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STATISTICAL COMMISSION  
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REPORT OF THE AD HOC WORKING GROUP OF SPECIALISTS  
IN SAMPLE SURVEY METHODS

(Report by the Secretary-General)

1. It will be recalled that at the eleventh session of the Commission it was recommended that the Secretary-General convene an Ad Hoc Group in Sample Survey Methods mainly to deal with recommendations for collecting statistics relating to social programmes. The Group met in Geneva, 9-13 October 1961. The report of the Group is attached.

2. The Commission may wish to note the report and to pay special attention to the recommendation contained in paragraph 16. The Group was strongly of the view that a thorough revision of The Preparation of Sampling Survey Reports be undertaken. This report was prepared by the Sub Commission on Statistical Sampling of the Statistical Commission and was published in a revised form in February 1950. The passage of time and the further developments in many methodological aspects of sampling have made the original report somewhat out of date. Considering that it has had wide-spread use in national sampling activities, it was felt that it would now be appropriate to carry out a thorough review and revision. The individual experts comprising the Working Group made a number of suggestions of additions, deletions and changes. These are contained in Annex D of the attached report.

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AD HOC WORKING GROUP OF SPECIALISTS  
IN SAMPLE SURVEY METHODS  
9-13 October 1961  
Geneva

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## I. INTRODUCTION

1. The Working Group was convened in Geneva 9 to 13 October 1961 in response to a resolution of the Statistical Commission (resolution 12 of the eleventh session, 1960). The Commission recommended that the Secretary-General

"(1) Convene, in consultation with the specialized agencies, an ad hoc working group of specialists in sample survey methods and of statisticians from the United Nations and the specialized agencies, for the purpose of recommending methods of collecting statistics for the Compendium of Social Statistics and for social programmes generally, particularly in the less developed countries;

"(2) Continue, in collaboration with the specialized agencies, the preparatory work on the handbook of sample surveys of family living conditions, taking into account the comments and suggestions made by the Commission and the recommendations made by the ad hoc working group when they become available."

2. The Group elected Mr. J. R. H. Shaul as Chairman. Mr. P. C. Mahalanobis served as Acting Chairman during part of the session. A list of participants is given in Annex A. The substantive agenda, as adopted, is given in Annex B. A list of documents discussed, or available as background material, is given in Annex C. In the short time at its disposal, the Group was not able to give detailed attention to, or make recommendations concerning, all the important aspects of the subjects discussed.

## II. COVERAGE OF HOUSEHOLD SURVEYS

3. The Group first addressed itself to general questions of coverage, that is, to a review of items of information which might be obtained through household surveys. The Group referred to document E/CN.5/353 which included document E/CN.3/270, the latter being that part of the report of the Working Party on Statistics for Social Programmes dealing with revised proposals for the definition and measurement of levels of living. This report was considered by the Statistical Commission (1960) and the Social Commission (1961) which agreed that the report might now be issued for the interim guidance of governments. <sup>1/</sup>

<sup>1/</sup> This report has now been issued as International Definition and Measurement of Levels of Living, An Interim Guide; document E/CN.3/270/Rev.1-E/CN.5/353, published by the United Nations as a joint undertaking of the United Nations, the International Labour Office, the Food and Agriculture Organization, the United Nations Educational, Scientific and Cultural Organization and the World Health Organization.

4. In making general observations, the Working Group agreed that household surveys represented a powerful tool for statistical investigations of conditions of living and of social conditions. It was, in fact, the only feasible one for most of the less advanced countries. It was considered more important for social and economic purposes especially in the developing countries, to present, tabulate and publish results concerning most of the indicators - such as those on health, education or consumption and housing- in the form of a distribution of households or persons, for example, by size of income or expenditure or other suitable classifications, and not merely in the form of national averages. Such national averages are of value in certain types of comparisons but these alone have limited usefulness in connexion with policy decisions of national governments which may have to be differentiated in relation to special groups of the population. In view of this the Group recommended that the document on levels of living be supplemented by a discussion of the value of such distributions.

