russian.pdf

Kazakhstan - Multiple Indicator Cluster Survey 2015: Key Findings (English)

Title Kazakhstan - Multiple Indicator Cluster Survey 2015: Key Findings (English)
 Country Kazakhstan
 Language English
 Filename Kazakhstan 2015 MICS KFR_English.pdf

Kazakhstan - Multiple Indicator Cluster Survey 2015: Key Findings (Russian)

Title Kazakhstan - Multiple Indicator Cluster Survey 2015: Key Findings (Russian)
 Country Kazakhstan

Language Russian

Filename Kazakhstan 2015 MICS KFR_Russian.pdf

Kazakhstan - Multiple Indicator Cluster Survey 2015: Key Findings (Kazakh)

Title Kazakhstan - Multiple Indicator Cluster Survey 2015: Key Findings (Kazakh)

Country Kazakhstan

Language Kazakh

Filename Kazakhstan 2015 MICS KFR_Kazakh.pdf

Technical documents

MICS5 Survey Planning Tools

Title MICS5 Survey Planning Tools

Filename <http://mics.unicef.org/tools?round=mics5>

MICS5 Sampling Tools

Title MICS5 Sampling Tools

Filename <http://mics.unicef.org/tools?round=mics5>

MICS5 Indicator List

Title MICS5 Indicator List

Filename <http://mics.unicef.org/tools?round=mics5>
