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**NATIONAL PROGRAMMES  
OF ANALYSIS  
OF POPULATION CENSUS DATA  
AS AN AID TO PLANNING  
AND POLICY-MAKING**



**UNITED NATIONS**

**Department of Economic and Social Affairs**

**POPULATION STUDIES, No. 36**

**NATIONAL PROGRAMMES  
OF ANALYSIS  
OF POPULATION CENSUS DATA  
AS AN AID TO PLANNING  
AND POLICY-MAKING**



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## FOREWORD

This is the sixth study\* that the United Nations has published with the view to aiding Governments that are co-operating in the 1960 World Population Census Programme in utilizing the census results for purposes of planning in the economic and social fields. The suggestions here put forward are based on the results of discussions at two regional seminars on evaluation, analysis and utilization of population census data, held in Latin America and in Asia in 1959 and 1960, respectively, and on the findings of case studies of these problems in five selected countries, carried out co-operatively by the United Nations and the Governments concerned. 1/ A draft which included these suggestions was prepared by the Secretariat, and considered by the Population Commission at its eleventh session (1961). 2/

At the Commission's request, 3/ the provisional text, revised to take account of the Commission's views, was circulated to more than 500 international and national agencies, organizations, institutions and individuals. Many of the suggestions and comments received were incorporated into a second, revised text, which was submitted to the Population Commission for consideration at its twelfth session (1963). 4/ The Food and Agriculture Organization of the United Nations and the World Health Organization collaborated in the preparation of chapters X and XI, respectively. The present text also takes account of views expressed by the Population Commission at its twelfth session. 5/

\* The provisional version of this study was issued as "Provisional Suggestions for National Programmes of Analysis of Population Census Data as an Aid to Planning and Policy-Making" (ST/SOA/SER.R/6). The other five were issued in the same series, ST/SOA/SER.R/1-5, as enumerated in foot-note 1 below.

- 1/ "Report of the Seminar on Evaluation and Utilization of Population Census Data in Latin America" (E/CN.9/CONF.1/1/Rev.1) and "Report of the Seminar on Evaluation and Utilization of Population Census Data in Asia and the Far East" (E/CN.9/CONF.2/1); Case Studies of Arrangements for Evaluation and Utilization of Population Census Results. Report I. The Sudan; Report II. Guatemala; Report III. Ecuador; Report IV. Japan; Report V. Iran (ST/SOA/SER.R/1-5, respectively).
- 2/ "Draft suggestions for national programmes of evaluation and analysis of population census data in under-developed countries (E/CN.9/161).
- 3/ Official Records of the Economic and Social Council, Thirty-First Session, Supplement No. 3, para. 82.
- 4/ "Basic Considerations in National Programmes of Analysis of Population Census Data as an Aid to Planning and Policy-Making" (E/CN.9/173 and E/CN.9/173/Add.1).
- 5/ Official Records of the Economic and Social Council, Thirty-Fifth Session, Supplement No. 2 (E/3723/Rev.1), paras. 72-74.

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## I. INTRODUCTION

1. One of the important uses of population census statistics is to supply a part of the factual basis for decisions on matters of public policy and governmental action in social and economic fields. A careful and effective analysis of census data can bring out the relevant facts regarding the growth, distribution and composition of population, examine the factors influencing current trends, suggest probable future development and assess the implications for policy and action. This type of analysis plays an important part in the evaluation of a nation's resources and needs, and aids in the definition of meaningful goals for programmes of social and economic development.
2. Full understanding of the implications of population census figures is obviously important in countries where migration is altering the geographical distribution of the population and accelerating the process of urbanization. It is also important in areas where births and deaths - and the difference in their numbers and rates - are the major factors to be considered in analysing population change. Whatever the population trends, analytical studies of their relation to education, health and housing are basic to social development programmes, and economic planning requires information on manpower, population distribution, food and agriculture and levels of living. These are, therefore, the fields with which this volume is primarily concerned.
3. Censuses have been completed, or will soon be taken, in many countries in connexion with the 1960 World Population Census Programme. In some countries, censuses are being taken for the first time, so that a new opportunity is created for fundamental research on the trends and characteristics of the population. In others, the data from the new censuses combined with those from earlier enumerations will greatly enlarge the possibilities for such research.
4. It was with these considerations in mind that the Economic and Social Council, at its thirty-first session (April 1961), adopted a resolution in which the Governments of Member States of the United Nations taking part in the 1960 World Population Census Programme were invited "to consider the utility of making whatever arrangements may be necessary and practicable in each country to ensure that essential analyses of the census results will be carried out, particularly as they relate to important national problems of economic and social development and to questions of national demographic, economic, and social policy". 6/
5. The taking of a census involves a considerable investment of public resources, and the analysis and utilization of its results represent major means of repayment. For a variety of reasons, not all Governments have taken full

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6/ Official Records of the Economic and Social Council, Thirty-First Session Supplement No. 1, resolution 820 B (XXXI).

advantage of this opportunity. In some countries there exists no institutional framework within which to carry out the projects; in many, there is a lack of trained personnel. In other countries the census tabulations have not been planned with a view to analytical needs, or publication of detailed data has been delayed or abandoned. Whatever the reasons, the failure to analyse fully the census results means a loss of potential return on the Government's investment in the census programme.

6. This study calls attention to several topics that may be of interest to Governments concerned with social and economic development; each subject is discussed in terms of the functions to be served by the analytical studies, and the population census data and other materials needed to carry them out. Special consideration is given to the types of information usually collected in censuses in developing countries and to the types of planning and developmental problems that these countries face. At the same time, many of the suggestions are also pertinent to more developed countries.

7. While this study considers only research directed towards policy-making and action, it is emphasized that demographic studies need not be oriented in this way. Research which makes an important contribution to the advancement of science requires no justification in terms of its immediate, practical applications. While it has been deemed advisable to frame these proposals in terms of governmental programmes at the national level, it is recognized that a comprehensive national census programme must also meet the basic requirements of regional and local governments, and of non-governmental organizations, institutions and individuals. No nation should overlook these users in its over-all census planning.

8. These considerations are not presented as recommendations to Governments or to agencies and institutions which may be concerned with demographic studies, for the kinds of studies useful in each country will vary with the circumstances. Neither are they aimed at the international standardization of demographic research, although it is useful to pay some attention to the advantage of international comparability in the findings of studies carried out in different countries on certain demographic questions. Many Governments will find it impractical to undertake all of the types of studies discussed in this text. It may therefore be useful for them to survey needs and resources for demographic analyses relevant to planning, and to assign priorities accordingly.

9. The scope for analytical studies on various topics obviously depends, among other factors, on what information is collected in the census. "Principles and Recommendations for National Population Censuses", endorsed by the Statistical Commission of the United Nations and published by the United Nations in 1958, contains a list of recommended tabulations. <sup>7/</sup> That publication deals with the essential features of the population census, its relation to other statistical enquiries, the topics on which data should be collected in the census, definitions and classifications of data on each topic, tabulations of census results, and uses of sampling in censuses. The principles and recommendations

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<sup>7/</sup> Statistical Papers, Series M, No. 27 (United Nations publication, Sales No.: 58.XVII.5.).

stated therein have been taken as a basis for the present statement. This paper contains some indications of additional types of census tabulations that are necessary or useful for certain types of analyses, but they are not intended as recommendations for a national tabulation programme.

10. If analytical studies of census statistics are to lead to sound conclusions, it is indispensable that the statistics should be tested for accuracy and corrected so far as is feasible. Although the problems of evaluating the quality of population census data are considered only incidentally here, it is recognized that a close relation exists between the analysis of census results and the evaluation of their accuracy. Indeed, at many points the two operations are inseparable. Programmes of analytical studies should be co-ordinated with programmes of evaluation, especially with regard to checks on the internal consistency of the census statistics. Lack of such co-ordination will result in duplication of effort and possibly in lowering the quality of both evaluation and analysis.



## II. PLANNING AND ORGANIZATION OF ANALYTICAL WORK

11. The planning that precedes the taking of a population census should include provision for analysis of the results, since much of the usefulness of the project will depend on this analytical work. It is important to draw up a comprehensive plan for the census programme encompassing the field work, processing and publication of the results, evaluation of their quality, their analysis in relation to questions of major interest and their utilization in administrative decisions and action. It is evident that the value of a census programme may be materially reduced by weakness in any of the units in this sequence. Maximum benefits will result if evaluation, analysis and utilization are included as integral parts of the census programme from the initial planning stage.

12. The final component of the census programme is an essential one. No matter how carefully the other segments are planned and carried out, the entire programme is of little practical value unless the results are actually used. Time and resources are wasted when the findings of studies are ignored. To avoid such waste, administrative arrangements should be made to ensure that planners and policy-makers are informed of the results of studies of census returns that are pertinent to their work. At all stages, from the initial planning of the studies to the final presentation of results, the closest possible working relations should be maintained between the technicians in the research agency or institution and those in the interested policy-making and action agencies. This continuous association is useful in making the analytical studies serve fully their function in the programme of social and economic development.

13. The analysis of data provided by the population census should relate these materials to other information. Some of the other relevant types of data are discussed in the following sections, e.g., vital statistics, results of sample surveys and school enrolment statistics. There may also be instances where censuses of housing, agriculture, etc., are taken at approximately the same time, and their findings can be combined with those of the population census to expand the field of analysis. It is also important that full use be made of existing, related studies, including those developed by government agencies and private institutions, as well as studies carried out by international and regional bodies. Thus, a study of school enrolment and educational achievement by a regional demographic centre or an evaluation of manpower requirements by a regional economic commission may contribute materially to national programmes of census analysis. The regional study may indicate suitable analytical methods and explore relationships in general terms which can then be examined in more detail in national studies.

14. The analyst should be willing to begin in a modest way, if necessary, with a body of data limited in coverage and accuracy, endeavouring to deduce as well as possible the information most urgently needed relevant to questions of policy and developmental planning. It would be a mistake to postpone the beginning of analysis until statistical sources are developed to a high degree of perfection. On the contrary, the development of basic statistics and analytical

work should go hand in hand. This view is dictated by considerations of efficiency in data-collection programmes as well as the urgency of the needs for results of analytical studies.

15. Administratively, the most advantageous location or locations for demographic research programmes, within the Government or outside of it, will be determined by circumstances in each country. There is no general rule that can be applied. Among the possibilities are:

(a) Development within the national agency responsible for population censuses of a co-ordinated programme of collection, evaluation and analysis of demographic data;

(b) Assignment of the task of analysis to a research unit in a central agency for economic and social planning;

(c) Development of a demographic research programme in a university or autonomous scientific institution with arrangements for co-operation and consultation with interested governmental agencies.

16. While the goal in every instance should be provision for a continuing programme of demographic research, some developing countries now lack the qualified technical personnel to set up and maintain an activity of this type. The initial step may then be to arrange a training programme that will provide a qualified staff, perhaps through the regional demographic centres or through other training facilities abroad. Meanwhile, the most pressing needs can be met by obtaining the services of one or more experts from other countries through technical assistance programmes, or by contracting with regional demographic centres or with institutions or agencies abroad to perform the necessary analysis. In these ways, information urgently needed for policy-making and administrative action can be supplied on a temporary basis while the Government is developing plans and training staff for a permanent demographic research programme.

17. Provisional plans for the most important analytical studies should be drawn up as early as possible in the planning of a census programme, so that they can be taken into account in the preparations for the census questionnaires, field operations and data processing. In drawing up such plans, the interests of all governmental agencies concerned with the use or analysis of census data must be considered. It has sometimes been found effective to establish a committee representing the interested agencies to advise the agency or institution responsible for the analytical programme. It is the practice in many countries to form inter-agency committees for the purpose of advising the census-taking agency on the contents of the census questionnaires and tabulations, and the same committee or another working in close consultation with it may advise on the planning of analytical studies. Such a committee may also serve a useful function in facilitating co-operation between the agency or institution undertaking analytical studies and the users of results of the studies, at the stages of execution of studies and applications of findings as well as the planning stage.

### III. SELECTION OF TOPICS AND PROVISION OF MATERIALS FOR DEMOGRAPHIC ANALYSIS

#### A. General principles for the selection of topics for study

18. It is not possible to prescribe in detail a programme of studies based on census data that would be suitable in all circumstances, since countries differ in their need for information on various questions, the scope of their census data and collateral statistics, and the extent of their resources for analytical work. As already mentioned, in most developing countries, programmes of study should be modest, because few persons with appropriate training and experience will be available to engage in them. The smaller the resources, the more important it is to select topics with careful attention to the amount of time and effort required to carry out the analyses, as well as to the importance and urgency of requirements for different types of information.