5. There was considerable discussion about the individual indicators and the point was made that the list of indicators reviewed by the Group seemed satisfactory, but that it should be regarded as a minimum as there were a number of additional indicators that might be considered. The list, in due course, should be extended considering the need for household surveys. The Group wished that their observations be drawn to the attention of the Working Party on Statistics for Social Programmes and other interested bodies of the United Nations and of the specialized agencies.

6. Household surveys should be considered to include not only data relating to the household as a whole as the unit but also data on other types of units (such as a married couple and their children or individual persons). It is possible to collect through household surveys much useful information relating to individual households such as household economic activities, housing, distribution of land and agricultural holdings, etc. or information relating to groups of households located in a village, or a township or a district. This kind of information might include factors such as the distance from the nearest centre for care of health, school, library, post and telegraph office, railway station and highway. For analytic studies in different subject fields it may be necessary to use different types of units or somewhat different definitions of households. It is, therefore, particularly important to record adequate information which would enhance the usefulness of the different types of units being employed at the time of tabulation for purposes of analytic studies.

7. Several members of the Group considered that a limited number of indicators of morbidity should be developed. These would need to be simple and could not altogether be dependent upon medical diagnosis. These could include, for example, days away from work because of illness or injuries. The view was put forward that such data might be easier to collect than data on natality and mortality. Satisfactory coverage of morbidity and vital statistics data usually require prolonged and intensive investigation, involving perhaps the continuous residence of an investigator in villages or administrative units which are selected as sample units within each of which there is to be complete coverage. On the other hand, the experience of India in the repeated rounds of the National Sample Survey, and of several African nations indicates that demographic data could be collected with a satisfactory degree of success. The accessibility of the population to medical services and their cost were points of special importance. One indicator respecting costs might be the prices paid for specified drugs, particularly the newly discovered ones. It was pointed out, however, that it may be difficult to develop a standard list as requirements would vary from country to country, depending upon climatic and other conditions. It would be easier to develop such lists for individual countries and regions.

8. Concerning education and literacy, it was considered that household surveys would be useful in ascertaining school attendance (as distinguished from school enrollment) and in discovering the number of pupils dropping out of school. Access to schools, and the cost of attending educational institutions and the proportion of families who are able to afford the cost of schooling, were also important; information should also be sought on the educational attainment of individuals, both as to the level and type of education received. In the absence of administrative statistics showing the number and location of doctors and other types of professional personnel, the household survey has been used. The problem of measuring literacy of the adult population was also discussed and it was pointed out that it was possible to use simple tests in reading and writing.

9. The measurement of unemployment and under-employment was particularly difficult, especially in the less advanced agrarian economies but household surveys afforded a reasonably satisfactory method, and could produce results more efficiently than by means of a general census. The Indian National Sample Survey had employed three different approaches to estimate under-employment with results that sufficiently

indicated the dimensions of the problem. These approaches were: the number of hours or days worked in a given period, availability for additional work and the amount of earnings. The last indicator was considered the most satisfactory.

10. Indicators of conditions of housing should be developed primarily for national purposes. These would be more difficult if international comparisons were intended because what would be regarded as satisfactory standards differed by reason of the social and cultural structure of the country and by reason of the prevailing environmental conditions. As regards the problem of overcrowding, the Group generally felt that some measure of the floor area of the living quarters should be sought as well as information on the structural condition of the housing unit. Neither of these indicators would be especially difficult for investigators familiar with local standards. In the less advanced countries, an important question was whether there was a latrine, or other means of safe disposal of waste, within a reasonable distance rather than whether there was a flush toilet which had been recommended as the suitable indicator. Somewhat the same consideration should apply to water: the important point is whether there is access to safe water nearby regardless of the source - whether piped, or from a well or a fountain.

11. The Group noted that in recent years a much greater use of surveys of household food consumption makes it possible to use data from these surveys as a check on national supply figures. The Group noted, in this connexion, that expenditure on food, especially in the less advanced countries, could be very misleading because of the extensive use by householders of home-grown food.

