

## Task 1.4.5 Household Survey Expansion

### *Inputs*

Household survey data base.

Census households by zone.

Census household structure (number of persons/no of full time employed persons) by study area or major subdivisions.

### *Processing*

This covers expansion and bias correction.

1. Decide on the geographical areas to form the basis of expansion:
  - in principle there should be a minimum sample in each area (say 30 household interviews); for example, with 2500 interviews this suggests about 100 areas;
  - also check sample frame (design of survey) and ensure that any formal stratifications/sampling structures are systematically reflected in expansion process.
2. Count the sample of surveyed households in each area, compare with the census and compute the ratio, the sample expansion factor; review range of expansion factor values before proceeding.
3. Table the expanded sample data (by sub-region, say local government area) by household characteristics<sup>1</sup>; aggregate table where sample is small (<30 households - a judgement is needed here); compare with planning data distributions and compute bias correction factors; review range of values before proceeding: if range is too wide, adjust by aggregation of areas or bias correction segments.
4. Re-do task (2) this time applying bias correction factors to sample prior to re-computing sample expansion factors.
5. Then overall expansion factor for each element of the sample is the product of the expansion factor and the bias factor<sup>2</sup>.
6. Check the final distribution of sample and bias correction factors.
7. Implement factors in the survey files.

### *Outputs*

Expansion factor for each household in the data base.

Report.

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<sup>1</sup> Commonly in household interview surveys it is found that response rates vary by household size and number of employed persons, simply because of the difficulty of intercepting all respondent(s) in large or employed households. For the self-completion questionnaire survey in Wellington, the biases did not exhibit quite such simple characteristics, the eventual factors being a combination of the number of adults, the number of employed adults and the number of children.

<sup>2</sup> It may be necessary to iterate a number of times through tasks 3-5 until satisfactory results are obtained.