19. Priority should be given to fundamental studies of aspects of population growth, structure, and distribution that bear on questions of policy and planning in many different economic and social fields, rather than to studies of special questions that will yield information of limited usefulness. The results of the fundamental studies will serve as working materials for further analyses relating to special questions in particular fields which may be taken up subsequently as time and resources permit.

20. In later sections of this paper are discussed some subjects for study that are of primary importance in considering problems of economic and social development. Studies relating to these topics would deserve high priority, in many countries, in programmes of analysis of population census data. Topics discussed here are not intended, however, as a recommendation for the contents of such a programme, since selection will depend upon matching the needs to available research facilities.

#### B. Planning of census tabulations to provide materials for analysis

21. As previously noted, the potentialities of the census as a source of information needed in planning and policy-making can be fully realized only when the various stages (design of the census questionnaire; data-processing procedures and tabulations; evaluation and analysis) are treated as an integrated whole. In this connexion, it is preferable to define the areas of study before the questionnaire and tabulation plans are drawn up, thereby ensuring that the information will be collected and tabulated in the necessary detail. If it is desired, for example, to examine the policy implications of rural-urban migration, the census questionnaire should include the relevant questions, and provisions should be made for tabulating the pertinent data.

22. The scope for analysis of census results will be extended in many cases if comparability between consecutive censuses is preserved, and also if the census tabulations are co-ordinated with vital statistics. It is emphasized, however,

that such comparability should not be maintained at the expense of the improvement of the census data. One method of dealing with the conflict between the necessity of improving census concepts and extending the scope of the tabulations, while maintaining comparability between tabulations of results of consecutive censuses, is to provide for the sub-division of established categories rather than to redefine those categories. In this way the category totals are held comparable from one census to the next.

#### 1. Recommended international standards for census tabulations

23. The indications given below refer primarily to analytical uses of the tabulations recommended by the United Nations Statistical Commission for national censuses to be taken in connexion with the 1960 World Population Census Programme, as specified in the aforementioned Principles and Recommendations for National Population Censuses, and regional adaptations of this standard recommended by certain regional organizations of statisticians. <sup>8/</sup> It is assumed that each Government, in planning the tabulations of a national census, will wish to adhere to these international and regional standards as far as possible in view of national circumstances and requirements for data. It is recognized, however, that some Governments may find it necessary or desirable to omit or abridge some of the recommended standard tabulations, to elaborate some of them in greater detail, or to undertake some tabulations not included in the internationally recommended standards. Therefore the discussions in the following sections include indications of possible abridgements of some of the more detailed recommended tabulations, which would retain the most useful data

<sup>8/</sup> In the following sections of this paper, tabulations listed in the Principles and Recommendations are cited by tabulation number, with indications of the priority recommended by the Statistical Commission: for example, "United Nations tabulations 30, first priority", etc. Citations of tabulations recommended by regional organizations of statisticians are given as follows:

CAS: Economic Commission for Asia and the Far East, Report of the Conference of Asian Statisticians (Second Session).  
United Nations, E/CN.11/493.

CES: Conference of European Statisticians, Report of the Eleventh Plenary Session. United Nations Conf/Eur/Stats/112; and European Programme for National Population Censuses, United Nations, Conf/Eur/Stats/WG/81.

COTA: Inter American Statistical Institute, Programme of the 1960 Census of America (COTA-1960). Report of the Sixth Session of the Committee on Improvement of National Statistics (COINS) (Document 3841), Washington, April 1959. This document contains two lists of recommended tabulations, a "minimum" programme and an "expanded" programme; tabulation numbers are cited accordingly in the following sections of the present document.

An index of citations to these recommended tabulations will be found in annex II to the present document.

for the analytical purposes considered here. Also included are indications of some possible elaborations of recommended tabulations and some possible additional tabulations not listed in the internationally recommended standards, which might be found feasible and desirable in the tabulation programmes of national censuses, for the purpose of extending the scope of analytical studies. Possible ways of obtaining additional data for analytical studies from sample surveys linked with population censuses are also mentioned.

## 2. Area classifications of census data

24. The utility of census materials for analytical studies, as well as for other purposes, will depend to a large extent on the classifications of areas of the country used for the tabulations. Within the limits of time and funds, it is seldom feasible to satisfy all needs for area classifications, either for analytical or for other purposes. However, every effort should be made to keep to a minimum the extent of compromise between the needs for detail in classifications of areas and in classifications of population characteristics. In this connexion, the following considerations are pertinent:

(a) It is important, as far as possible, to tabulate the most essential data separately for areas that constitute major units of administrative action in the fields to which the analytical studies relate. For certain studies it will be useful to tabulate the data also for individual cities, especially major cities, and for small areas that can serve as "building blocks" for other area classifications not corresponding to political units.

(b) A distinction between urban and rural segments is indispensable for many kinds of studies relating to economic and social policy and action programmes.

(c) For analyses of interrelations of demographic, economic and social factors which require detailed cross-classifications of characteristics, data for the country as a whole or its major administrative divisions and urban and rural segments may be sufficient. In any case, it is generally impracticable to carry out such tabulations for many separate areas.

(d) Demographic, economic and social relationships may also be studied by comparing census tabulations for various areas which differ in their economic and social characteristics. Where it is not feasible to carry out the tabulations for all areas separately according to a sufficiently detailed area classification, the purpose of such studies may be served by tabulations for groups of areas defined with reference to their economic and social characteristics. The areas may either be grouped into geographically contiguous regions of homogeneous economic and social characteristics, or be classified according to these characteristics without regard to geographical location. For example, it may be useful to carry out certain tabulations for the aggregate population in all rural areas where agriculture is carried on mainly for subsistence and in those where commercial agriculture predominates, in cases where it is possible to make an adequate distinction between subsistence and commercial farming.

25. Special considerations relating to area classifications of data on specific topics will be discussed later.

### 3. Uses of sampling

26. When personnel with the necessary training and experience in sampling methods is available, it is possible to reduce costs and save time by limiting tabulations to a sample of the census returns. Where the population is large enough to make sampling economical, it is advisable to consider the possibility of sampling for each tabulation that does not require detailed classification of areas, and to carry out on a full scale only those for which a sample would not be sufficient for one reason or another.

27. During the course of the analytical work, it may become apparent that the investigation of some important questions requires supplementary data for which no provision has been made in the tabulation programme of the census. An efficient and economical means of meeting such unforeseen needs is to prepare, if it is practicable to do so during the course of the tabulation programme, a sample or samples of the punched cards or tapes of the census, which can be retained for further tabulation work.

28. It may be possible to realize economies and enlarge the scope of investigations by planning one or more sample surveys of the population to be carried out after the census and linked with it so as to form a data-collection programme of maximum efficiency and minimum cost. An important part of the planning of such a programme is the provision of tabulations of the census data in suitable form to make an efficient frame for the sample surveys. This matter is discussed in section XII, below.

#### IV. STUDIES OF POPULATION GROWTH AND STRUCTURE

##### A. Scope and purposes

29. The most fundamental demographic studies are concerned with the growth and structure of the population, the demographic components of population growth - i.e., fertility, mortality, immigration and emigration - and factors influencing these components.

30. Investigations of these subjects deserve consideration for an early place in a programme of studies based on the results of a census, because they furnish essential materials for further analyses and calculations relating directly to many questions of economic and social policy and planning. Among other things, they provide the basis for population projections, which in turn are basic to estimates of the number of children for whom school facilities will be required during the period of a plan for educational development, the number of families or households to be housed, the levels of consumption per head of food and other goods and services that will correspond to the fulfilment of given production goals, and many other estimates needed for adapting economic and social plans to the nation's needs. Studies under this heading also provide the demographic basis for the analysis of problems of manpower, education, housing, and health discussed in later sections of this paper. Furthermore, they furnish materials for studying the effects of possible variations in population trends on economic and social development, as well as the effects of various possible types of planned social and economic action upon the population trends, thus supplying background data for decisions on questions of national population policy.

##### B. Requirements of data

###### 1. Data on sex-age structure of the population

31. The classification of males and females by age groups<sup>9/</sup> is one of the most useful census tabulations for purposes of demographic analysis. It provides an indispensable part of the basis for studies of a nation's manpower potential and requirements for schools, housing and various kinds of goods and services. In conjunction with vital statistics,<sup>10/</sup> this tabulation furnishes the means of computing such fundamental measures of the factors of population growth as reproduction rates and life-table functions. It is the starting point for population projections made by the "component" method.

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<sup>9/</sup> United Nations tabulation 5, first priority. See also COTA minimum tabulation 4; CES tabulation 5, first priority; CAS recommendations, para. 38. (References to sources cited in foot-note 8 above).

<sup>10/</sup> The possibilities of utilizing vital statistics in conjunction with census results depend upon the comparability of concepts and classification used in the census and the vital registration system. Hence, close contact and the fullest co-operation should be maintained between census officials and those responsible for the collection and presentation of vital statistics.

32. In countries where reliable vital statistics are lacking, special importance attaches to the use of census records on the sex-age structure of the population as a means of estimating vital rates. An analysis of these data from two successive censuses may yield approximate measures of age-specific mortality rates and life-table functions for the interval between the censuses. Given an approximate indication of the level of mortality, the data on age structure from a single census can be used to derive approximate measures of the gross reproduction rate and the crude birth rate. On the other hand, if the approximate level of fertility is known or can be estimated, the mortality level can also be derived approximately from the increases of total population shown by successive censuses, due regard being paid to immigration and emigration if these factors are important.

33. Variations of fertility in different parts of the country can be studied by means of ratios of children to women of child-bearing age or other ratios derived from the tabulation of population by age and sex for various areas. It is necessary in such analyses to beware of errors due to the effects of internal migration, differential infant mortality, differential under-enumeration of young children and other imperfections of the census data on the age structure of the population.

34. The age classification, under 1 year, 1-4 years, and by five-year age groups thereafter (to age 99 when possible), provides the necessary categories for most analytical purposes. But for evaluation of the quality of age data obtained at the census and for some important analyses, such as identification of school-age population (or as a standard practice for countries that take censuses at irregular intervals) it is necessary to tabulate data in single years of age. Where a need is recognized for planning and policy-making in specialized fields or in particular communities, such as principal industrial or agricultural centres, it is important to provide single-year age tabulations for the regions or communities of particular interest. In this way, all age data pertinent to the over-all planning in the geographical area of special interest are made available, including material for analysis of sex-age patterns of entrance into the labour force and studies of needs for schools. Tabulations of broad age groups, by sex, for a relatively large number of separate areas are of great value for analytical studies; it may be sufficient to tabulate the more detailed classifications for the country as a whole and perhaps for principal areas.

35. In countries where immigration has occurred on an important scale it is highly valuable, for the demographic analyses and estimates mentioned above, to tabulate the data on sex-age structure separately for the native and the foreign-born population. <sup>11/</sup> Thus the effects of immigration on the growth and structure of the population can be examined and estimates of mortality and fertility can be improved by basing them on the statistics for the native population alone. Likewise, where census questions permit the identification of internal migrants, it is useful to carry out sample tabulations of sex-age characteristics of immigrants and non-migrants in various areas.

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<sup>11/</sup> United Nations tabulation 8, first priority. See also COTA minimum tabulation 6; CES tabulation 8, first priority.



36. In countries where there are important ethnic and national minorities with distinctive demographic, social and economic characteristics, it is also useful to carry out the tabulations of sex-age structure separately for such groups. 12/

## 2. Data on marital status

37. The classification of the population by marital status in relation to sex and age 13/ is of value for many analyses. Among other things, it provides material for the study of age at marriage and frequencies of celibacy, widowhood, and divorce as factors affecting population growth through their influence on fertility, and also affecting requirements for housing and other consumers' goods through their influence on family formation and composition.

38. Ratios of children to all women of child-bearing age, and to those who have ever married, calculated for various areas, provide useful information for the study of variations of fertility in different parts of the country. The analysis of these ratios makes it possible to obtain indications of the parts played by differences in age at marriage, frequency of non-marriage, widowhood, etc., in bringing about the variations of fertility. However, caution is required in the use of such child-woman ratios: the figures may be affected by internal migration of women and by under-enumeration of children.

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12/ United Nations tabulation 26, first priority:

Population included: Total population.

Classifications:

Ethnic or nationality groups. Each group for which separate information is required, all others, not stated.

Sex: Male, female.

Age: Under 5 years, 5-14, 15-24, ten-year age groups to 65-74, 75 and over, not stated.