12. The Group agreed that ordinary household surveys can be used fruitfully to collect broad types of nutritional information, but recognized that detailed surveys were generally needed to meet specialist needs.

13. In situations where it was possible to collect information on private consumption expenditures, it would be desirable to distinguish expenditures on food, rent, health and medical services, education and other categories important in evaluating conditions of living. Additionally, estimates of private consumption expenditure by categories would assist materially in building up estimates of gross national product, especially in the absence of production estimates.

14. The Group considered that the measurement of human freedom would be a particularly difficult enterprise, and at the present time should not be attempted. The possibility could be re-examined at a later time.

### III. PROBLEMS CONCERNING SAMPLING TERMINOLOGY

15. The Group examined the question of sampling terminology in the field of social statistics, and in particular made this review against the background of the report of the United Nations Sub-Commission on Statistical Sampling: The Preparation of Sampling Survey Reports, Statistical Papers, Series C. No. 1 (revised), United Nations, New York, February 1950.

16. The Group agreed that terminological aspects of social and economic surveys cannot be separated from general sampling terminology. It was therefore felt that a comprehensive review of sampling terminology should be undertaken and that the report of the United Nations Sub-Commission on Statistical Sampling could serve as a starting point for such a review.

17. The Group felt that it would not be possible within the time available to produce specific definitions. However, the Group would like to emphasize the desirability of preparing a revised set of recommendations of sampling terminology to be issued by the United Nations to supersede the document mentioned above. The Group would therefore like to recommend to the United Nations Statistical Commission that a group of experts undertake the preparation of such a document. The Group considered it desirable that such a revision should cover both the content and the general structure of the publication.

18. The Group emphasized the need for particular care in preparing the translations of the revised document.

19. Some suggestions regarding possible additions, deletions and changes which might be taken into account in such a revision are given in Annex D.

### IV. HANDBOOK OF HOUSEHOLD SURVEYS

20. The Group examined the question of preparing a document which would give practical guidance to persons engaged in the field of household surveys. A draft of the Handbook of Household Surveys prepared by the Statistical Office of the United Nations and the specialized agencies of the United Nations served as basis of discussion. The discussion covered a broad range of subjects and observations were made both concerning an amplification of the document and some desirable revisions in the individual chapters. These observations are grouped below into two sections:



(a) Integration with reference to household surveys, and (b) Discussion on specific subjects in the Handbook. This grouping is according to whether the comments were of a general or a specific nature. Since the Handbook is primarily concerned with household surveys dealing with several topics of inquiry, i.e. multi-subject surveys, the subject of integration was first discussed in general terms. This was followed by a discussion on a number of specific subjects that should be dealt with in preparing a revised version of the Handbook.

(a) Integration with Reference to Household Surveys.

21. Throughout the meeting frequent reference was made to the integration of surveys as a means of economizing the use of resources and also as the most effective way of studying household levels of living. It became clear that there were in fact several levels or aspects of integration which should be noted and elaborated in an appropriate part of the Handbook. In the first place in several countries there is a permanent central sampling staff conducting a series of repetitive surveys which frequently include questions on the same topics to provide continuous series deemed of special importance to the country. Questions on these topics are frequently supplemented by questions on other topics, depending upon the needs of the country. This ensures close integration and may provide cross-tabulations of considerable value. Thus, because the same investigators may be used for all aspects of the inquiry, this method assures more or less automatic integration both substantively and operationally. The method, in principle, has very obvious advantages but it is not, at present, applied in all countries for various reasons. In still other cases it may be necessary, because of various circumstances, including the level of education and institutional arrangements, to use different sets of enumerators for different topics of investigation. Nevertheless, the Group was strongly impressed with the merits of integration especially as it has already been used successfully in several countries for a number of years. In the preparation of the Handbook particular attention should be paid to the cost elements and other advantages attaching to a permanent sampling staff. It may easily be the case that the costs of a number of ad hoc sample investigations, in which entire staffs have to be organized and trained, exceed the costs of maintaining a nucleus staff of trained personnel, including the field investigators.

