

Documentation for HIES Sample Selection

Sample Size

In determining an appropriate sample size for a survey of this nature, numerous factors come into the equation. These include:

- a) The degree of accuracy required for key estimates
- b) The population size of the country
- c) The manner in which the sample is selected
- d) Cost or staffing constraints which may exist
- e) Whether or not estimates are required for sub-populations
- f) The level of variability in the data being collected

Each of these factors have different magnitudes of importance, but the major priority should always be on selecting a sample big enough to produce results of suitable accuracy. Many of these issues are generally known as well - for instance:

- A user group may pre-specify what level of accuracy they may wish to achieve for the survey
- The population of a country can normally be estimated to a reasonable level of accuracy
- The sample selection technique adopted is known
- Cost and staff constraints are generally known, and
- A user group can once again provide information on whether estimates for sub-populations are required.

The one thing that normally isn't known is the degree of variability in the data being collected – this information comes after the survey. This factor is important because if there is not much variability in the data for key estimates, then the sample size does not need to be as large, and vice versa.

Without this sort of information, determining the appropriate sample size for a survey can often involve a bit of guess work. For that reason, based on previous survey experience in other Pacific Island countries, a sample of 20 per cent was considered more than sufficient for Palau. An additional 10 per cent of sample was selected to allow for sample loss.

As a result, a sample size of 1,041 households (20 per cent of 4,684, with a 10 per cent top-up) was considered suitable for the survey.

Allocation to “Target Areas”

For the Palau HIES, six target areas were identified as sub-populations for which estimates would be desirable. These six areas, which also can be considered stratum were:

- 1) Koror
- 2) Airai
- 3) East Babeldaob
- 4) West Babeldaob
- 5) Peleliu
- 6) Kayangel/Angaur

Once the sample size of 1,041 had been determined, the next step was determining how the sample should be allocated to each of these target areas in order to produce the required level of accuracy for each area. In order to achieve this, the sample was allocated in such a manner that the expected level of accuracy for each stratum would be similar. The resulting sample allocation can be found in the table below.

Stratum	N	n
Koror	2997	294
Airai	640	216
East Babeldaob	445	188
West Babeldaob	352	169
Peleliu	177	115
Kayangel/Angaur	73	60
TOTAL	4684	1041

Sample Size Modifications

To make workloads even and more manageable in the field for interviewers and supervisors, the final sample size was adjusted such that it was divisible by 15 within each stratum. The number 15 was chosen as it was considered a suitable number of dwellings for an interviewer to enumerate over a three week period.

Another modification to the sample was with Kayangel/Angaur. Given the required sample for this area was derived to be 60 dwellings, and there are only 73 dwellings in these areas, it was decided to completely enumerate this stratum.

Excluded Areas

Although it would be desirable to cover all of Palau for this survey, due to cost and time constraints a couple of areas were excluded from the frame before the selections were made. The two areas removed from scope were:

- Sonsorol
- Tobi

The impact on final estimates is considered to be very small given the small populations on these two islands; 18 households on Sonsorol, and 10 households on Tobi. This accounts for less than 0.5 per cent of the population of Palau.

Sample selection technique

The sample of dwellings was selected independently within each stratum. A complete list of all dwellings identified during the recent census was used as a frame. The first task was to sort the dwellings within each stratum by two variables:

- Hamlet (on Koror) and State (rest of Palau)
- Household Size (number of persons)

Once the list had been sorted, systematic sampling was used to produce the sample of dwellings. A skip was produced by dividing the population size for each stratum by the required sample size (N/n). Having produced the skip, a random start was then generated between 0 and the skip to determine the starting point for the systematic sample.

Final sample size

The final sample sizes for each stratum, including the MCC top-ups were as follows:

Stratum	N	n	n_adj
Koror	2997	294	300
Airai	640	216	210
East Babeldaob	445	188	195
West Babeldaob	352	169	165
Peleliu	177	115	120
Kayangel/Angaur	73	60	73
TOTAL	4684	1041	1063