See also CES tabulation 12, second priority. If it is desired, for example to provide for the acculturation of nationality or other minorities, tabulations needed for the relevant studies may be obtained by cross-classifying nationality or other personnel characteristics with selected demographic, economic and social characteristics.

13/ United Nations tabulation 6, first priority:

Population included: All persons above the legal or customary minimum age for marriage.

Classifications:

Marital status: Single, married, widowed, divorced, not stated.

Sex: Male, female.

Age: Under 15 years, five-year groups 15-19 to 70-74, 75 and over, not stated.

The classification of urban and rural areas in this tabulation is recommended as an item of second priority (United Nations tabulation 7), but is of great value for analytical purposes in view of the substantial differences commonly found in the marital status distribution of population in urban and rural areas.

See also COTA minimum tabulation 5; CES tabulation 6, first priority, and 7, second priority.

### 3. Additional data, useful for fertility studies

39. The inclusion of a question on the number of children born alive to each woman during her lifetime has been recommended by the United Nations Statistical Commission as a first priority item for population censuses. Tabulations of the responses to such a question 14/ provide material for measurement of fertility and study of the factors which influence it. These data are especially valuable for countries where birth registration statistics are lacking or faulty, 15/ but they are also useful as a supplement to registration data for countries where the latter are available in satisfactory form.

40. One of the fertility measures derived from these data relates to the size of completed families, i.e., numbers of children born to women who have reached the end of the child-bearing period. A comparatively simple tabulation from which the most essential measures can be derived consists of the following figures:

(a) Number of women past child-bearing age (45 or 50 years and over), classified by marital status in at least two groups (married, other). 16/ (In countries where the number of consensual unions is significant, and where the census provides for the identification of such unions, fertility data should be tabulated for this group in addition to "married" and "other" groups);

(b) Numbers of these women having borne no children, one or more children, and not reporting numbers of children;

(c) Total number of children born to women reporting one or more children. It is highly useful for the study of variations of fertility and of the factors influencing it, to tabulate at least the above figures and for various areas and to cross-tabulate them (for the country as a whole, the urban and rural segments, and for major areas) by characteristics such as

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14/ United Nations tabulation 30, first priority:

Population included: Either (a) all women, or (b) ever-married women.

Classifications:

Number of live-born children: none, single numbers 1-12, 13 and over, not stated.

Age of woman: Under 15 years, five-year age groups 15-19 to 70-74, 75 and over, not stated.

See also CES tabulations 41 and 42.

15/ It is not intended to suggest that census data on fertility can serve as a substitute for reliable birth registration statistics, which are ideal particularly for studies of current levels and patterns of fertility.

16/ If the census questions on marital status include an enquiry concerning previous marriages of women married at the time of the census, it may be advisable to classify the women into the two groups, once-married only, and all others.

educational level and occupation of the woman or the husband.

A classification by age groups in the range above 45 or 50 years may also be of value as an indication of changes in the fertility of successive generations of women in the past. It should be noted, however, that the derived measures may be biased by a possible relationship between longevity and fertility, as well as by tendencies for older women to forget children who died at early ages.

41. The classification of women of child-bearing age by age and number of children born is valuable for further studies of fertility; where tabulations are available for several censuses, it is possible to identify cohorts of women and to study patterns of family building as the women move from one age group to the next during the course of their physiologically reproductive years. For studies of cohort fertility from census data, it may be sufficient to confine the analysis to the total, urban and rural population of the country.

42. The scope of research in fertility may be extended by introducing cross-classifications by age at marriage, date of marriage, duration of marriage, or various combinations of these items into the tabulations of number of children born, if the relevant information is obtained in the census questionnaires. 17/ These items are not included in the recommendations of the United Nations Statistical Commission for census questionnaires.

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17/ Household sample surveys may provide very valuable additional data for fertility studies, which could not readily be obtained in a census. Such surveys may be used to obtain current data on births (and also deaths) where registration statistics are lacking or unsatisfactory. They may also be used to investigate attitudes and ideals with regard to age at marriage, size of family, family planning etc. The study of these questions is useful in connexion with forecasts of fertility trends and the consideration of population policy measures.

## V. STUDIES OF POPULATION DISTRIBUTION AND INTERNAL MIGRATION

### A. Scope and purposes

43. Studies of the distribution of the population within the country in relation to economic opportunities, and of internal migration and other factors affecting the trends of population distribution, also deserve high priority in a programme of demographic studies based on census data. The findings of such studies have many bearings on questions of policy and the planning of action programmes in the economic and social fields. They are directly relevant, for example, to policy with regard to the location of industrial and other economic development projects, and to the balance of economic and social development between rural and urban sectors, between agriculture and non-agricultural industries, between metropolitan centres and smaller places, and between different regions of the country. These studies are also of great value for policy and action in individual localities and for the development of private and public transportation and communication facilities. Studies under this heading provide materials for projections of the future rural-urban distribution of the population, the future growth of population in the principal cities, and future changes in the regional distribution of population within the country.

44. Migration from rural areas to the cities deserves special attention in these studies, especially in developing countries, as one of the principal factors affecting population distribution. In some cases the volume and rapidity of this movement creates a serious imbalance in economic development and poses major social problems for the migrants and for the non-migrant population, both in the cities and the rural areas. Studies of the magnitude of the movement, characteristics of the points of origin and destination, and characteristics of the migrants may be helpful in devising policies and programmes aimed at influencing the volume of such migration, modifying its direction, and remedying or preventing ill effects on conditions of employment, wages, housing, education, health, destitution, crime, etc.

### B. Requirements of data

#### 1. Data for analyses of population distribution in relation to economic opportunities

45. The tabulation of the number of inhabitants of each territorial unit of the country, its urban and rural segments, and individual urban areas, <sup>18/</sup> provides material for studies aimed at assessing possibilities and requirements for developmental investments in the different areas, identifying areas where an excess or deficit of population exists or threatens and providing guides for measures of policy relevant to population redistribution. The population figures

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<sup>18/</sup> United Nations tabulations 1, 2, 3, and 4, first priority. See also COTA minimum tabulations 1, 2, and 3; CES tabulations 1 and 2 first priority, 3 and 4 second priority.

can be examined in relation to available information on the resources of each area, the characteristics of its economy, and factors affecting prospects for its future economic development. Analyses of greater depth and of wider application are made possible by a cross-classification of population in various geographical units by sex, age and socio-economic category. 19/ The value of such studies is enhanced by also taking into account the past trend of population growth in each area, as shown by the data of previous censuses where available.

46. Tabulations of population census data relating to economic activities, educational characteristics, etc., of the population in each area are among the principal means of assessing the economic position and prospects of the different areas for the purpose of such studies. The extent of their usefulness in this respect will depend, of course, on the degree of detail in area classifications used for the tabulations relating to these characteristics. Abridged classifications of the characteristics may be used for tabulations in relatively great area detail, while fuller classifications are limited to tabulations for major areas.

47. Various types of measures of population density may be useful in studies under this heading. In addition to the density of total population in relation to total area of each territorial unit, the following measures may be valuable:

- (a) Rural population in relation to area of cultivated or cultivable land, or to total rural area;
- (b) Population dependent on agriculture 20/ in relation to area of cultivated or cultivable land, or to total rural area;
- (c) Economically active males, heads of households or heads of families, in agriculture 21/ in relation to area of cultivated or cultivable land, or to total rural area.

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19/ CES tabulation 30, first priority, provides for the classification of total population by sex, age and socio-economic category. Cross-classification by geographical unit is not among the internationally recommended tabulations.

20/ United Nations tabulation 24, second priority:

Population included: Total population.

Classifications:

Industry: Based on industry classification of persons on whom dependent, and classified according to, or convertible to, at least the divisions of the International Standard Statistical Classification of all Economic Activities;

Sex: Male, female.

For analysis of the type discussed here, the data for persons dependent on agriculture (possibly without the classification by sex) might be tabulated in greater geographical detail than the data for other categories of the industry classification.

See also COTA expanded tabulation 12; CES tabulations 30, first priority, and 26, second priority.

21/ Derived from United Nations tabulation 18, first priority; also COTA minimum tabulation 14 and Expanded tabulation 15; CES tabulations 29, first priority.

## 2. Data for estimates of net internal migration during intervals between censuses

48. In a country where satisfactory records of births and deaths are maintained, the net gain or loss of population in each area by migration during the interval between two censuses may be estimated by comparing the increase or decrease of population shown by the censuses with the recorded balance of births and deaths. It is important to realize, however, that the validity of such estimates depends on the achievement of a rather high degree of accuracy both in the census enumerations and in the birth and death records. A relatively small proportionate error in either set of statistics may cause a large proportionate error in the migration estimate. A thorough evaluation of the quality of the data is a prerequisite to any study of internal migration by this method.

49. Where international migration is a negligible factor; estimates of net internal migratory gains and losses classified by sex and age groups can be made by comparing tabulations of the population by sex and age groups in each area, at two census dates. If immigration or emigration has taken place on a significant scale and if records are not available on the sex-age characteristics of the persons involved, some adjustment may be made by restricting the comparison to the native-born population. The population of a given age at the earlier census date is compared with the number of a corresponding higher age at the latter census, allowance being made for mortality during the interval. Birth records are not required for this calculation if the estimate is restricted to the net gains and losses in the age groups of the population that were already living at the time of the earlier census. Death records also are not required if it can be assumed without risk of serious error that age specific mortality rates are really the same in all parts of the country. On this assumption the allowances for mortality may be made by applying standard survival factors computed from the tabulation of population by age and sex for the whole country at the two census dates. This procedure also eliminates errors due to misreporting of ages and faulty enumeration, except to the extent that such errors may vary in the different parts of the country.

50. Net migration estimates made by these methods may be studied in relation to the rates of natural increase, population density, social and economic conditions, and other characteristics of the areas, in order to throw light on factors influencing the movements. The findings may be applied in forecasting probable future trends of internal migration and population growth in various areas. They may also furnish guides for measures of demographic, social and economic policy aimed at modifying the currents of internal migration. It is advisable, where possible, to carry out such analyses with reference to migratory movements during intervals between censuses and, as additional censuses are taken, to extend the analyses to migratory movements between a number of past censuses, in order to deepen understanding of the factors influencing patterns and trends in internal migration.

## 3. Additional data for internal migration studies

51. The United Nations Statistical Commission and the bodies concerned with regional standards for population censuses have recommended an inquiry on place of birth within the country, for the native population, as a priority item for census

questionnaires. The data obtained in this way are useful for internal migration studies, as indications of the magnitude of migration into and out of each part of the country, and of the origins and destinations of the migrants. A weakness of these data is that the dates of the movements are not specified. A person found in a given area at the census date, who was born in another area of the country, may have migrated at any time during his life; furthermore, he may have migrated several times to different areas, and the information on place of birth would not reveal the various moves.

52. According to the internationally recommended standards, the census question on place of birth of persons born within the country should refer to the major territorial division (province, state, etc.) of birth, and the tabulation of results should show, for persons of each sex enumerated in each major territorial division, the numbers born in the same division and in each other major territorial division. <sup>22/</sup> A shortcoming of a tabulation in this form is that it gives no information on migration to the cities, which is the most important type of internal migration in most countries. The value of the data could be improved considerably by formulating the census question on place of birth in such a way that persons residing in any one of the principal cities could be classified as born within the same city, elsewhere in the same major territorial division, or in each of the other major territorial divisions of the country. An extension of the same principle would make it possible to classify the population in each intermediate or minor territorial division of the place of enumeration or place of residence (depending upon whether the census count is de facto or de jure), as born within the same territorial division, elsewhere in the same major territorial division, or in any other major territorial division. Such classifications would greatly extend the scope of possible analyses of internal migration and the factors influencing it.

53. The utility of the census data for studies of this important subject can also be improved by asking questions about the place of residence of each individual at a specified date in the past, or about the length of residence in the present place and the place of previous residence. Such questions may be considered either as substitutes for the question on place of birth or as additional questions. They have the great advantage of providing information on movements during a specified period of time. Although questions of these kinds are not among the items of census investigation recommended by the international agencies, they have been asked recently in censuses of several countries.

54. Tabulations showing the classification of migrants by age groups and by such characteristics as marital status, educational level, occupation, industry and number of children born are highly valuable for analytical studies of internal migration, although such tabulations are not included in the internationally recommended standards for census tabulation programmes. Where it is feasible to carry out tabulations of this kind, they can be used to study factors influencing internal migration, its effects on population growth and structure in areas of

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<sup>22/</sup> United Nations tabulation 10, first priority; COTA minimum tabulation 7; CES tabulation 10, first priority.

in-migration and out-migration, and the economic and social problems which it entails. Cross-tabulations of such characteristics with detailed classifications of place of birth or place of previous residence in combination with place of residence at the census date are cumbersome, expensive and time-consuming. A practical procedure is to reduce the classifications of place of birth, etc., to a few categories, such as the simple distinction between migrants and non-migrants in major areas of in-migration, and to tabulate the characteristics of persons in these categories.

