Methodological approaches to the first-stage sample design for integrated household surveys

Volodymyr Sarioglo[1]

[1] Institute for Demography and Social Research, Ukraine
e-mail: sarioglo@idss.org.ua; sarioglo@ukr.net

Abstract

The main continuous state household sample surveys in Ukraine are Survey of Economic Activity of Population (SEAP), Household Living Conditions Survey (HLCS) and Household Agricultural Activity Survey (HAAS). These surveys are organized as integrated surveys: common geographical areas are selected for surveying; common interviewers network is used; concerted procedures of interviewer's work scheduling and controlling, trainings etc. are realized; different socio-economic aspects are studied; different data entering, controlling, processing and analysis procedures are used.

A nation-wide territorial probabilistic sample of non-institutional households was constructed for conducting of surveys. Sample design is based on a procedure of stratified multistage selection. Sampling procedure comprises the following main steps: exclusion of territories which cannot be surveyed; exclusion of the population which is not subject to surveys; stratification of the sampling frame; selection of primary sample units (PSU); selection of secondary sample units; selection of households.

Stratification of the population is carried out with the purpose of adequate reflection by the sample of the main features of administrative-territorial division, and also to ensure selection from the sets of households that are more homogeneous on the basic characteristics. According to this, the following strata are allocated in each region of Ukraine: city councils with the population of at least 100 thousand persons, city and village councils with the population less than 100 thousand persons and rural administrative rayons (the urban population of the rayons was not included in the rural strata). The sample is allocated to the strata proportionally to the population size.

At the stage of PSUs sample drawing selection of city/town and township councils in urban areas and village councils in rural areas is carried out. For definition of self-representative city councils, the threshold population size is calculated. The threshold of self-representativeness equals to 79200 persons. It means that a city council with such or bigger population is included to the territorial sample with certainty. Considering the self-representativeness threshold, there were non-self-representative village councils. Non-self-representative councils are selected in such a way that one council represents a group of councils with the total population equal to the self-representativeness threshold.

Selection of non-self-representative town, township and village councils is carried out for each stratum separately. For the strata in urban area, a list of councils was compiled in the descending order of population size. The number of councils to be selected in each stratum is determined by division of the total population of all non-self-representative councils in a stratum by the self-representativeness threshold. In urban area common PSUs are used for conducting of the SEAP and HLCS.

In the strata of rural area councils were ordered on by geographical affinity. The number of the selected village councils in each rayon is divisible by three and was determined mainly by the land size of a rayon. The number of agricultural and climatic zones in rayons was also considered.

In rural area the SEAP and HAAS are conducted in the common PSUs – for the SEAP each third HAAS PSU is selected. The problem is that selection of PSUs for HAAS is carried out with probability proportional to the total area of the household's agricultural grounds and for SEAP we need to select them with probability proportional to the number of noninstitutional households. Special researches were carried out. Scheme of PSUs selection which takes into account agricultural zones in rayons was proposed. During the SEAP PSUs selection retaining of about 30% of "old" PSUs in the new first-stage sample was provided.

Approaches to the design of PSUs rotation scheme when the sizes of PSU are essentially different and the number of small units is much more than the number of large ones are considered. This problem is important for prospect of development of household sample surveys in Ukraine.

Results when analyzing the efficiency of separate methods are discussed. Practical examples are considered.