Lao PDR - Multiple Indicator Cluster Survey 2006

Department of Statistics - Ministry of Planning and Investment, Hygiene and Prevention Department - Ministry of Health, United Nations Children's Fund

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Sampling

Sampling Procedure

The primary objective of the sample design for the Lao PDR Multiple Indicator Cluster Survey was to produce statistically reliable estimates of most indicators, at the national level, for urban and rural areas with road access and without road access, and for the three regions (North, Central and South) of the country. Urban and rural areas with road access and rural areas without road access in each of the three regions were defined as the sampling domains.

A multi-stage, stratified cluster sampling approach was used for the selection of the survey sample.

The target sample size for the Lao MICS was calculated as 6,000 households. For the calculation of the sample size, the key indicator used was the TT coverage among women who had given birth in the past 12 months.

The 2005 census frame was used for the selection of clusters. Census enumeration areas were defined as primary sampling units (PSUs), and were selected from each of the sampling domains by using systematic PPS (probability proportional to population size) sampling procedures, based on the estimated population size of the enumeration areas from the 2005 Population Census. The first stage of sampling was thus completed by selecting the required number of enumeration areas from each of the three regions by urban and rural with road access and without road access areas separately.

Although the sample was designed to collect information from 6,000 households, it was known in advance that one village only had 15 households, therefore the total expected number of households was 5,995. Of the selected enumeration areas, all but two were visited during the fieldwork period. The two missing enumeration areas were replaced in the field with villages of similar area type. The sample was stratified by region and is not self-weighting. For reporting national level results, sample weights are used.

Since the sample frame (the 2005 Population Census) was up to date, household lists in all selected enumeration areas were not updated prior to the selection of households.

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 National Statistics Centre, where selection of 20 households in each enumeration area was carried out using systematic selection procedures.

The sampling procedures are more fully described in "Multiple Indicator Cluster Survey 2006 - Final Report" pp.135-136.

Response Rate

Of the 5,995 households selected for the sample, 5,991 were found to be occupied. Of these, 5,894 were successfully interviewed for a household response rate of 98.4 percent. In the interviewed households, 7,703 women (age 15-49) were identified. Of these, 7,387 were successfully interviewed, yielding a response rate of 95.9 percent. In addition, 4,204 children under five were listed in the household questionnaire. Questionnaires were completed for 4,136 of these children, which corresponds to a response rate of 98.4 percent. Overall response rates of 94.3 and 96.8 are calculated for the women’s and under-5’s interviews respectively. Response rates were similar across all regions and areas.

Weighting

The Lao PDR Multiple Indicator Cluster Survey sample is not self-weighted. 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 domain: Wh = 1 / fh

A second component which has to be taken into account in the calculation of sample weights is the level of non-response for the household and individual interviews. The adjustment for household non-response is equal to the inverse value of: RR = Number of interviewed households / Number of occupied households listed

Numbers of eligible women and under-5 children were obtained from the household listing in the Household Questionnaire in

households where interviews were completed.

The unadjusted weights for the households were calculated by multiplying the above factors for each enumeration area. These weights were then standardised (or normalised), one purpose of which is to make the sum of the interviewed sample units equal the total sample size at the national level. Normalisation is performed by multiplying the aforementioned unadjusted weights by the ratio of the number of completed households to the total unadjusted weighted number of households. A similar standardisation procedure was followed in obtaining standardised weights for the women's and under-5's questionnaires. Adjusted (normalised) weights varied between 0.521272 and 1.877112 in the 300 enumeration areas (clusters).

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 all women aged 15-49 years; and 3) an under-5 questionnaire, administered to mothers or caretakers of all children under five living in the household. The questionnaires included the following modules:

The Household Questionnaire included the following modules:
o Extended household listing
o Education
o Water and Sanitation
o Household Characteristics
o Insecticide Treated Nets
o Child Labour
o Child Discipline
o Disability
o Salt Iodisation and Consumption of Fortifiable Centrally-processed Foods

The Questionnaire for Individual Women was administered to all women aged 15-49 years living in the households, and included the following modules:
o Pregnancy
o Tetanus Toxoid
o Maternal and Newborn Health
o Attitudes Towards Domestic Violence
o Anthropometry assessments on women of reproductive age
o Collection of blood and urine from women of reproductive age