55. Types of information concerning internal migration which cannot be obtained from the census, but can be obtained from sample surveys, include migration histories which show the successive moves made by individuals during a specified period of time, data on attitudes towards migration, reasons for migrating or not migrating, etc. Sample surveys can also provide data on family relationships of migrants and cross-classifications of social and economic characteristics, in a degree of detail that is not practicable for a population census.



## VI. MANPOWER STUDIES

### A. Scope and purposes

56. Studies of the growth, composition and distribution of manpower are of fundamental importance for the determination of policies and planning of programmes aimed at full and effective utilization of a nation's human resources. Population censuses are an important source of material for such studies, and may be supplemented with data from other sources if available, such as establishment reports on employment or sample surveys. 23/

57. One of the objects of demographic studies in this field is to furnish the basis for manpower projections, which are an essential tool for economic planning. Manpower projections are useful for such purposes as estimating the number of jobs needed in future years to ensure full employment; the net annual entrances at the younger ages and net withdrawals at the older ages; the magnitude of investments required in the development of land and in various kinds of working equipment in order to make effective use of the prospective labour force; the number of workers to be trained for various types of employment, and to be shifted from one area or sector of the economy to another, in order to achieve the goals of a development plan. Studies of population census data showing the patterns of economic and other activities of the population in relation to sex, age, marital status, urban and rural residence, educational status, etc., form an important part of the basis for such projections.

### B. Requirements of data

#### 1. Data for studies of extent of participation in economic activities

58. Measures of the extent of participation in economic activities by men and women in various age groups are fundamental for studies of factors determining the size and composition of a nation's manpower and its relation to the size and

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23/ A programme of periodic sample surveys of the population can provide current material for studies of manpower and related problems. In addition to keeping information up to date, such a programme of sample surveys makes it possible to trace seasonal and cyclical variations of economic activities and to study the effects of major changes in the conditions of the national economy. Sample surveys can also provide measures of employment, unemployment and under-employment that are more reliable and more detailed than can be obtained in censuses of population. In view of the latter uses particularly, the labour force sample survey represents an economical and effective technique whereby countries may obtain data not only for studies of employment, unemployment and under-employment in the country and its various sub-divisions, but also for analyses of these conditions among different occupations, industry, education and age groups in the various geographical areas.

structure of the population, and for making manpower projections. The principal measures are percentages of economically active persons among males and females in each age group, called "activity rates" or "participation rates", which can be derived from the tabulation of population by type of activity, sex, and age. 24/

59. For the study of factors affecting the propensity to engage in economic activities, the opportunities to engage in such activities, and their influence on the activity rates, differences in these rates for various areas of the country can be analysed in relation to local characteristics of the economy, principal types of economic activity, levels of earnings, extent of unemployment, rural or agricultural population density, school attendance and educational level of the population, etc. Such an analysis will gain value if data are available from two or more censuses to show the trends of the activity rates, which can be related to changes in population characteristics. An urban-rural classification in the tabulation of population by type of activity, sex, and age is of great value for this analysis, because urban and rural activity rates commonly differ sharply.

60. The study of economic activity rates furnishes the means of deriving manpower projections from a series of population projections classified by sex and age groups. Where no reason is found for anticipating important changes in the activity rates in the future, the rates computed from the data of the last census may be applied to the projected population figures for the corresponding sex and age groups to estimate the future numbers of economically active persons. Alternatively, future activity rates may be estimated by projecting past trends of the rates or by making allowances for the likely effects of anticipated changes in relevant factors.

61. Economic activity rates may also be used in conjunction with life-table functions to calculate the length of working life of males and females and other measures such as rates of accession of young people to the economically active population and rates of retirement.

62. For the study of women's participation in economic activities, the cross-classification by marital status and age of economically active and inactive

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24/ United Nations tabulation 15, first priority:

Population included: Total population.

Classifications:

Types of activity: Economically active, not economically active.

Sex: Male, female.

Age: Under 15 years, five-year age groups, 15-19 to 70-74, 75 and over, not stated.

See also COTA minimum tabulation 12; CES tabulation 19, first priority.

females is of special value. 25/ Classifications of economically inactive persons 26/ of each sex and age group into functional categories such as housewives, students, etc., 27/ are also useful in studying the determinants of activity rates and assessing potential reserves of manpower in the inactive category.

63. In addition to the numbers of workers participating in economic activities, it is useful to study the extent of their participating, and census tabulations may be used for this purpose if the census questionnaires include certain relevant details. Where the economically active population is enumerated with reference to activities during a specified week (according to the "labour force" concept), persons at work during the week may be classified by hours of work, and where it is enumerated with reference to a year's activities, by numbers of weeks or months of work during the year. The classification of these data by sex and age groups makes it possible to carry out analyses of the types mentioned above,

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25/ This cross-classification can be derived from the tabulation of total population by marital status, sex and age (United Nations tabulation 6, first priority) and United Nations tabulation 22, second priority, which is specified as follows:

Population included: Economically active population.

Classifications:

Marital status: Single, married, widowed, divorced, not stated.

Sex: Male, female.

Age: Under 15 years, five-year age groups 15-19 to 70-74, 75 and over, not stated.

Occupation: according to, or convertible to, at least the major groups of the International Standard Classification of Occupations.

Where it is not possible to carry out this tabulation in full, it may prove feasible to do it by omitting the occupational classification and thus providing the essential material for analysis of the relation of marital status to participation in economic activities. The data for males may also be omitted if necessary.

See also CES tabulation 23, second priority.

26/ Labour force concepts (industry, occupation, status, etc.) used in this text are defined in Principles and Recommendations for National Population Censuses (United Nations publication, Sales No.: 58.XVII.5).

27/ United Nations tabulation 17, second priority:

Population included: Population not economically active.

Classifications:

Categories such as home-makers (housewives and other relatives), students, persons in institutions, income recipients, and others.

Sex: Male, female.

Age: Under 15 years, five-year age groups 15-19 to 70-74, 75 and over, not stated.

See also COTA expanded tabulation 11; CES tabulation 21, second priority.

with reference to the size of the contribution of the different elements of the population to the labour supply. It is recognized that conditions of work and census concepts applied in many developing countries may not be such as to permit meaningful analyses of differentials in extent of labour force participation. But those countries that have the pertinent census data may obtain valuable information from studies of this type. Such tabulations, however, are not included in the internationally recommended standard tabulation programmes.

64. The tabulation of the economically active population by status (as employer, employee, etc.), sex and age 28/ is also valuable for the study of participation in economic activities. One of its special uses is to analyse the effect of the numbers of unpaid family workers on the activity rates obtained from the census data. As with the collection of several other types of census data, variations of enumerators' and respondents' interpretations of the concept of economic activities, as applied to family members working without wages on a farm or other family enterprise, may considerably distort the pattern of activity rates.

## 2. Data for studies of types of economic activities

65. The classifications of census data on economic activities of the population by industry, occupation and status (as employer, employee, etc.) 29/ furnish a statistical inventory of a nation's manpower and its utilization that is of inestimable value as an aid in formulating economic policy and planning developmental programmes. Such data play an essential part in analyses of national product and national income. Studies of the proportions of the economically active population in each industrial sector of the economy, at least for major administrative sub-divisions, and of the shifts from one sector to another give information on the level and trend of industrialization, and on important aspects of the country's potential for economic development. Studies of migration from rural areas to cities require analyses of the occupational structure of manpower in the cities and often of the major areas of out-migration, as an aid to assessment of economic aspects of internal migration. Studies of these types are also relevant to programmes of resettlement and to the formulation of policy with respect to internal migration. Also, decisions as to possible sites

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28/ United Nations tabulation 23, second priority:

Population included: Economically active population.

Classifications:

Status: Employer, own-account worker, employee, family worker, member of producer's co-operative, not classifiable by status.

Sex: Male, female.

Age: Under 15 years, 15-19, 20-24, ten-year age groups 25-34 to 65-74, 75 and over, not stated.

See also COTA minimum tabulation 15; CES tabulation 27, second priority.

29/ Industry by status and sex: United Nations tabulation 18, first priority; also COTA expanded tabulation 8; CES tabulation 29, first priority.

for industrial establishments require information on the occupational and industrial structure of the labour force in various localities and regions of the country.

66. In planning for the development and expansion of an educational system and efficient utilization of manpower resources, studies are needed which assess present and future requirements of labour in different industries and occupations. The cross-classification of age and sex with industry and occupation of economically active persons 30/ furnishes material for analyses of rates of accession to and withdrawal from particular types of economic activities. 31/ These data make it possible to carry out co-ordinated studies of prospective trends in the number of workers attached to various occupations and industries, within the framework of projections of the total economically active population. The possibilities of other studies of types of economic activities applicable to many areas of planning are too numerous to be listed here.

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30/ Industry, sex and age: United Nations tabulation 19, first priority; also COTA minimum tabulation 14; CES tabulation 25, first priority.

Occupation, sex and age: United Nations tabulation 21, first priority; also COTA minimum tabulation 13; CES tabulation 22, first priority.

31/ For a discussion of the usefulness of a more elaborate tabulation by level of educational attainment, see section VII below.

## VII. STUDIES RELATING TO CONDITIONS AND PROBLEMS OF EDUCATION

### A. Scope and purposes

67. Studies based on population census data and other demographic statistics, together with statistics of enrolments and of other operations of educational institutions, are means of assessing a nation's situation and progress as regards education, the effectiveness of its educational system, needs for educational development, and for investments in school construction, teacher training, etc.

68. The educational situation can be assessed by means of census data on literacy and educational attainments of the population. These data can be analysed to measure differences of the situation in different parts of the country and among different categories of the population, and to estimate changes during past decades. Data on school enrolments as well as census data on school attendance can be analysed in relation to the size and composition of the school age population, to obtain measures of the coverage and efficiency of operations of the educational system. Educational development needs can be studied with the help of an analysis of current and anticipated future educational requirements for workers in various types of economic activities, in relation to educational attainments of the population and labour force. Projections of the school age population, derived from the studies of population growth and structure mentioned in section IV above, can be analysed in relation to school-enrolment trends and expectations or goals, to obtain estimates of future changes in the numbers of pupils to be enrolled and their distribution by age and educational level. These estimates furnish a basis for calculations relating to requirements for the construction of schools and class-rooms and training of teachers. Such calculations are especially important for orderly and efficient development of a national programme of education in countries where the population is growing rapidly or where the number of births is changing rapidly from year to year, thus causing large variations in the numbers of children who will come of school age in future years.

69. It is especially important to consider the geographical distribution within the country of the present and expected future school population, and variations of enrolments and educational level, as well as educational needs, of the population in different areas. Area classifications are therefore of particular importance in the census tabulations relevant to studies in this field.

### B. Requirements of data

#### 1. Data for measurement and projection of school-age population

70. It is obviously important for studies relating to education to carry out the census tabulations of sex-age structure of the population in such a way as to obtain the numbers of males and females within the legal and customary ranges of school-going age for as many different areas of the country as possible. The classification by single years of age within this range is likewise very important,

because it furnishes the basis for analyses relevant to the educational level of enrolments. Furthermore, the single-year age classification of pre-school children is important as a basis for estimates of annual numbers of children who will reach school-starting age in the near future. 32/ In countries where there are important linguistic minorities identified by questions in the census, it is valuable for educational planning to tabulate the data on sex-age structure separately for such linguistic groups. 33/

71. The census tabulations that are useful for analyses of factors of population growth and as a basis for population projections have been discussed in section IV above. In connexion with the derivation of projections of school-age population from such studies, special importance attaches to the study of fertility, its trends, and factors influencing it. Projections of school-age population as an instrument of planning educational development need to be carried more than a few years into the future, and when this is done, fertility rapidly becomes the main determinant of the trend.