22. A slight variant of the method described above consists of the maintenance of a permanent central statistical staff and a field establishment of investigators who

undertake sample surveys of many different kinds, not necessarily related in substance. In this case the integration is wholly operational.

23. Another form of integration, in a more restricted sense, as applied to household surveys, consists of asking the enumerators to obtain information from sources other than the household such as information on access to common facilities (medical services, transport and schools).

24. There is also the kind of integration implied in the combination in one ad hoc survey of items of information on two or more topics such as demographic characteristics, health and housing. This in fact is the usual practice in a great majority of household surveys. This has the advantages of economy in enumeration and of the possibility of valuable cross-tabulations so long as the survey does not become over-extensive to the point where response and accuracy are impaired and the entire operation becomes too complicated to manage. Considerable care must be taken in these cases; it is for this reason that comprehensive surveys of too many aspects of living conditions of households can hardly be recommended as a desirable practice if all topics are to be investigated in full detail with all respondents. It is for the national authorities to decide which particular aspects of living conditions can be suitably integrated in household surveys.

25. The view was expressed in conclusion, that it would be useful for the Statistical Office of the United Nations and the statistical services of the specialized agencies to incorporate in the Handbook a treatment on integrated surveys of this kind, to show by case studies country experiences regarding such items as cost, achievements, the effect upon accuracy and the practical usefulness of cross-tabulations. It was agreed that this proposal should be commended to the agencies concerned.

(b) Discussion on Specific Subjects in the Handbook

26. The Group then went on to a discussion of a number of subjects that should be dealt with in preparing a revised version of the Handbook. There was broad agreement on several points and these are summarized in the following paragraphs.

27. In discussing the purpose of multi-subject household surveys it was felt highly desirable to specify the permissible errors that the user of the results of a given survey was willing to accept. Depending on the purpose or purposes for which survey results are intended, the user may be prepared to tolerate errors of very different magnitudes. It is not necessary to refine statistical techniques for a given survey beyond what is needed to aid the user in arriving at a correct decision.

28. The Group recognized that the term 'household' may have to be used in more than one sense in the Handbook. Therefore, the Group cautioned that clear definitions, sometimes of a special character, must be spelled out depending on the context in which the term is used.

29. First, the term household is used with reference to different operational aspects of a survey. The most common uses would seem to be:

- a) the use of household as the sample unit,
- b) the use of household as the unit of observation.

30. Second, the term household is used with reference to the analytical aspect of a survey, i.e. a household serves as the unit of analysis. There is no unique unit of analysis for all types of household surveys; the proper definition will depend on the purpose of the analysis.

31. The Group felt that it would be desirable in preparing the Handbook to take into account the practice in the socialist countries concerning the definition of sample unit and unit of analysis. In these countries inquires concerning the level of living, the sample unit and the unit of analysis is a family, by which is understood a group of persons living together, related by blood or marriage, and having a common family budget.

32. Although the Handbook has been rightly prepared to fill the needs of the less developed countries the Group felt that experience of the advanced countries in the field of household surveys should not be lost sight of and may be usefully incorporated in the Handbook.

33. One subject discussed at some length by the Group and which deserves special mention is a discussion of the ways and means of providing countries with practical guidance on the matter of conducting a household survey. The Group made a review of this subject against the background of Chapter 2 of the draft Handbook entitled "Taking the Household Survey".

34. It was the view of the Group that, although the Handbook should, in general, be addressed to persons engaged in household surveys, the chapter on sampling should be addressed to those who have a reasonable amount of statistical training, though they may not have had sufficient experience in actually carrying out a household survey dealing with several subjects, i.e. a multi-subject survey. The treatment of this chapter should be of a practical nature with case studies and country experiences supplementing statements of methods and operations commonly employed in household

surveys. It is vital to avoid any unevenness in the level of treatment of the subject matter. The Handbook of Population Census Methods (Series F, No. 5, Rev. 1, Vol. 1, United Nations) was mentioned as a possible model.

