

## INTRODUCTION

### A. Purpose and scope of the manual

This manual is concerned with the use of population census statistics and related data for studies of the growth and composition of a nation's labour force, its distribution among categories of economic activities, and factors which influence these characteristics of manpower. The emphasis is on questions relevant to policy-making and planning for economic and social development, and the methods of research are considered primarily with regard to their applicability under conditions existing in developing countries.

The economic activities of the people are among the most important topics of investigation in censuses of population. In most countries the population census is the primary source of comprehensive data on manpower resources and their utilization, and in many countries, it is the only source of such data, although census-type sampling surveys have been developed in some countries as an important source of current and supplementary information. Statistics of this kind are used for many purposes: as guidelines for the work of public and private organizations, institutions, and enterprises and as material for research in various fields of social science. In many countries, however, little use has yet been made of the data the censuses have provided for studies of the kinds with which this manual is concerned. It is hoped that the manual will be helpful to analysts, especially in developing countries, in extending research in this field.

The uses of population census data for research in various fields, as an aid to developmental planning and policy-making, have been outlined broadly in another publication of the United Nations. <sup>1/</sup> That publication has indicated the place of studies on economic activities, as well as on other topics, in national programmes of census-based research designed to serve such purposes. It serves as the starting point of the present manual, which is designed to explain and illustrate methods for such studies relating to economic activities of the population.

It is not the purpose here to provide comprehensive blue-prints and specifications for studies in any one country. The selection of questions to be investigated and details of the methods must, of course, be adapted to the needs and conditions of each country. Indeed, one should not expect the scope and methods of any such study to be specified fully in advance. As the work progresses, the analyst adapts and re-adapts his research plan to his findings, extending or curtailing the planned investigation of various questions, looking into new questions posed by the findings, and devising methods for dealing with analytical problems as they arise.

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<sup>1/</sup> National Programmes of Analysis of Population Census Data as an Aid to Planning and Policy-Making (United Nations publication, Sales No.: 64.XIII.4).

The aims of the manual are to present some of the main questions that are likely to be found important and that it is feasible to study in the circumstances of many countries, to outline principles of some relevant analytical methods, and to illustrate their application with simple examples. Studies are cited in which some of these methods have been applied, and to which the user of the manual may refer for additional illustrations and explanations of methodological details. In this way, it is hoped to give some assistance in planning and carrying out studies in this field, especially to analysts who have not already had long experience of the study of census statistics on economic activities. 2/

B. Concepts, definitions and classifications of census statistics on economic activities

It is not necessary in this manual to consider the details of the methodological problems of census enquiries relating to economic activities. Other publications of the United Nations and the International Labour Office have dealt with concepts, definitions and classifications of census data on this as well as other topics, presenting internationally recommended standards for these statistics and dealing with the problems that arise when these standards are applied in national censuses. 3/ It will be assumed here that a census has been taken and the tabulations of results upon which analytical studies are to be based are given (although it is worth emphasizing that the use of the data for analytical studies as well as for other purposes should be considered as fully as possible beforehand, when the census questionnaire, the definitions, and the programme of tabulations are being formulated). As an introduction to the discussion of analytical methods, it is appropriate merely to review some principal features of the internationally recommended standards and note some of the most important variations of national census practices with regard to the data on economic activities.

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2/ Users of this manual are referred also to the following works which contain more or less extensive discussions of methods of analysing census data in this field: George Barclay, Techniques of Population Analysis (New York and London, 1958), chap. 9; A.J. Jaffe and Charles D. Stewart, Manpower Resources and Utilization. Principles of Working Force Analysis (New York, 1951); Mortimer Spiegleman, Introduction to Demography (Chicago, Society of Actuaries, 1955), chap. 11.

3/ Principles and Recommendations for National Population Censuses (United Nations publication, Sales No.: 58.XVII.5), paras. 414-418, 501-503; Principles and Recommendations for the 1970 Population Censuses (United Nations publication, Sales No.: 67.XVII.3), paras. 222, 247, 281, 288-297, 313; Handbook of Population Census Methods, Volume 2: Economic Characteristics of the Population (United Nations publication, Sales No.: 58.XVII.6/vol. 2); International Standard Industrial Classification of all Economic Activities (United Nations publication, Sales No.: 58.XVII.7); Application of International Standards to Census Data on the Economically Active Population (United Nations publication, Sales No.: 51.XIII.2); International Labour Office, International Standardization of Labour Statistics (Geneva, 1959); International Labour Office, The International Standard Classification of Occupations (Geneva, 1958).