## 2. Data for studies of school attendance

72. In a country where comprehensive, detailed statistics of enrolments in all educational institutions are compiled currently, it may not be necessary to rely on census tabulations for studies of the extent of school attendance. In fact, however, enrolment statistics derived from institutional records are not adequate, in many countries, to provide an exact measure of total attendance or all valuable classifications of characteristics of the school-going population. In particular, the age classification of persons attending schools is commonly difficult to obtain from enrolment records, and where this is the case, the classification of persons attending and not attending school, by sex and age, 34/ as a part of the census tabulation programme, is essential for studies of the

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32/ A tabulation of population of each sex by single years of age up to 99 years is included in the internationally recommended standard census tabulation programmes (United Nations tabulation 5, first priority; also COTA minimum tabulation 4; CES tabulation 5, first priority). It is unlikely to prove feasible, however, to carry this out with a very detailed classification of areas; thus, more detailed area classifications in the portion of the single-year age tabulation which is relevant to analysis of the school population may be considered for inclusion in national tabulation programmes. See indications below relating to tabulations of school attendance data.

33/ United Nations tabulation 25, first priority; CES tabulation 36, first priority.

34/ United Nations tabulation 29, second priority:  
Population included: All persons 5-24 years of age.  
Classifications:  
School attendance: Attending school, not attending school, not stated.  
Sex: Male, female.  
Age: Single years 5 to 14, 15-19, 20-24, not stated.

See also CES tabulation 40, second priority; COTA minimum tabulation 11.

numerical relationships between the population of school age and its changes on the one hand, and the population actually in school, on the other hand.

73. The classification of level of education attained by persons of school age attending and not attending school, by sex and single years of age, 35/ is a rather complex cross-tabulation which may not be practicable to include in the census tabulation programmes of many countries. Such a tabulation, however, is exceedingly valuable for analysing the efficiency of the educational system with reference to the extent of retardation or promotion of pupils through the successive school grades, and to the frequency with which children drop out of school before completing certain standards.

74. If it is feasible to make a cross-tabulation showing the numbers of economically active and inactive young people among those attending and not attending school in each sex-age group, these data will be valuable for measuring the importance of economic activity as a factor affecting school attendance and vice versa, and for indicating the numbers of young people who are neither in school nor economically active - a group which may constitute a serious social problem in some countries. Such a tabulation is not included in the internationally recommended standards. Data on reasons for non-attendance at school and classifications of families by numbers of children attending and not attending school are also helpful for analysing school-attendance problems, but these are better considered as topics for investigation in sample surveys rather than in censuses.

3. Data for studies of the literacy and educational level of the adult population

75. Census data on the literacy and level of education attained by the adult population are measures of an important component of the national level of living as well as an important indication of the quality of human resources and capacity of the nation for economic and cultural development. Tabulations of these data by sex for various areas within the country and ethnic groups of the population serve to identify areas and population groups which are handicapped in various degrees in the matter of education. When the data are cross-classified by age groups, they can be used to trace the progress in educational attainments of successive generations in the past, and form a basis for projections of future trends in the numbers of literates and illiterates

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35/ COTA expanded tabulation 4.



in the adult population, and in the distribution by educational level. 36/

76. It is useful to compare the present and projected future distribution by educational level of the population and labour force with estimates of present and anticipated future requirements of educated manpower for various types of economic activities. Such a comparison may serve as a guide both to national policy for the development of the educational system and to the planning of economic development programmes that it would be feasible to carry out in view of manpower requirements. For analyses of these requirements and of the extent to which they are satisfied by existing manpower resources, it is useful to have census data showing the distribution by educational level of workers in various occupations. 37/

36/ United Nations tabulation 27, first priority:

Population included: All persons 15 years of age and over.

Classifications:

Literacy: Literate, illiterate, not stated.

Sex: Male, Female.

Age: Five-year age groups 15-19 to 70-74, 75 and over, not stated.

United Nations tabulation 28, first priority:

Population included: All persons above the minimum age of usual or compulsory entrance into school.

Classifications:

Highest year or grade completed within the most advanced educational level achieved (nursery, infant school or kindergarten; elementary or primary; secondary, high school or middle, university or higher professional), by single years or grades.

Sex: Male, female.

Age: Under 10 years, 10-14, 15-19, 20-24, 25 and over, not stated.

See also CES tabulation 38 and 39, first priority; COTA minimum tabulations 9 and 10.

The age classification recommended for United Nations tabulation 28 and for the corresponding tabulations in the CES and COTA programmes, with no sub-division of the age group 25 years and over, does not provide an adequate basis for analysis of past trends and future projections of the distribution of adult population by educational level. A classification by 10-year age groups from 25-34 to 55-64, 65 years and over, would serve these analytical purposes adequately.

37/ CES tabulation 24, second priority:

Population included: Economically active population.

Classifications:

Educational level: Highest of the following levels completed:

- (1) elementary or primary;
- (2) high school or middle school;
- and (3) university or higher professional;
- (4) not stated.

Occupation: According to, or convertible to at least the minor groups of the International Standard Classification of Occupations.

Sex: Male, female.

Age: Under 25, 25-44, 45-64, 65 and over, not stated.

Where it is not feasible to carry out this tabulation in full, it may be feasible to do it without the cross-classification by age, thus providing the most essential data on the relationship between occupation and educational level.

#### 4. Local data on educational problems and needs

77. For a comprehensive assessment of a country's position with regard to education and the needs for development of its educational system, the study of statistics for the country as a whole and for its major component areas is not sufficient without some consideration of local variations. Of course, it is impracticable to carry out detailed tabulations of the census data relating to education for all the minor territorial units of the country, but it is useful, so far as possible, to make abridged tabulations for such units, showing such items as the total number of children of school age, number or percentage attending school, number or percentage of illiterates of each sex in the population aged fifteen years and over, and number or percentage of the adult population having attained a specified educational level. Thus, educational deficiencies and needs can be pinpointed.

## VIII. STUDIES OF HEALTH SERVICES AND FACILITIES

### A. Scope and purposes

78. Periodic evaluation of the quantity and quality of basic health services and of their efficacy in improving the national level of health is essential. These studies will determine where services and facilities require strengthening to provide broader geographic availability, and also may be helpful in indentifying segments of the population which have special health problems. With the help of these bench-mark data, requisite facilities can be planned, requirements for trained personnel can be defined, and programmes and priorities can be assigned in accordance with the health needs of the population.

79. The state of health of a nation involves educational, social and economic factors, as well as medical and health services. These various factors must be considered in relation both to the present situation and to the needs of the future. Thus, health services need to be examined in relation to the characteristics of the population and the cultural and social-economic environment in the regions and even the specific localities of the country.

80. Health studies require data from the population census and from such other, more fundamental sources as vital registration, hospital, clinic and other medical care facility records, rosters of trained personnel, and special surveys, often on a sampling basis. Care should be taken to evaluate the comparability of coverage and concepts of the data from these sources.

### B. Requirements of data

#### 1. Data for studies of the level of health

81. Governments have a responsibility to provide adequate health and social measures, as is pointed out in the preamble of the constitution of the World Health Organization. They are, therefore, in need of information that makes possible the evaluation of health conditions. For developing countries, where accuracy and detail of reporting are limited, these indicators may have to be qualified as approximate, but they can still be used to establish the basic framework for the assessment of levels of health.

82. Probably the most widely used health indicators are measures of mortality. The crude death rate, based on vital statistics and census records of the total population, is one of the simplest of these measures. Tabulations of deaths by age and sex, and perhaps other major categories, when combined with comparable census age-sex tabulations of population <sup>38/</sup> permit the calculation of specific mortality rates. These, in turn, may reveal segments of the population whose

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<sup>38/</sup> United Nations tabulation 5, first priority. See also COTA minimum tabulation 4; CES tabulation 5, first priority; CAS recommendations, para. 38.

health problems require special consideration. As mentioned in chapter IV above, census data alone may be used as a basis for estimating mortality rates where vital statistics are lacking or defective.

83. The age-sex specific death rates can be translated into expectation of life, which is the best known indicator of mortality experience. The life table, prepared in the course of calculating life expectancy, serves many important functions in public health studies. It cannot be over-emphasized that for these studies it is indispensable to have the greatest possible co-ordination of census and vital registration data, both with regard to concepts and tabulations.

84. Through use of sample surveys, it is possible to obtain data for the study of morbidity and disability. These materials may be used in conjunction with census data on occupation, status (as employee, employer, etc.) and employment and unemployment, for analyses of the rate, duration and nature of sickness among various classes of workers. 39/

85. In the analysis of these and other materials used as health indicators, census figures remain the basic data for the calculation of rates and also for the preparation of action programmes, as they define the size and characteristics of the population to be served.

## 2. Data for studies of the availability and adequacy of existing health services

86. In the evaluation of health services it is necessary to consider, as one aspect, the geographic distribution of facilities and their effectiveness in serving the population groups for which they are intended. Using records of the location of hospitals, clinics and health personnel and census data on population by geographic units, 40/ the number of persons per hospital bed, per doctor or nurse, etc., can be calculated as measures of availability of services. The geographic pattern of health services should be one consideration in defining the area classifications discussed in section III.

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39/ United Nations tabulations 19, first priority and 16, second priority; CES tabulations 22 and 25, first priority and 20, second priority; COTA minimum tabulations 13 and 14 and expanded tabulation 10.

40/ United Nations tabulation 1, first priority:  
Population included: Total population in major, intermediate and minor territorial divisions.  
Sex: Male, female.

United Nations Tabulation 3, first priority:  
Population included: Total population.  
Classification: Urban and Rural.  
Sex: Male, female.  
Age: Under 1 year, 1-4, 5-9, five-year age groups to 70-74, and over, not stated.

See also CES tabulations 1, first priority and 3, second priority and COTA minimum tabulation 1.

87. A further step is the use of census figures showing the sex-age composition of the population in combination with the records of health facilities in order to examine the extent to which the various groups within the population differ in their need and utilization of health services. Tabulations of the number of children under age 15 by sex and age (excluding children under one year of age) and of married women of child-bearing age, for example, provide the bases studies relevant to maternal and child welfare programmes, and are indispensable for studies of the adequacy and utilization of baby clinics. Birth registration data are also valuable for such studies. Tabulations of numbers of elderly persons by sex and age are useful for analyses of requirements for hospital and nursing home facilities and for studies of the use of existing facilities.

88. These simple tabulations are also valuable for studies of many other aspects of health programming, including the need for such medical specialists as obstetricians, pediatricians and geriatricians. Obviously, it is important to have area tabulations in considerable detail, because planning in this field is undertaken at local levels.

89. The scope of studies may be widened appreciably by introducing cross-classifications of such characteristics as occupation and employment, <sup>41/</sup> marital <sup>42/</sup> and migration status <sup>43/</sup> or educational level; <sup>44/</sup> differential use of existing facilities may indicate a need for health education or other action programmes to enhance the effectiveness of the service already provided.

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<sup>41/</sup> Employment status, i.e., whether employed or unemployed.

United Nations tabulation 21, first priority

Population included: Economically active population

Classification: Occupation - according to, or convertible to the

International Standard Classification of Occupations

Sex: Male, female

Age: Under 15 years, 15-19, 20-24, 25-34 and ten-year age groups to 65-74, 75 and over, not stated.

United Nations tabulation 16, second priority

Population included: Economically active population

Classification: Employed and unemployed

Sex: Male, female

Age: Under 15 years, 15-19 and five-year age groups to 70-74, 75 and over, not stated

See also CES tabulations 22, first priority and 20, second priority; COTA minimum tabulation 14 and expanded tabulation 10.

<sup>42/</sup> Refer to footnote 13, page 12.

<sup>43/</sup> Refer to chapter V, section B.3.

<sup>44/</sup> United Nations tabulations 27 and 28, first priority, CES tabulation 38 and 39, first priority; COTA minimum tabulations 9 and 10.

90. In some developing countries, migration from rural places to cities affects health in the cities of in-migration. It may be desirable to carry out programmes to check the spread in urban communities of diseases endemic in rural areas (or to protect rural communities from diseases introduced in the cities). Census tabulations of population by place of birth, sex and age groups are relevant to studies of this kind. 45/

91. Tabulations based on responses to census questions as to previous place of residence and duration of present residence would add depth to such studies, though they are not among the internationally recommended tabulations. Similar uses can be made of tabulations of the foreign-born population by sex, age and country of origin.

92. Tabulations of population by sex and age groups in appropriate geographical detail are also useful for appraisals of the adequacy of health service and facilities. The usefulness of census tabulations for periodic studies of health services and facilities will depend on the availability and adequacy of vital statistics and other supplementary data necessary for post-censal estimates of population by sex and age. However, studies of trends in population growth and in the sex, age and other characteristics of the population from tabulations of results of two or more censuses provide information of much value for long-range planning in health and related fields.