35. The consensus of the Group was that the revised chapter on sampling should be divided into several sections, of which one should deal with methodological aspects of sampling and the others with operational aspects such as questionnaire design, interview techniques, control of field operations, processing, etc.

36. The Group indicated broadly some specific subjects for separate and extended treatment in the revision. The planning of the household survey should be discussed in the light of country experience. The type of information sought should be indicated, further mentioning if such information is needed in terms of general averages by socio-economic groups of the population, expenditure classes or any other breakdown. Time reference of a household survey has to be discussed at some length. There may be seasonal variations in the information being sought so that a survey may have to be repeated. Sample design and selection procedures should be specified. Technical items should be dealt with, as far as possible, in accordance with standard usage.

37. The Group discussed in somewhat greater detail other specific subjects and indicated general lines to be followed in the case of each subject in preparing a revised version of the chapter on sampling. The principal points are summarized in the following paragraphs.

38. It was the view of the Group that, in a description of methods of selecting households or families, account should be taken of the practice in the socialist countries. Besides dealing with the territorial method of choosing a sample, a description should also be given of such methods as choosing workers at place of work and choosing them from lists of professional and socio-economic groups. A description of the method of sample selection commonly used in the socialist countries is given in Annex E.

39. The Group emphasized the desirability of including for each individual topic of household inquiry an extensive treatment (with illustrations from country experiences and case studies) of types of non-sampling errors and of sources of bias, pertaining to the topic and some possible ways and means of minimizing non-sampling errors and dealing with bias. In this connexion the Group noted with interest the experience of India in using replicated or interpenetrating network of samples. This type of design would automatically supply estimates of the total margin of error (inclusive

of both sampling and non-sampling errors) and a method of analysis and evaluation of non-sampling errors.

40. It was the view of the Group that special attention needs to be given to processing errors. The use of punch card machines and particularly of electronic computers for data processing demands considerable amounts of special administrative, technical and operational skills in order to produce useful results at a reasonable cost. If such skills are not available and cannot be acquired, it would be advisable to use simpler data processing devices. In certain circumstances particularly obtaining in the less developed countries the use of manual processing may prove to be a good approach.

41. The Group expressed the opinion that special attention ought to be given to the analysis of results obtained through household surveys. It would be very helpful, with the use of case studies, if illustrations could be given of useful cross-tabulations which have proved successful in practice. In this connexion the Group felt that it would be desirable to amplify the appropriate chapters to include sections on tabulation for each individual topic of household inquiry with a view to enhancing the usefulness of the Handbook as a guide for sampling practitioners in their task of tabulating, analysing and relating the collected data to the purpose of the survey. The Group stressed the close link between the desired analyses and the design of the survey.

42. The Group agreed that it would be desirable to discuss the advantages of presenting the data, not merely in the form of national original averages but by different levels of expenditure and/or income, size of household, size of land holdings, etc. on a fractile basis; for example, the results may be given for the lowest and highest 1% or 5% or 10% and the remaining portion by intervals of 5% or 10%, etc. as may be considered appropriate in any given context; if desired, additional fixed points may also be included. It would in any case be desirable to give the minimum and maximum values. The Group pointed out that it is a great advantage in the less developed countries if the fractile presentation in the form of graphs is used on the basis of interpenetrating networks of samples; in this case it is not necessary to apply advanced mathematical tools of analysis to data collected from household surveys for practical purposes. Moreover, such simple graphical presentation of the results can be easily understood by administrators and policy makers.

43. Individual members of the Group expressed their views concerning the inclusion of some specific items and their possible treatment in each chapter of the Handbook. These observations were of a technical and detailed nature and were noted by the Secretariat.

