

ANTIGUA & BARBUDA HOUSEHOLD INCOME EXPENDITURE SURVEY

Survey Design

The Antigua Household Income and Expenditure Survey Design is a two stage sample design with the selection of the primary sampling units (P.S.U.) at first stage being proportional to size. The primary sampling units are the enumeration districts (EDs) into which the country was sub-divided for the conduct of censuses. The second stage is the selection of the ultimate sampling units (U.S.U.) which are clusters of households, one selected from each of the selected P.S.U.

Administratively, Antigua and Barbuda is divided into the city of St. Johns, the parishes of St. John (Rural), St. George, St. Peter, St. Phillip, St. Paul, St. Mary and Barbuda. For the H.I.E.S. Barbuda was excluded.

The number of EDs within each parish varied as well as the sizes of the EDs. Both factors were taken into consideration in the design of the survey so that very small EDs were joined together while extremely large EDs were sub-divided. This was done to reduce the range in sizes of the EDs.

For the H.I.E.S. it was determined that a sample size of about 1000 households would be adequate, taking into account the resources available. In addition it was necessary to have these households distributed almost evenly over a twelve-month period. As well, it was necessary for the survey design to take into account the need to have each administrative area adequately represented.

In order to incorporate the above-mentioned features in the design, a two-stage sample design was developed. At the first stage EDs (P.S.U.s) were selected with probability proportional to their size (f_a) at the time of the 1991 Census. At the second stage, a cluster of households (U.S.U.s) is selected from each ED with a probability (f_b) with the

end result being that each household has the same probability (f) of being selected; that is, $f = f_a \times f_b$.

The total number of households in the country was broken up into clusters of 6 households each. Each parish was then allocated a number of clusters in proportion to its size, that is, the number of households at the time of the census with the proviso that it must be a multiple of 30. Within each parish, each ED was assigned a number of clusters that must be an integer, in proportion to its size. The sum of the clusters of all EDs was equal to the number clusters assigned to the parish. This meant that the average cluster size varied slightly between parishes and was not 6 households but close to that size.

Enumeration Districts within each parish were put in descending order of the proportion of workers in a given occupation/industrial group depending on whether the parish was considered urban or rural. In the urban areas, that is city of St. Johns, the occupational grouping used was a combination of Managers, Senior Public officials, Professionals and sub-professionals. All other parishes the proportion of workers in the wholesale and retail trade was used. Having arranged the EDs in this manner a systematic selection of EDs was made with an interval of 10.

Because of the time that had elapsed between the formation of the frame, 1991, and the conduct of the survey, 1998, changes in the sizes of most EDs would have resulted due to population increases but also because of population loss. It was therefore necessary to carry out a new listing of selected EDs from which the sample of households would be drawn.

At the listing stage, the interviewer was required to visit every building and using a Listing Record, was to list and serially number every single household in the enumeration district. Before selection of the cluster of the households to be enumerated within a given enumeration district (first stage sampling unit), the "Listing Records" were returned to the office. There, the cluster of households was selected as a systematic sample using a

random starting point between one (1) and the number of clusters assigned to that ED and an interval equal to the number of sampling units allocated to the ED. The term cluster therefore, does not necessarily relate to a group of contiguous households, the more usual use of the term.

The second stage of sample selection involved selection of the cluster of households to be interviewed in each enumeration district. The sampling fraction for each ED, that is, the number of clusters assigned to the ED, was inversely proportional to the size of the district. It should be noted, therefore, that the actual number of households in a cluster in any given ED was not predetermined, but depended upon the number of households existing in the ED at the time of listing.