93. Urbanization may have important consequences with respect to mental health. Governments may wish to sponsor studies of mental health problems, particularly in cities. Analyses of the incidence and types of mental illness can be made with the aid of census tabulations of population by sex, age and marital status. Detailed area tabulations are useful for such studies, although valuable results may be obtained by carrying them out for categories such as rural and urban areas and localities classified by number of inhabitants. Cross-classification by occupation or industry would make it possible to study the relationship of various combinations of demographic factors to mental health. 46/

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45/ The internationally recommended standards for tabulation of census results provide only for the tabulation of the native-born population by major territorial divisions of birth and residence, sex and age. The shortcomings of these tabulations are discussed in chapter V, where it is noted that tabulations for cities, at least, are indispensable to studies relating to internal migration.  
See United Nations tabulation 10, first priority; COTA minimum tabulation 7; CES tabulation 10, first priority.

46/ United Nations tabulation 22, second priority; CES tabulation 23, second priority; COTA minimum tabulation 5, and expanded tabulation 5.

### 3. Studies of projected needs for health services and facilities

94. Significant differences exist in the effectiveness of health programmes and all Governments are making efforts to improve their quality and scope of coverage. Plans for such action depend upon knowledge of the numbers and characteristics of the present population and expected future population changes. Underlying the plans for improving health services should be projections of population, 47/ preferably with sufficient geographic detail to permit locational studies for new facilities.

95. These projections will also serve as the basis for studies aimed at furthering the integration of health programmes with general social and economic development plans. For urban areas where large increases of population are expected as a result of migration, for example, it is essential to consider sanitary services, including water supply and sewage disposal systems as an integral part of community planning.

96. Comprehensive studies, particularly in areas of rapid urbanization, require categories of census data that may not be currently available in the countries concerned. Often the projections of future population that are needed cannot be made on the basis of existing data. The need to improve and expand health services is likely to exist alongside a deficiency in census data and vital statistics. Hence, Governments may find it advantageous to plan both for the improvement of health services and for the expansion of data-collection and analytical programmes.

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47/ The relevant tabulations and their specific uses are discussed in chapter IV, Studies of Population Growth and Structure, and chapter V, Studies of Population Distribution and Internal Migration.

## IX. STUDIES OF NEEDS FOR HOUSING

### A. Scope and purposes

97. In assessing a nation's present and future housing needs and in planning for their satisfaction, it is important to consider trends in the number and composition of households and their relation to the growth and structure of the population. Such studies are also relevant to analysis and forecasting of demand for other goods and services that are consumed by families or households as units.

98. As chronic shortages of adequate housing exist in many countries, a first problem in establishing the statistical basis for housing policies and programmes is to assess the magnitude of the present shortage in the country as a whole and its various parts. One method of doing so is to compare the inventory of existing dwelling units, as shown by a housing census or survey, with an estimate of the numbers of units of various sizes and types that would be required to accommodate the present population in accordance with given standards of satisfactory housing. In this connexion it is relevant to study the data which a population census may provide on the classification of existing households by size and composition; such data may be used to estimate the frequency of "doubling up" in shared living quarters of family groups that should be housed separately, as well as the distribution of the needed numbers of housing units by number of rooms or amount of floor-space, etc. The study of census data on the structure of the existing population in terms of sex, age, marital status, and household-relationship classifications of individuals is also a possible means of estimating the number of housing units required, in accordance with given standards for the separate housing of persons in various categories of these classifications and their dependants. Data on the facilities of existing housing units, on their quality in general, and on the numbers of vacant units, also need to be considered in assessing the deficiencies of the nation's stock of housing. Obviously, it is important to carry out studies in this field separately for various areas of the country, and in as much geographical detail as possible.

99. A projection of the number of households or families is highly valuable for estimating future changes in the demands for housing and certain other goods and services. Such a projection may be derived from a projection of the population classified by sex and age groups, with the assumption that the number of households or families will vary approximately in proportion to the number of adult males in a certain age-range that comprises the great majority of family and household heads. It may be possible to refine and improve the projection of number of households or families by studying past trends in the ratio of the total number of households or families to the male population in the selected age-range, or by analysing the specific percentages of household or family heads among men and women of particular ages and the trends of these percentages. Studies of the trends in age at marriage and in the frequency of celibacy, widowhood, and divorce, and their relation to the formation and dissolution of families and households are also relevant to this problem of forecasting. The problem of projecting trends in the distribution of households and families by size and composition is more complex, and is not considered here.



100. Internal migration, especially between rural and urban areas of a country, is an influential factor in housing needs. To the extent that housing units are left vacant in the areas of out-migration, the effect of the movement is to increase the number of units required in the country as a whole. Furthermore, the problem of meeting housing needs in urban areas is generally very different from that in rural areas. The study of internal migration and its relation to housing requirements is therefore an important item in a programme of demographic studies relevant to problems of housing.

B. Requirements of data

1. Data for studies of the adequacy of existing housing arrangements and estimation of present housing needs

101. Statistics of households classified by size<sup>48/</sup> can be used to calculate the number and size-distribution of housing units required to accommodate the present population in accordance with given standards so far as the number of persons per room or amount of space per person is concerned. The results of this calculation, compared with statistics on the size-distribution of existing housing units, yield an estimate of the number of additional units of each size required to meet the given standard.

102. A classification of households by types<sup>49/</sup> permits a more discriminating calculation of housing needs, with reference to standards which take account of the composition as well as the size of the group of persons to be housed together. Household types may be defined with a view to norms of health and social welfare as well as to prevailing customs with regard to the sharing of housing accommodation; the usefulness of the classification for various sociological and economic analyses other than those relating to problems of housing should also be considered. A classification of individuals by household relationships (head of household, wife of head, son or daughters, etc.) in combination with sex and marital status<sup>50/</sup> is also useful for studies of housing

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49/ United Nations tabulation 14, second priority:

Numbers of households, and aggregate numbers of persons in households, classified by structural types (such as: I. Married couples without children; II. Either or both parents with unmarried children; III. Either or both parents and married children without grandchildren as well as unmarried children if any; IV. Either or both parents with married children and grandchildren as well as unmarried children if any; V. All other types), by size of household.

50/ CES tabulation 13, first priority:

Population included: Population in private households.

Classifications:

Marital Status: Single, married, widowed, divorced, not stated.

Household Relationship: Relationship to main supporter (or head) of household, and (for persons living in family nuclei) relationship to main supporter (or head) of family nuclei.

Sex: Male, female.

See also COTA expanded tabulation 13.

needs along this line, since it serves to identify biological families not separately housed, such as those of married sons and daughters and their children. The latter tabulation may be easier to carry out than a detailed classification of households by structural types, but it provides no information on the size and composition of the family units.

103. Another type of data which may be used for studies along this line is the tabulation, carried out in some censuses, of families rather than of households, classified by size and composition of the family. <sup>51/</sup> In this connexion, a family is defined as a group of persons related to each other in one way or another who live in the same household. The definitions and types of families identified in census tabulations may vary, and their relevance to the study of housing adequacy and housing needs will vary accordingly.

104. The number of dwelling units needed to accommodate the existing population may also be estimated by means of the tabulation of the population classified by marital status, sex and age, with the use of norms for the percentages of persons in each category of this classification who should have a separate housing unit for themselves and their dependants. Such calculations, however, do not bear on the question of the sizes of the units needed.

105. Sample surveys may be carried out as a means of investigating the acceptability of existing housing arrangements from the point of view of the people concerned, and as a means of estimating the proportions of persons in various categories of household relationships, marital status, sex, age, etc., who would prefer to be housed with their dependants, in separate units, as well as the proportions of persons for whom such separate housing would be desirable on grounds of health and welfare.

106. The United Nations publication, General Principles for a Housing Census<sup>52/</sup> contains recommendations for the tabulation of housing census data which are relevant to the study of deficiencies in the quality of existing housing units, vacancy rates and overcrowding. Where a housing census is taken simultaneously with the census of population, or where questions relating to the characteristics of housing are included in the population census questionnaire, it is important to co-ordinate the processing, tabulations and analysis of the population and housing data so as to obtain information on the characteristics of the household in relation to those of the housing unit which it occupies. For instance, cross-tabulations of size and other characteristics of dwelling units by structural type and number of persons in the household are highly valuable for an analysis of housing needs.

## 2. Data for projections of numbers of households or families

107. As already mentioned, projections of numbers of households or families can be derived from projections of population by sex and age groups, by assuming that the number of households or families will vary in proportion to the number

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<sup>51/</sup> CES tabulation 15, second priority; COTA expanded tabulation 16.

<sup>52/</sup> Sales No.: 58.XVII.8

of males in a selected age range, or by projecting past tendencies of change in this numerical relationship. The basis of the projection may be improved if a tabulation of census data is made showing the classification of heads of households or families by sex and age groups, 53/ which can be used in conjunction with the corresponding classification of the total population, to calculate sex-age-specific percentages of household of family heads. These percentages (or projections of them) can then be applied to the projected population figures by sex and age groups to obtain the projected numbers of households or families.

108. A still better basis may be obtained from a cross-classification of household or family heads by sex, age and marital status, 54/ where it is possible to include such a cross-classification in the census tabulation programme. In connexion with the corresponding classification by sex, age, and marital status of the total population, this provides material for studying the relation of changes in age at marriage and non-marriage, widowhood and divorce to the formation and dissolution of families and households. The findings of studies on the trends of marriage, widowhood and divorce and on factors which may affect these trends in the future can then be brought to bear upon the problem of household or family projections. The tabulation and analyses are also useful in providing some of the essentials of a classification by composition of the households or families, which is relevant to the types of dwelling units needed and also to demands for some other kinds of commodities. If the marital-status classification of household or family heads is limited to the two categories, married and all other, in combination with sex and age, the most essential data may be obtained with a considerable simplification of the tabulation, though this will not permit a full analysis of the factors of widowhood, divorce and celibacy.

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53/ COTA expanded tabulations 14 and 15 provide the following classifications:  
Population included: Heads of private households.  
Classifications:  
Sex: Male, female.  
Age: Under 15, 15-19, 20-24, ten-year age groups, 25-34, 65-74, 75 and over, not stated.

These COTA tabulations call for further cross-classifications by occupations and industry groups, which are not essential for the analysis discussed here, though they are useful for dependency studies. See also CES tabulation 16, second priority.

54/ Some of the principal elements of this cross-classification are provided by CES tabulation 16, second priority:  
Population included: Main supporters (or heads) of private households.  
Classifications:  
Type of household: One-person or multi-person; one-family household or multi-family household.  
Sex: Male, female.  
Age: Age groupings not specified.

## X. STUDIES RELATING TO PROBLEMS OF FOOD AND AGRICULTURE

### A. Scope and purposes

109. An analysis of the demographic aspects of problems of food and agriculture is concerned with the relationship of population to the present and future capacity to produce food, the extent of consumer demand and the provision of a food supply deemed adequate from the standpoint of health requirements. It is also concerned with the role of agriculture in the development of the economy as a whole. The data for analysis of these aspects are drawn from population censuses and a variety of other sources, including agricultural and industrial censuses where available.

110. The initial step may be the estimation of the country's food requirements, taking into account individual differences in need varying with age, sex and degree of physical activity. <sup>55/</sup> The effective demand for food may be analysed by using records on the number, size and composition of households, either for a whole country or for component areas, together with data on income distribution and consumption patterns. Both effective demand and need in terms of nutritional requirements are affected by migration and urbanization, which change consumption patterns and alter the degree of physical activity. These factors are also important in connexion with needs for food transportation, storage and distribution facilities.

111. Measures of food consumption, actual or potential, must be related to agricultural production. Census information on the numbers and composition of the agricultural labour force may be combined with data on the quantity and quality of land available for agriculture, the availability of productive equipment and the output of agricultural products, in order to evaluate productivity and estimate the productive capacity of agriculture.

112. In formulating national economic policies and comprehensive plans for the economic development of a country, it is necessary to relate agricultural development to development of other sectors of the economy as well as to social improvements. The educational level of the rural or agricultural population, for example, is an important factor in the efficiency of agricultural production. The role of agriculture as an employer of manpower resources and a means of livelihood for the population on the land is another essential consideration. Analysis of these interrelationships requires data on distribution of the labour force by industry and level of education or of the total population in rural and urban areas by level of education; on the share of agriculture in the total labour force; on the distribution of manpower between archaic or subsistence and modern categories of agricultural employment; and also estimates of the extent of any surplus supply of labour in the agricultural sector. Population census results are needed for these studies, because they provide information on the characteristics - age, sex, educational and household status, employment and

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<sup>55/</sup> In the absence of other data, occupation serves as a correlative to physical activity.

occupation, etc. - of the population related to agriculture. Agricultural census data, reporting on such items as amounts of land under cultivation, types of agriculture practised and agricultural techniques used, are also essential in a comprehensive study of agricultural and total economic development.