ANNEX A

PARTICIPANTS IN THE AD HOC WORKING GROUP OF SPECIALISTS  
IN SAMPLE SURVEY METHODS

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| Mr. C. Vladov     | United Nations |

ANNEX B

AGENDA

1. Coverage of household surveys
2. Problems concerning sampling terminology
3. Discussion on Handbook of Household Surveys:
  - (a) Integration with reference to household surveys
  - (b) Discussion on specific subjects in the Handbook
4. Preparation of the final report



ANNEX C

LIST OF DOCUMENTS DISCUSSED OR AVAILABLE AS BACKGROUND MATERIAL

- Ad Hoc Working Group of Specialists in Sample Survey Methods, ACC/WPSSP/II/6, a note prepared by the Statistical Office of the United Nations for the Working Party on Statistics for Social Programmes, Geneva, 1960.
- Annotated Agenda of the Ad Hoc Working Group of Specialists in Sample Survey Methods, a note prepared by the Statistical Office of the United Nations, Geneva, 1961
- A Preliminary Note on the Consumption of Cereals in India, by P. C. Mahalanobis, Indian Statistical Institute, Calcutta, 1961.
- Handbook of Household Surveys, ACC/WPSSP/III/5/Add.1-14, prepared by the Statistical Office of the United Nations and the specialized agencies for the Working Party on Statistics for Social Programmes, Geneva, 1961.
- International Definition and Measurement of Levels of Living, E/CN.5/353, United Nations Social Commission, 1961; E/CN.3/270, United Nations Statistical Commission, 1960.
- International Definition and Measurement of Levels of Living: Human Freedoms, ACC/WPSSP/III/3, a note prepared by the Statistical Office of the United Nations for the Working Party on Statistics for Social Programmes, Geneva, 1961
- Multi-purpose Surveys of African Households in Urban Areas, by J. R. H. Shaul.
- The Preparation of Sampling Survey Reports, Statistical Papers, Series C No. 1 (Revised), United Nations, Lake Success, 1950.
- The Types and Number of Household and Personal Characteristics Covered in Household Sample Surveys, ACC/WPSSP/III/6, a note prepared by the Statistical Office of the United Nations for the Working Party on Statistics for Social Programmes, Geneva, 1961, and a supplement prepared by G. Théodore.
- Compendium of Social Statistics 1963, Outline of Contents, E/CN.3/269, United Nations Statistical Commission, New York, 1960.
- A Short Manual on Sampling, Volume I, Elements of Sample Survey Theory, Studies in Methods, Series F No. 9, United Nations, New York, 1960.

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Handbook of Population Census Methods, Volume I, General Aspects of a Population Census, Studies in Methods, Series F, No. 5, Rev. 1, United Nations, New York, 1958.

Sample Surveys of Current Interest, Statistical Papers Series C, Nos. 6-10, United Nations, New York, 1953-1961.

Suggestion for Social-Economic Classifications, ACC/WPSSP/III/2, a note prepared by the Statistical Office of the United Nations for the Working Party on Statistics for Social Programmes, Geneva, 1961.

ANNEX D

SUGGESTIONS FOR THE REVISION OF "THE PREPARATION OF  
SAMPLING SURVEY REPORTS"

The following additions, deletions and changes were suggested by individual members of the Working Group.

1. Additions:

- (i) Population and universe.
- (ii) Multi-purpose, multi-subject, integrated and specialized surveys.
- (iii) In relation to section 1.f terms such as ad hoc, repetitive, longitudinal (with or without partial replacement), follow-up, prospective, retrospective, cross-sectional, cohort and sampling for time series can be defined and explained.
- (iv) In relation to section 1.g the concepts of reference period and survey period might be defined.
- (v) Measurable design and non-measurable design.
- (vi) Representative sample and representativeness.
- (vii) Coverage.
- (viii) Area sampling.
- (ix) Cluster sampling .
- (x) Line sampling.
- (xi) Point sampling.
- (xii) The terms random sampling, simple random sampling, restricted and unrestricted random sampling, quasi-random sampling and probability sampling.
- (xiii) Systematic sampling.
- (xiv) Controlled selection.
- (xv) Estimation; this should be treated as an integral part of design.
- (xvi) In section 2.i the term self-weighting sample might be referred to.
- (xvii) Listing unit.
- (xviii) The introduction of time as a factor of sample design.