The "labour force", in the terminology used for the sake of simplicity in this manual, is the equivalent of "economically active population" in the terminology of the internationally recommended standards. <sup>4/</sup> According to those standards, the measure of the labour force should comprise "all persons of either sex who furnish the supply of labour available for the production of economic goods and services", including employers, self-employed persons, and those who assist without pay in a family economic enterprise as well as employees. It further includes unemployed persons, as well as those employed during the period to which the data refer. <sup>5/</sup> The category of employed persons should comprise both full-time and part-time workers, provided that the latter "work at least a minimum period (to be set ... sufficiently low to exclude those whose contributions are negligible)," while the unemployed should be defined (with some exceptions) as persons who are not at work and are seeking work for pay or profit during the period of reference. On the other hand, the category of persons not in the labour force (economically inactive population) should comprise persons engaged only in activities which do not contribute directly to the production of economic goods and services; this includes housewives and students as well as disabled, retired, and other inactive persons. It should be noted that housewives occupied only with domestic duties are to be excluded from the measure of the labour force because the goods and services which they produce are not considered as "economic", just as the value of their products is excluded from the measure of income in national accounts.

Members of the labour force should be classified, according to the internationally recommended standards, by types of economic activities in terms of the classifications of industry, occupation and status. The industry classification refers to the activity of the establishment or enterprise in which the individual works, the occupation classification to the type of work done by the individual, and the status classification (in which the principal categories are employees, employers, own-account workers, and unpaid family workers) to the individual's position in relation to other workers, if any, in the enterprise. <sup>6/</sup>

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<sup>4/</sup> On the terminology of statistics and analytical measures in this field, see Multilingual Demographic Dictionary (United Nations publication, Sales No.: 58.XIII.4), paras. 350-360.

<sup>5/</sup> The definitions quoted here are excerpts from the recommendations of the United Nations Statistical Commission for 1960 censuses Principles and Recommendations for National Population Censuses (United Nations publication, Sales No.: 58.XVII.5), para. 414. There are some differences between these and the definitions recommended for the 1970 censuses Principles and Recommendations for the 1970 Population Censuses (United Nations publication, Sales No.: 67.XVII.3) as well as those recommended by the Eighth International Conference of Labour Statisticians, International Standardization of Labour Statistics (Geneva, 1959).

<sup>6/</sup> Neither the internationally recommended classifications nor those applied in the censuses of various countries adhere strictly to these concepts, especially as regards the classification of occupations. For example, the International Labour Office, The International Standard Classification of Occupations (Geneva, 1958) includes several major divisions which refer primarily to the activity of the enterprise or establishment rather than to that of the individual. The revision being prepared at present represents a step towards a stricter definition of categories with regard to the kind of work done by the individual.

The internationally recommended standards also include specifications for certain tabulations of the results, including a set of "first priority" tabulations regarded as "of most general importance and practicability" and a set of "second priority" tabulations "which are of generally recognized value, but which serve somewhat more specialized purposes or involve somewhat more elaborate and expensive compilation procedures". As noted in the recommendations, "the first and second priority tabulations together constitute a modest tabulation programme and many additional useful and practicable tabulations can be included in the census programme of any country with sufficient resources to undertake a more ambitious tabulation scheme". 7/ In this manual, while attention is focussed mainly upon analytical methods which are applicable to tabulations in the first and second-priority recommended lists, some attention is also given to analytical uses of other tabulations, found in the publications of some national censuses, which are of special value for the study of certain questions.

In recent censuses of most countries the methods of compiling data on economic activities have conformed fairly well, on the whole, to the internationally recommended standards; yet the possibilities of comparing the statistics of one nation with those of another are severely limited, for two reasons. First, the standards are rather elastic in some important respects, so that they accommodate variations of national practices which appreciably affect the measures of size and composition of the labour force. Second, even where the concepts, definitions and classifications are formally the same or closely similar, they may be interpreted very differently by census field-workers and respondents in different countries; and reporting errors and biases may seriously reduce the possibility of comparison.

As regards the formal definitions, one important factor limiting comparisons is the variation in the length of the periods to which the census questions on economic activities refer. In some censuses, the period is one week; in others, one month; and in still others, several months or a year. These variations affect measures of the size of the labour force, since the longer the period of reference, the greater will be the number of persons found to have been engaged in economic activities at least to some extent during the period. The measures of labour force composition also are affected, since the longer the period, the greater will be the proportionate representation in the labour force total of persons who work only intermittently or seasonally, and of those having entered into or retired from economic activities during the period. Sex, age, occupation, industry, status and other groupings of the labour force are likely to be affected.

It is often useful in the study of the statistics of one country to make comparisons with those of other countries, and in doing so, the analyst must pay careful attention to limitations in the extent to which they may be compared. Even more important so far as national studies are concerned is the question of whether historical series of national census statistics may be compared, and in this connexion the variations of time reference of the data often assume major importance. Formerly, it was common practice in population censuses to record the "usual" activity of each individual without reference to any specific period

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7/ Principles and Recommendations for National Population Censuses (United Nations publication, Sales No.: 58.XVII.5), paras. 501-503.

of time; questions with a specified time reference have been introduced in most countries only during the last few decades. Although it seems in some cases that this change may not have affected the measures of labour force totals very greatly, the effect upon the totals in other cases appears likely to have been quite substantial, and in any case there is a strong likelihood of appreciable effects upon the data for certain sex, age, occupation, industry and status categories and for certain areas within the country.

