

MULTIPLIERS FOR UGANDA NATIONAL HOUSEHOLD SURVEY 1999/2000

1. Sampling Design

The sampling design for UNHS 1999/2000 was generally stratified two-stage sampling, except in some districts where census mapping was not done prior to the 1991 Population and Housing Census. For the two-stage sampling design, the first stage was the selection of the enumeration area (EA) while the second and ultimate stage was the selection of the household. For the three-stage design, the first stage was the selection of Parish, the second stage the LC 1 while the final stage was the household.

2. Stratification

Each district was treated as a separate stratum, with further sub-stratification being District town, other urban areas within the district, and rural areas. However the districts of Kampala and Mpigi were exceptions where the whole of Kampala was treated as urban, whereas Mpigi had four sub-strata. There were thus a total of 116 strata in Uganda.

3. Selection of Enumeration Areas and Households

The total sample for the survey was selected in two parts. These were: (i) the Panel sample which was selected on the basis of Simple Random Sampling (SRS), from the 1,018 Enumeration Areas covered during the 1992/93 Integrated Household Survey (IHS); and (ii) the New sample selected on the basis of Probability Proportional to Size (PPS). The Panel sample comprised 520 EA's while the new sample had 566 making a total of 1086 EA's actually surveyed. For computation of multipliers however, both the panel and new sampled EA's were added together and were treated as having been selected at the same time, from the same universe, on the basis of PPS. Selection of EA's was done at the headquarters before fieldwork started.

Selection of the sample households was done at field level. The first thing a field team would do was to make a fresh list of all households in the selected EA, from which a sample of 10 households would be selected, using Simple Random Sampling, for interviewing. During listing, all households would be classified according to their crop classes, i.e. class "0" for non-farming households, class "1" for small-scale farmers cultivating up to 5 acres of land, and class "2" for large-scale farmers cultivating more than 5 acres. The selection of the sample of households would therefore be done in proportion to the number of households listed in each crop class. Provision was also made to select not more than 4 households from among the panel households (the households interviewed during the 1992/93 Integrated Household Survey) that could be traced during listing. These 4 households would also be part of the 10 households interviewed in each EA.

4. Survey Components

The survey administered 4 different questionnaires, namely: Listing Questionnaire, Socio-economic Questionnaire, Crop Questionnaire, and Community Questionnaire.

The listing and community questionnaires were administered at EA level while the socio-economic and crop questionnaires were administered at household level. The interviewing was conducted using office-based staff.

5. Calculation of Multipliers

Multipliers were calculated on the basis of the probability of selection at each stage. The first stage multiplier is the inverse of the probability of selecting the first-stage sampling unit (the enumeration area, or the parish in case of three-stage sampling). This was done using the formula: $1/n \times 1/p_i$, where n is the number of first-stage samples to be selected, and p_i is the probability of selecting the i^{th} unit in the sample. For PPS selection, p_i meant the probability of selecting a sample of first stage units from the total number of households in a given sub-stratum (e.g. urban or rural). The sampling frame used was the 1991 Population and Housing Census list of households. The first stage multiplier (i.e. multiplier for the EA) is uniform for the socio-economic, crop as well as community surveys.

The second stage multipliers were calculated differently for each of the survey components. For the socio-economic survey, the second stage multiplier is the inverse of the probability of selecting the sample of households to be interviewed, from the total number of households listed in a selected EA. However, for districts where three-stage sampling was done, the second stage multiplier is the inverse of the probability of selecting an LC 1 from the total number of LC 1s in the selected parish. The probability of selecting the households for interviewing would in this case constitute the third stage multiplier. For the crop survey, the second stage multiplier is the inverse of the probability of selecting the sample of households to be interviewed, from the total number of households listed in each of the three crop classes, in the selected EA. For districts where three-stage sampling was done, the second stage multiplier is the same as for the socio-economic survey. Second stage multiplier for the community survey is the inverse of the probability of selecting an LC 1 from the number of LC 1s in the selected EA.

The final multiplier used for weighting the survey results, is the product of the first and second stage multipliers for the two-stage design, while for the three-stage design, the final multiplier is the product of the first-stage, second stage and third stage multipliers.

SUMMARY ON MULTIPLIER CALCULATION

The relevant data for computation of multipliers, including number of households listed and number of households interviewed, was compiled from the registry files as well as the relevant questionnaires. Data on household population was obtained from the respective district sampling frames, based on results of the 1991 Census.

The computation including all the formulae for the calculation of multipliers were done using *LOTUS* Spreadsheet. These figures and formulas can easily be retrieved in an *MS EXCEL 97* Spreadsheet, without any alteration in formats or formulae. The summary of all tasks and activities involved in the calculation of the multipliers, together with the dates of commencement and completion of each task is given in the table below.

Task	Month of start	Month of Completion	Remarks
Compilation of data on number of households listed per EA, as well as number of households interviewed, for all regions	Early August 2000.	Late August 2000.	Some data was missing in the registry files or had been wrongly recorded. In some cases it necessitated physical counting and checking of the questionnaires.
Compilation of data on number of households in each sub-stratum, including number of households in each of the selected EA's, from the 1991 list of EA's.	Early August 2000.	Late August 2000.	The 1991 Census lists are out of date and great differences were noticed in the number of households as compared to what was listed in 1999/2000.
Designing of a detailed format of the spreadsheet on which the data for multipliers were to be entered and the calculations made; Discussion of the format with the survey management team with technical advice from a Survey Design Consultant.	Mid-August, 2000.	Late August 2000.	No major problems encountered, as the format was almost the same as what had been used for the previous surveys, except for the crop survey, which necessitated some modifications.
Computation of multipliers for a few purposively selected districts to generate some trial tables.	Early September 2000.	Mid-September 2000.	It was observed that in quite a large number of EA's, the number of households listed greatly varied from the Census figures and needed to be checked by visiting the EA's again.
Verification of household lists to reconcile with census figures.	Late August 2000.	Late October 2000.	In many cases, listing was done again and correct figures for the listing were obtained. It was found that in some cases there had been either under-listing or over-listing of households.
Computation of first draft of multipliers for socio-economic and community survey for all districts.	Early October 2000.	Late October 2000.	Reconciliation had to be done with the data entry section to correct wrongly entered codes and figures.
Computation and printing of final multipliers for the socio-economic and community survey.	Late October 2000	Mid-November 2000	Nil.
Computation of first draft of multipliers for the crop survey for all districts.	Late October 2000.	Early November 2000.	A lot of inconsistencies were noted in the figures compiled from the registry files and those from the entered data.
Reconciliation of inconsistencies in the between the registry and data entry figures.	Early November 2000.	Mid-November 2000.	Wrong coding during listing was noted. Some households would be given wrong codes for the crop classes.
Checking and reconciling of data from the crop questionnaires and data entered in the computers.	Early November 2000.	Mid-November 2000.	Looking for individual questionnaires proved a slow and tiresome exercise.
Computation and printing of the final set of multipliers for the crop survey.	Late November 2000.	Late November 2000.	Nil.