- (xix) In relation to section 1.h the consideration of accuracy should be extended to cover such terms as precision, reliability, permissible error, validity, specificity and sensitivity, etc. It was felt desirable to devote a separate section to non-sampling errors. Non-response and methods of dealing with it might deserve a separate section.
- (xx) In section 1.i direct and indirect costs might be mentioned and defined.

2. Deletions:

- (i) The term 'block of domains' in section 2.f, since it is very rarely used and since the term 'block' has a different meaning.
- (ii) Section 2.n, since the term 'composite sampling scheme' does not seem necessary.

3. Changes in the structure of the document or individual paragraphs:

- (i) The title of the report itself might be reconsidered. As it stands at present, it suggests a rather broader scope of the contents of the document than is perhaps justified. There is some inconsistency between the title of the report as it appears on the cover page and on page 3.
- (ii) Some consideration might be given to changing the organization of the report. For example, it might be desirable to merge the present sections on design and method of selection. Another example is the desirability of having a separate and earlier section on pilot and exploratory surveys.
- (iii) In section 1 the word 'material' needs to be clarified and made consistent with its use in the other parts of the document. Clear distinctions should be made between the terms material, coverage, population and universe.

- (iv) Consideration might be given to expanding section 1.d
- (v) In section 1.e a clear distinction should be made between sample design and sample selection.
- (vi) The concept of 'frame' and other concepts in section 2.a should be very carefully considered. There is some doubt about the use of the word 'sub-strate' in the first sentence.
- (vii) Section 2.b seems to need further clarification and additional examples.
- (viii) Several features of section 2.c are unsatisfactory, including the last sentences of the first and final paragraphs. There is a need to distinguish between sample units and sampling units. Care needs to be taken in the use of the word 'size' in this section.
- (ix) Section 2.d also ought to be carefully reconsidered. Among minor changes, in the first sentence 'total' may be substituted for 'aggregate' and in the last sentence, the phrase 'fraction of the stratum' causes some confusion.
- (x) Section 2.e should be reviewed in the light of definitions of terms in preceding sections.
- (xi) Section 2.g should be revised in the light of the amended definition of 'frame' and the new definitions of 'population' and 'universe'.
- (xii) Section 2.h should be reconsidered with particular reference to the question whether stratification applies to elementary units or sampling units. It would also be desirable to distinguish between stratification before and after selection.
- (xiii) Regarding section 2.j there are some doubts about the use of the word 'cell'. The term sub-stratum might also be clarified.
- (xiv) Sections 2.h, 2.i and 2.j might possibly be combined.
- (xv) In 2.1 the phrase 'the whole of the units' should be changed. There are some doubts about the accuracy of the second paragraph. Additional illustrations about the use of multi-phase sampling might be added.
- (xvi) In section 2.m the first sentence implies that stratification is a method of selecting sample units, which is misleading.

- (xvii) Section 6 should indicate the breakdown of survey cost into different components. Special attention should be given to standardizing descriptions of these components in different countries. It might also be desirable to include in this section time and labour as well as monetary budgets.

ANNEX E

STATEMENT BY MR. V. F. MONAKHOV ON THE METHOD OF SAMPLE SELECTION  
EMPLOYED IN THE USSR AND OTHER SOCIALIST COUNTRIES

The method described below has been in use for a long time in the USSR and a number of other socialist countries. This is the method of selecting families of workers, employees and agricultural workers according to their place of work (a typical proportional method of sampling with mechanical selection of the sample unit).

Method of Selection of Workers and Employees  
by Their Place of Work

(typical proportional sample with mechanical selection  
of sample unit)

Under this method, when families are selected for a survey of their budgets, a study is first made of the statistical data of the numbers of workers and employees in branches of industry selected for the survey; a centralized plan for sampling and for conducting the survey is then made.

The total number of workers' budgets ear-marked for this survey is distributed over the territory of the country in proportion to the total number of workers in a given branch of industry.

Selection of workers and employees for a survey of their family budgets is conducted in two stages: first of all, industrial enterprises are selected, and then workers and employees whose family budgets are to be surveyed are selected at the sample enterprises.