The Questionnaire for Children Under Five was administered to mothers or caretakers of children under five 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 or was not home, a primary caretaker for the child was identified and interviewed. The questionnaire included the following modules:
o Birth Registration and Early Learning
o Child Development
o Vitamin A
o Breastfeeding
o Care of Child Illness
o Malaria among Under Five
o Immunization
o Anthropometry
o Collection of blood and stool samples (In the subset of nutrition clusters only - results of biochemical analyses of these samples can be found in the nutrition report)

The questionnaires are based on the MICS3 model questionnaire. From the MICS3 model English version, the questionnaires were translated into Lao and were pre-tested in four villages of Vientiane Capital during January 2006. Based on the results of the pre-test, modifications were made to the wording and translation of the questionnaires.

Data Collection

Data Collection Dates

Start	End	Cycle
2006-03	2006-06	N/A

Data Collection Mode

Face-to-face [f2f]

DATA COLLECTION NOTES

Training for the fieldwork was conducted over 14 days in February 2006. Training included lectures on interviewing techniques and the contents of the questionnaires. In addition, a group of laboratory technicians were trained in collection of biochemical samples for the nutrition component of the survey and were also trained and standardised in anthropometry measurement techniques. Towards the end of the training period, all trainees spent three days in practice interviewing, anthropometry and sample collection in nine villages (one village per team). The pilot villages were all in rural areas with road access.

The data were collected by nine teams; each comprised four interviewers, one driver, one laboratory technician (who was responsible for anthropometry and also collection of additional samples for the additional nutrition component of the survey), one editor/measurer and a supervisor. Fieldwork began in March 2006 and concluded in June 2006.

Data Collectors

Name	Abbreviation	Affiliation
Department of Statistics		Ministry of Planning and Investment

SUPERVISION

There is one supervisor for each of the 9 data collection teams in the field.

Data Processing

Data Editing

Data were entered using the CSPro software. The data were entered on 14 microcomputers and carried out by 14 data entry operators and four data entry supervisors. In order to ensure quality control, all questionnaires were double entered and internal consistency checks were performed. However due to unfamiliarity in using the CSPro software, the final consistency checks and the correction in data files were performed using the Statistical Package for Social Sciences (SPSS) software instead. Procedures and standard programmes developed under the global MICS3 project and adapted to the Lao PDR questionnaire were used throughout, except for the final step in consistency checks. Data processing began in May 2006 and was completed in August 2006.

Data Appraisal

Estimates of Sampling Error

The sample of respondents selected in the Lao PDR 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 all possible samples. The extent of variability is not known exactly, but can be estimated statistically from the survey results.

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. The Taylor linearisation 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
• 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. 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. For any given statistic calculated from the survey, the value of that statistics will fall within a range of plus or minus two times the standard error (p + 2.se or p – 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, SPSS Version 14 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 total, for the regions, and for urban, rural with road access and rural without road access areas. Two of the selected indicators are based on households, seven are based on household members, three are based on women, and 15 are based on children under five. All indicators presented here are in the form of proportions.

Other forms of Data Appraisal

A series of data quality tables are available to review the quality of the data and include the following:
- Age distribution of the household population
- Age distribution of eligible and interviewed women
- Age distribution of eligible and interviewed under-5s
- Age distribution of under-5 children
- Heaping on ages and periods
- Completeness of reporting
- Presence of mother in the household and the person interviewed for the under-5 questionnaire
- School attendance by single age
- Sex ratio at birth among children ever born and living
- Distribution of women by time since last birth

The results of each of these data quality tables are shown in appendix D in document "Multiple Indicator Cluster Survey 2006 - Final Report" pp.152-158.

Related Materials

Questionnaires

Multiple Indicator Cluster Survey 2006 - Questionnaire

Title	Multiple Indicator Cluster Survey 2006 - Questionnaire
Author(s)	Department of Statistics United Nations Children's Fund
Country	Lao PDR
Language	English
Filename	LAO_2006_MICS3_questionnaire.pdf

Reports

Multiple Indicator Cluster Survey 2006 - Report

Title	Multiple Indicator Cluster Survey 2006 - Report
Author(s)	Department of Statistics, Lao PDR Hygiene and Prevention Department of Ministry of Health, Lao PDR United Nations Children's Fund
Date	2008-09-01
Country	Lao PDR
Language	English
Filename	http://www.childinfo.org/files/MICS3_Lao_FinalReport_2006_Eng.pdf