B. Requirements of data

1. Data for studies of food requirements and demand for food

113. Quantitative food needs per head - measured in calories - and requirements for proteins and other considerations regarding quality of food can be estimated with the aid of the following variables: body weight, age and sex, degree of physical activity, mean annual environmental temperature, and also health indicators, pregnancy, wastage, and so on. Census tabulations provide the data on age and sex, 56/ also data on occupations which may be used, with the help of special studies, to make a classification by degree of physical activity. 57/

114. Data on geographic distribution of the population, with particular reference to rural-urban residence by age and sex, 58/ are needed for a variety of studies. The effect of geographic factors on patterns of food consumption and physical activity has already been mentioned, and other influences will be noted below.

2. Data for studies of development problems in relation to agriculture

115. The relationship between agricultural development and general economic development is an important question, particularly for developing countries; assessment of this relationship yields information on the country's development potential. The density of agricultural population is a useful indicator and it can be calculated relating rural population, population dependent on agriculture 59/ or economically active males in agriculture and related occupations 60/ to rural land area, area of agricultural land 61/ or potentially productive land.

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56/ United Nations tabulation 5, first priority. See also COTA minimum tabulation 4; CES tabulation 5, first priority; CAS recommendations, para. 38.

57/ United Nations tabulation 21, first priority; CES tabulation 22, first priority; COTA minimum tabulation 13. Analyses and forecasts of the economically active population are discussed in section VI.

58/ United Nations tabulation 3, first priority; CES tabulation 3, second priority.

59/ United Nations tabulation 24, second priority. See also COTA expanded tabulation 12; CES tabulation 30, first priority and 26, second priority.

60/ Derived from United Nations tabulation 18, first priority; also COTA expanded tabulation 8; CES tabulation 29, first priority.

61/ For an additional discussion of this topic, see section VI, B.

116. By relating the numbers employed in agriculture to the type of agriculture practised, the size of agricultural holdings and the equipment used, it is possible to shed some light on the problem of under-employment and the possible existence of a surplus agricultural labour force. The data needed are of the kinds collected in censuses of population and agriculture. Such an analysis is relevant to the formulation of an over-all economic plan, as it may indicate needed provisions for additional non-agricultural employment to relieve under-employment and to absorb workers displaced by steps to raise agricultural productivity.

117. Such changes affecting the agricultural labour force may stimulate rural-urban migration and alter the rural-urban distribution of the population. These effects, in turn, have further implications for economic planning, as they relate to marketing procedures, means of transportation of foodstuffs and price problems. Studies of these aspects of planning must draw upon present and projected figures on total population by rural and urban residence, employment by industry, 62/ and a variety of economic data.

### 3. Data on agricultural population: Co-ordination of censuses of population and agriculture

118. In many countries, information on the economically active population engaged in agriculture and on population dependent upon agriculture is collected in both a census of population and a census of agriculture. The coverage of the enumerations and the concepts used often differ, leading to differences in data that are not easily reconciled. A census of agriculture is ordinarily limited to the population living on agricultural holdings or in the household of the agricultural holders. A census of population, covering the total population and all branches of the economy, reports on all agricultural workers and their dependants, whether residing on agricultural holdings or elsewhere, and so provides more complete measures of the agricultural labour force and the population dependent upon agriculture.

119. A census of population ordinarily provides more detail in occupational and industrial classifications of agricultural manpower than a census of agriculture. For analysis of the role of agriculture in total economic development, best results are achieved when population census data on agricultural manpower (and dependants) are combined with information from a census of agriculture, such as size of holdings, type of agriculture, live-stock, equipment and production.

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62/ United Nations tabulation 18, first priority; CES tabulation 29, first priority; COTA expanded tabulation 8.

## XI. STUDIES OF THE LEVEL OF LIVING

120. Tabulations of results of a population census furnish materials for studies of certain components of the level of living and their variations in different parts of the country and among different ethnic or other groups of the population. Census data are especially valuable for this purpose in under-developed countries where other measures of components of the level of living are scarce. Studies in this field are important aids for policy-making and the planning of balanced economic and social development programmes; they yield measures of progress toward the goals of development and indicate in what respect progress has been more or less satisfactory. These studies also serve to identify areas and categories of the population that may need special consideration in the planning of developmental activities.

121. In addition to indicators of components of the level of living that are calculated by relating other data to population base-figures (such as death rates, income per head, food consumption per head, etc.), the following indicators may be obtained directly from population census data or from analyses based upon them:

- (a) Estimates of mortality measures, as discussed in section IV above;
- (b) Literacy and illiteracy rates;
- (c) Median level of education;
- (d) School-attendance ratios;
- (e) Distribution of the economically active population by industry groups, as an indicator of the degree of industrialization and economic development;
- (f) Unemployment rates, if data on unemployment are obtained in the census;
- (g) Indications of the extent of under-employment, derived from analyses of types of economic activities and other data sometimes obtained in connexion with population censuses, such as hours of work per week, weeks or months of work per year, earnings, amount of land cultivated;
- (h) Persons per room or per unit of floor space; etc.

122. Census tabulations may also be used to compute other measures that are sometimes considered as indicators of components of the level of living, such as age composition of the population, fertility measures, and measures of urbanization. 63/

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63/ See the recommendations for statistical measures of the level of living and its components in International Definition and Measurement of Levels of Living (United Nations publication, Sales No.: 54.IV.5).

123. Statistics for major territorial divisions and urban and rural sectors may not provide enough material for a satisfactory study of variations of the level of living and its components within the country. It may therefore be found desirable to carry out tabulations of the data required for computations of some of the indicators mentioned above, separately for smaller territorial divisions. In such tabulations, the classifications of the relevant characteristics may be highly simplified. For instance, the median educational level of the population of both sexes above the age of twenty-five years may be tabulated for small areas without the details of numbers of persons at various levels of education and cross-classifications by sex and age groups; likewise an indicator of variations in the degree of industrialization may be obtained from a small-area tabulation of the total number of economically active males and the number engaged in agriculture, without the full classification of industries or occupations of the active population of each sex.

124. In connexion with the census of population, it may also be possible to obtain some simple items of information concerning the characteristics of rural and small urban communities which are very useful as indicators of the level of living, such as the presence or absence in the community (or within a given distance) of a physician, a hospital or dispensary, a primary or secondary school, a motor road, a library, a cinema, a post office, etc. These data can be used in the tabulation of the census results, to determine what proportion of the population of the whole country or of a given territorial division is found in communities that meet a certain standard as regards these amenities.

125. Sample surveys are particularly useful for obtaining up-to-date information on changes in indicators of various components of the level of living during the intervals between censuses. They are also the most practical means of obtaining measures of the more complicated indicators, such as under-employment.



## XII. THE USE OF CENSUS TABULATIONS FOR SAMPLING FRAMES

126. An increasingly important purpose of census tabulations is to provide information concerning characteristics of the population in small geographical areas, for use in the selection of stratified samples for purposes of sample surveys. The efficiency of the census tabulations for this purpose depends heavily on the geographical detail in which the data are provided. Statistics for a large city, for example, are of little use in this respect unless they are made available for administrative or statistical divisions of the city, and preferably for city-blocks. Likewise, a detailed division of the rural territory by administrative or statistical areas is needed.

127. Census items tabulated for the purpose of sampling frames should be selected with a view to their relevance to a wide variety of demographic, economic and social questions which may be investigated by means of sample surveys.

128. In view of the fine geographical detail that is needed, the number of items and the number of categories for the classification of each item must be few.

Examples of items which may be considered include:

(a) Total population;

(b) Ethnic groups (linguistic groups, religious groups, racial groups, tribal groups, foreign-born population, etc.);

(c) Number of in-migrants from other parts of the country (defined with regard to place of birth or place of residence at a specified previous date). This item is most important, as a rule, in data for subdivisions of cities, but it may also be important for rural areas of in-migration, as a basis for stratification of samples for surveys aimed at obtaining additional data on migration;

(d) Major occupational or industrial groups of the economically active population;

(e) Number of literates or illiterates, or number of persons above or below a certain educational level.

129. Data from the censuses of housing and agriculture are also important for this purpose. The data on characteristics of local communities (possession of schools, hospitals, etc.) mentioned in section X above are also useful for sampling frames.

130. Tabulations of population census data for small geographical areas can serve as bases for selection of stratified samples, when it is desired to carry out a sample agricultural census or survey. A tabulation of the economically active population by industry and status (as to employer, employee, etc.) <sup>64/</sup> is very useful for this purpose. It is a useful aid in estimating the number of agricultural holdings from which the sample is to be drawn, in cases where information is lacking on the actual number of holdings.

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<sup>64/</sup> United Nations tabulation 18, first priority; CES tabulation 29, first priority; COTA expanded tabulation 8.

Annex I

SYNOPSIS OF PRINCIPAL TOPICS OF ANALYTICAL STUDIES  
AND RELEVANT TABULATIONS OF CENSUS DATA

I. Population growth and structure

A. Scope:

1. Studies of the growth and structure of the population.
2. Studies of the components of population growth: fertility, mortality, and migration.
3. Studies of factors influencing these components.

B. Purposes:

1. Assessment of present and expected future needs for various types of goods, services and installations as they relate to the size of the population or of various groups such as children of school age, as an aid in fixing goals of developmental plans and programmes.
2. Establishment of factual basis for decisions on questions of population policy and means of implementing such policy.
3. Provision of basic materials for further demographic studies (relating to economic activities, educational characteristics, members and characteristics of households and families, etc.).

C. Relevant census tabulations:

1. Sex and age groups:
  - (a) As the basis for population projections by "component" methods;
  - (b) With vital statistics, as the basis for calculation of age-specific fertility and mortality rates, reproduction rates, life-table functions, etc.;
  - (c) Where vital statistics are lacking, as a basis for estimates of vital measures:

Estimates of age-specific mortality rates and life-table functions from data of two or more censuses;

Estimates of gross reproduction rates and crude birth rates from data of one census, given an estimate of the mortality level;

Estimates of variations of fertility by regions, etc., using child-woman ratios.

2. Sex and age groups of native and foreign-born population, as a means of improving the vital measures and estimates where immigration has been important, and studying effects of immigration on population growth and structure.
3. Marital status by sex and age:
  - (a) As the basis for studies of age at marriage and frequency of celibacy, widowhood, and divorce as factors affecting fertility and population growth;
  - (b) As basic materials for the study of factors affecting trends in numbers and characteristics of households and families and their relation to needs for housing and other goods and services.
4. Number of children born alive to each woman during her lifetime, by age of woman: as a means of measuring fertility and studying factors which influence it. This tabulation is useful especially where adequate birth registration data are lacking, although it is not a sufficient substitute for registered birth statistics. (Possibilities of analysis are enriched by tabulating these data in relation to marital status, age at marriage, duration of marriage, and social and economic characteristics.)

## II. Population distribution and internal migration

### A. Scope:

1. Studies of population distribution within the country, and its changes in the course of time, in relation to economic opportunities.
2. Studies of internal migration as a factor of population redistribution, and of the factors influencing such migration.
3. Studies of demographic, social and economic effects of internal migration, and of problems of assimilation of migrants, as they relate to the characteristics of the migrants.

B. Purposes:

1. To provide a basis for population projections for various parts of the country, urban and rural sectors, and principal cities, as an aid to planning for provision of needed services and employment opportunities.
2. To contribute to the factual basis for policies relating to:
  - (a) The location of industries and balance in economic and social development of various areas and urban-rural sectors;
  - (b) Measures aimed at influencing the volume, directions, and composition of internal migration streams;
  - (c) Measures aimed at avoiding or reducing social and economic difficulties resulting from internal migration.

C. Relevant census tabulations:

1. Population of major, intermediate and minor territorial divisions and of major cities; urban and rural population; localities by number of inhabitants:
  - (a) For measures of population density and distribution;
  - (b) For calculations of rates of population growth; and
  - (c) With vital statistics, for measuring inter-censal net loss or gain in population due to internal migration.
2. Economically active population by branch of industry and sex; population dependent upon agriculture:

As basis for density measures (ratios of agricultural population and of males engaged in agriculture to area of cultivated or cultivable land, or to total rural area).
3. Major territorial division of birth and sex of native population:

For estimates of the magnitude of in- and out-migration during an indefinite period in the past. (Analyses can be extended by classifying persons as born in locality where enumerated, born elsewhere in same major territorial division, born in another territorial division.)
4. Length of residence in present place and place of previous residence:

For measures of migratory movements during a specified period of time.