The selection of enterprises from the total numbers in a given branch of industry by districts is conducted mechanically. For this purpose, lists are made of all enterprises for each branch of industry. Enterprises are entered into the lists in descending order of the amount of the average monthly earnings of industrial production workers, i.e., the first on the list is the enterprise with the highest average monthly workers' pay, and the last is the one with the lowest pay. Enterprises are mechanically selected from those lists.

Enterprises are selected at specific and regular intervals, the length of which is established in accordance with:

(a) the total number of workers in a given branch of industry, (b) the number of budgets to be surveyed in a given branch of industry and (c) the number of enterprises ear-marked for the survey.

The interval for the selection of enterprises is calculated by dividing the number of workers in a given branch of industry by the number of enterprises for which the survey is to be taken.

Upon completing the mechanical selection of enterprises, the representative nature of the selection is checked by correlating the average monthly pay of the workers in the selected enterprises with the average monthly pay of all workers in the branch of industry concerned.

The selection of workers for budget surveys is conducted at the selected enterprises in such a manner that skilled and unskilled workers are proportionately represented in all the samples taken.

Nominal lists of workers in each enterprise are made for the sample surveys; skilled and unskilled workers are listed separately. Workers' names are entered into the lists in descending order of the amount of their earnings, calculated for a full month, i.e. the first on the list is the worker with the highest earnings, and the last is the one with the lowest.

Selection of workers from the lists is conducted mechanically at regular intervals. The length of the interval for each list is fixed in accordance with (a) the total number of workers entered on each list, and (b) the number of workers with specific skills who are to be selected for the survey at the enterprise.

After the selection has been made, the representative nature of the samples of workers is checked by correlating the average monthly earnings of the selected workers with the average monthly earnings of (a) all the workers at the selected enterprises and (b) all workers, by branches of industry.

This method of selecting workers and employees according to place of work for family surveys makes it possible to collect representative data both on income, expenditure and consumption and on the composition of the family by sex and age, level of education, occupation and skills, housing and other matters.

Method of Selection of Co-operative Agricultural Households  
(typical sample with mechanical selection of sample unit)

The method of surveying the family budgets of co-operative agricultural workers is based on the same principles as the organization of a survey of



the family budgets of workers and employees. Nevertheless, the selection of the families of co-operative agricultural workers for budget surveys has certain special characteristics.

The number of samples for each district is fixed centrally and depends on the collection of sufficiently representative data.

The selection of families in each district is conducted in two stages: co-operative farms or settlements are first selected, and then agricultural families are taken as samples in the selected farms.

The typical criterion for the selection of co-operative farms is taken to be the amount of income received per working day at the co-operative farm. The typical criterion for the selection of families of agricultural workers is based on the number of days worked at the co-operative farm.

In order to select the co-operative farms, all farms are listed by districts. The co-operative farms are listed in descending order of income per working day, i.e., the first co-operative farm listed is the one with the highest income per working day, while the one with the lowest income is listed last. Farms are selected mechanically at regular intervals.

The length of the interval for the selection of co-operative farms is established by dividing the number of all agricultural households in a given district by the number of co-operative farms for which the survey is to be taken.

After selection, the representative nature of the selected co-operative farms is checked; this check is based on the extent to which the average indices of the selected farms approximate the average indices for all the farms in the district.

For the purpose of selecting families of co-operative agricultural workers, lists are made of all the families of agricultural workers in the selected farms.

For each selected co-operative farm, all the families are listed in descending order of the number of days worked at the co-operative farm during the year. Families of agricultural workers are mechanically selected from the list at regular intervals, the length of which is established by dividing the total number of agricultural families by the number of families whose budgets are to be surveyed.

During selection, the representative nature of the whole selected sample is checked.

This method of selecting co-operative agricultural workers makes it possible to collect representative data on monetary income, income in kind, expenditure and consumption, and also on the composition of the family by sex, age, educational level and occupation, by indices input of labour into the co-operative farm, by availability of housing and other indices.

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