Another factor limiting the possibility of comparison is the variation in the extent to which persons engaged both in economic and non-economic activities are classified as economically active and included in the labour force measures. This is especially important in developing countries where a large share of all economic activities (particularly in the agricultural sector) is carried on in family enterprises, in which housewives and school children may play a more or less important part. Provisions for the classification of persons having such dual activities vary in the definitions adopted for the censuses of different countries, and even with the same definitions, the analyst is not certain of being able to compare the classifications actually obtained. In fact, it is extremely difficult in a census to achieve a consistently accurate classification, under any definition, of persons who combine domestic duties or attendance at school with economic activities. <sup>8/</sup> The extent to which the economic activities of such persons are reported may vary not only between the censuses of different countries and between censuses taken at different dates in the same country, but also within the data of the same census - in different parts of the country, between different ethnic groups, among various industry and occupation categories and so forth.

There are also variations in the criteria whereby unemployed persons belonging to the labour force are distinguished from economically inactive persons not in the labour force. According to the recommended international standards, this distinction should be made primarily on the basis of the question, whether or not the individual was seeking work for pay or profit during the reference period; but this criterion may not be very suitable for use under the conditions of narrowly limited opportunities for employment which prevail in many developing countries, particularly in rural communities. Other criteria are sometimes substituted, such as the question, whether the individual wants work, or would accept a job under certain stated conditions. Also, variations in the enumeration and classification of members of the armed forces may greatly affect the measures of certain sex-age groups of the labour force even where their effect on the labour force totals is not very important. Armed forces are excluded,

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<sup>8/</sup> For this reason, it has been the practice in some censuses to classify persons in certain population categories (such as women in farm households) as economically active or inactive merely on the basis of such criteria as age, sex and family relationships, without regard to their actual activities.

wholly or in part, from the population enumerated in some censuses, while in other censuses they may be classified either as members of the labour force or in an economically inactive category. 9/

Variations of the forms of classifications, especially of industry and occupation, also pose major problems for international comparisons and historical studies of national statistics on economic activities of the population. Problems resulting from the varying forms of industry and occupation classifications are discussed further in chapter III.

### C. Evaluation of the quality of data

As implied by what has been said above, the data relating to economic activities obtained in population censuses are subject to important errors and biases due to carelessness and preconceptions on the part of both field-workers and respondents and to ignorance and forgetfulness, if not unwillingness to give accurate information, on the part of the latter. Errors and biases are generally most important in the data for marginal categories of the labour force, including women, children and youths, men near or beyond the normal age of retirement, and unpaid family workers of any sex-age category. It behoves the analyst to be wary in his interpretations of all census data in this field and especially so in dealing with the statistics for these marginal categories.

The quality of analysis depends to a large extent upon the quality of the analyst's judgement of the reliability of the data and the nature and importance of errors and biases in them. He must constantly maintain a critical attitude toward the data, considering how the figures for each category of the labour force may have been affected by the factors of error and bias, phrasing and arrangement of the census questions, details of instructions to field-workers and respondents, and field procedures, as well as by the formal definitions. An essential part of sound analytical work is scrutiny of the statistics and probing of their internal consistency as well as their consistency with information from other sources (such as population sample surveys, establishment reports on employment, social security records etc.) and with the analyst's knowledge of conditions in various industries

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9/ This discussion by no means exhausts the types of variations in census practices which may affect the measures of labour force size and composition. For further discussion, see Handbook of Population Census Methods, Volume 2: Economic Characteristics of the Population (United Nations publications, Sales No.: 58.XVII.6/vol. 2); Application of International Standards to Census Data on the Economically Active Population (United Nations publication, Sales No.: 51.XIII.2); Jaffe and Stewart, op. cit.; United States President's Committee to Appraise Employment and Unemployment Statistics, Measuring Employment and Unemployment (Washington, 1962); "Growth and structure of the labour force in the countries of Asia and the Far East", Report of the Asian Population Conference and Selected Papers (United Nations publication, Sales No.: 65.II.F.11).

occupations, and areas of the country. Sample field checks on reliability of responses to the census questions are helpful in the evaluation, 10/ and when field checks on accuracy of the head count are undertaken, it is helpful to design them in such a way as to provide information about the effects of omissions and double counting upon the measures of the labour force and its components, as well as other population characteristics. As the analyst evaluates the data, he should also evaluate the census concepts, definitions and classifications, with a view to improvements which would enhance the quality and utility of results in future censuses.

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10/ For example, see United States Bureau of the Census, The Post-Enumerative Survey, 1950. An Evaluation Study of the 1950 Censuses of Population and Housing (Washington, 1960), Technical Paper No. 4.