5. Migrants classified by sex, age, occupation, educational level, etc.,

For studies of factors influencing the movements and of their economic, social and demographic effects.

### III. Manpower studies

#### A. Scope:

1. Studies of relationships between growth and structure of population and growth of manpower, and making of manpower projections.
2. Studies of characteristics of manpower as a productive resource, and of changes in these characteristics in the course of time.
3. Studies of utilization of manpower and of employment, unemployment and under-employment.

#### B. Purposes:

1. To aid determination of policies and planning of programmes aimed at development and effective utilization of manpower resources.
2. To contribute to the basis for estimates of labour productivity and productive capacity of the economy, at present and in the future.

#### C. Relevant census tabulations:

1. Economically active and inactive population by sex and age groups:
  - (a) For studies of rates of participation in economic activities, their trends, and factors affecting them;
  - (b) With population projections by sex and age groups, for estimation of future manpower resources;
  - (c) With life-table functions, for studies of dynamics of manpower: length of working life, accession and withdrawal rates, etc.
2. Economically active and inactive population by marital status and other social and economic characteristics, by sex and age:
  - (a) For more detailed analyses of factors affecting trends of participation in economic activities;
  - (b) For studies of characteristics of manpower relating to productive capacity.

3. Economically active population by status (as employer, employee, etc.), occupation, and industry, by sex:
  - (a) For assessment of capacity for economic development;
  - (b) For study of the utilization of manpower resources;
  - (c) For measurement of manpower in various economic sectors as a basis for productivity studies, etc.;
  - (d) With cross-classification by age groups, for studies of dynamics of manpower in various economic sectors.
4. Economically active population by length of time worked during a specified period:
  - (a) For studies of employment, unemployment, and under-employment;
  - (b) For measurement of labour input as an aid to productivity studies.
5. Population not economically active, by functional categories (housewives, students, etc.), by sex and age:
  - (a) For studies of labour reserves;
  - (b) For evaluation of census data on economic activities.

#### IV. Studies relating to conditions and problems of education

##### A. Scope:

1. Studies of demographic and other factors affecting trends of school-age population and school enrolments.
2. Studies of literacy and educational attainments of the population and labour force, the trends of these characteristics, and their relation to requirements of manpower of given educational qualifications.

##### B. Purposes:

1. Assessment of the nation's situation as regards educational qualifications of the population and of manpower, as a component of the level of living and an indication of capacity for economic and cultural development.
2. Assessment of needs for educational development and for investments in educational facilities.

3. Contribution to evaluation of the functioning of the educational system, as an aid to improvement of its efficiency.

C. Relevant census tabulations:

1. Persons of school-age attending and not attending school, by sex and age groups:
  - (a) For analysis of factors affecting extent of school attendance;
  - (b) With projections of school-age population, for projecting future school enrolments;
  - (c) Cross-tabulated by level of education:

For studying extent of retardation and promotion through successive grades, and of drop-outs at various levels; with projections of school-age population, for projecting enrolments at various levels;
  - (d) Cross-tabulated by economic activity status: for studying economic activity as a factor of non-attendance at school.
2. Literacy and/or educational level of the population by sex and age groups:
  - (a) For assessing the nation's situation as regards educational qualifications of the population, and comparison of the qualifications of successive generations;
  - (b) With projections of population by sex and age and of school enrolments by educational level, for projections of future educational qualifications of the population.
3. Literacy and/or educational level of the economically active population by sex, age, and occupation:
  - (a) For assessing the sufficiency of existing educational qualifications of manpower and degree of utilization of educated manpower resources;
  - (b) With projections of active population by occupations, for assessing future needs for educational development of manpower and studying contributions of education to economic development capacity.

V. Studies of health services and facilities

A. Scope:

1. Studies of the growth and structure of population in various regions, classes of localities and individual administrative sub-divisions.

2. Studies of the demographic, economic and social characteristics of population in various regions and localities, and of internal migration as a factor influencing changes in these characteristics.

B. Purposes:

1. Assessment of present and future requirements for health services and facilities, in the light of the needs of specific sex-age categories of the population.
2. Assessment of health problems and needs of various social and economic groups.
3. Evaluation of effectiveness of services and facilities already provided.
4. Evaluation of effects of internal migration and of other aspects of social and economic change upon the health status of the population, upon needs for service and upon differential use of facilities.

C. Relevant census tabulations:

1. Population of major, intermediate and minor territorial divisions and of major cities; rural and urban population; localities by number of inhabitants:
  - (a) For calculation of rates of population growth;
  - (b) With vital statistics, for measuring inter-censal net loss or gain through internal migration.
2. Sex and age groups:

With vital statistics, as a basis for calculation of mortality and morbidity rates, and life-table functions.
3. Major territorial division of birth and sex of native population:

For studies of the health status of migrants and their special needs for services and facilities.
4. Literacy and/or level of education by sex and age groups:

For assessing the educational status of the population, as an aid to action in the public health field.
5. Economically active population by occupation, sex and age groups:

For studies of occupational health hazards in relation to the health status of various occupation groups, and for studies of occupation as a factor in mental health.



6. Population by socio-economic category, sex and age groups:

For studies of effectiveness of existing facilities, and of the ability of various groups to utilize services and facilities already provided.

VI. Studies of needs for housing

A. Scope:

1. Studies of numbers and composition of households and families and of factors influencing their trends.
2. Studies of internal migration as a factor in needs for housing.

B. Purposes:

1. Assessment of present and future needs for housing and other consumers' goods and services.
2. Provision of statistical bases for programmes aimed at satisfying those needs, and for evaluation of the effectiveness of the policies and programmes that have been implemented.

C. Relevant census tabulations:

1. Households by number of persons:

For calculations of the number and size-distribution of housing units needed to accommodate the present population (by given standards), and of needs for other goods and services.

2. Households by structural type, or individuals in households, by household relationship, sex, age and marital status:

For estimating the number of units required, by given standards, for separate housing for various categories of individuals and their dependents, and needs for other goods and services.

3. Size and composition of families:

For estimates of number of separate housing units needed by various categories of persons and their dependents (based on given housing standards), and of needs for other goods and services.

4. Heads of households or families by sex and age:

- (a) With population projections by sex and age, for projections of numbers of households or families;

- (b) Cross-tabulated by marital status, with corresponding data for the total population:

For assessing the relationship of changes in age at marriage, frequencies of non-marriage, widowhood, etc., to the formation and dissolution of households and families, and improving the basis for projections.

## VII. Studies Relating to Problems of Food and Agriculture

### A. Scope:

1. Studies of the relationship of food production and supply to consumer demand and nutritional requirements.
2. Studies of agricultural manpower in relation to the total labour force, of worker productivity, and of employment, unemployment and under-employment in agriculture.
3. Studies of the composition and trends of population engaged in or dependent upon agriculture.

### B. Purposes

1. Evaluation of the methods by which an adequate food supply can be produced and distributed.
2. Assessment of policies designed to increase agricultural productivity in terms of their meaning of over-all developmental planning of manpower utilization.
3. Determination of the interrelationship of change in agricultural activity and population distribution, particularly through rural-urban migration.

### C. Relevant census tabulations

1. Sex and age groups:

With occupation of economically active population, for calculation of quantitative food requirements.

2. Households by number of persons, socio-economic category of head, type and number of dependants:

For studies of needs and demands for food.

3. Population of major, intermediate and minor territorial divisions and of major cities; rural and urban population:

For measuring per capita food intake and for calculating per capita output in agriculture.

4. Length of residence in present place and place of previous residence; migrants classified by sex, age, level of education, occupation, etc.:
  - (a) For analysis of effects of migratory movements during a specific period upon changes in patterns of food consumption; and
  - (b) For assessment of the quality and amount of manpower resources available for development of various sectors of the economy.
5. Economically active population by branch of industry, occupation, status and sex:
  - (a) For studies of efficiency in agricultural production;
  - (b) For measurement of agricultural density (ratio of males in agriculture to area of cultivated or cultivable land or to total rural area);
  - (c) For assessment of capacity for development of the agricultural and non-agricultural sectors of the economy; and
  - (d) For studies of shifts in the industrial composition of the labour force as a factor in development.
6. Population dependent upon agriculture:
  - (a) For measurement of agricultural density (ratio of agricultural population to area of cultivated or cultivable land, or to total rural area);
  - (b) For assessing food needs and food consumption of population dependent upon agriculture;
  - (c) For assessing potential agricultural labour supplies.

#### VIII. Studies of the level of living

##### A. Scope:

Studies of certain components of the level of living and their variations in different parts of the country and among various elements of the population.

##### B. Purposes:

To provide measures of progress toward goals of economic and social development.

C. Measures derived from census tabulations:

1. Estimates of mortality (from sex-age tabulations for successive census dates);
2. Literacy and illiteracy rates;
3. Median level of education;
4. School attendance rates;
5. Distribution of the economically active population by industry.

D. Measures for which population census data serve as a base:

1. Income per head;
2. Food consumption per head in relation to estimated food requirements;
3. Population per hospital bed, physician, etc.;
4. Number of inhabitants in different regions, in urban-rural sectors and principal cities in relation to availability of certain goods and services.

Annex II

INDEX OF INTERNATIONAL STANDARD PROGRAMMES  
OF TABULATIONS OF POPULATION CENSUS DATA

A. United Nations standard for 1960 World Population  
Census Programme

Tabulation Number	United Nations List <sup>a/</sup> Topic	Priority	Corresponding CES Tabulations, Priority and No. <u>b/</u>	Corresponding COTA Tabulations, Programme and No. <u>c/</u>	References To Sections In This Text
1.	Population of major, intermediate and minor territorial divisions, by sex.	First	No. 1 First	No. 1 Minimum	V, VIII
2.	Population of capital and principal cities, by sex.	First	No. 2 First	No. 2 Minimum	V
3.	Urban and rural population by sex and age groups.	First	No. 3 Second	None	IV, V, VIII, X
4.	Population by size of locality and by sex.	First	No. 4 Second	No. 3 Minimum	IV, V, VII, VIII
5.	Population by single years of age and sex.	First	No. 5 First	No. 4 Minimum	IV, VII, VIII, X
6.	Population by marital status, sex and age groups.	First	No. 6 First	No. 5 Minimum	IV, VI
7.	Urban and rural population by marital status, sex and age groups.	Second	No. 7 Second	None	IV
8.	Native and foreign-born population by sex and age groups.	First	No. 8 First	No. 6 Minimum	IV

a/ Principles and Recommendations for National Population Censuses, United Nations publication, Sales No.: 58.XVII.5

b/ Conference of European Statisticians, Report of the Eleventh Plenary Session, United Nations, Conf/Eur/Stats/112, and European Programme for National Population Censuses, United Nations, Conf/Eur/Stats/WG/81.

c/ Inter-American Statistical Institute, Programme of the 1960 Census of America (COTA 1960). Report of the Sixth Session of COINS (document 3841), Washington, April 1959.

## Annex II (continued)

Tabulation Number	Topic	Priority	Corresponding CES Tabulations, Priority and No.	Corresponding COTA, Tabulations, Programme and No.	References To Sections In This Text
9.	Foreign-born population by country of birth, sex, and age groups.	Second	No. 9 First	No. 1 Expanded	
10.	Native population by place of birth and sex.	First	No. 10 First	No. 7 Minimum	V, VIII
11.	National and alien population, by sex and age groups.	First	No. 11 First	No. 8 Minimum	
12.	Alien population by country of nationality, sex, and age groups.	Second	No. 12 Second	No. 2 Expanded <sup>d/</sup>	IV
13.	Population in private households, by size of household, and population in institutional households.	First	No. 14 First	No. 16 Minimum	IX
14.	Population in private households by structural type and size of household.	Second	None	None	IX
15.	Economically active and inactive population by sex and age groups.	First	No. 19 First	No. 12 Minimum	VI
16.	Economically active population by sub-groups (e.g., employed and unemployed), sex and age groups.	Second	No. 20 Second	No. 10 Expanded	VIII
17.	Population not economically active by sub-groups, sex and age groups.	Second	No. 21 Second	No. 11 Expanded	VI

<sup>d/</sup> Not by age groups.

## Annex II (continued)

Tabulation Number	Topic	Priority	Corresponding CES Tabulations, Priority and No.	Corresponding COTA, Tabulations, Programme and No.	References To Sections In This Text
18.	Economically active population by industry, status, and sex.	First	No. 29 First	No. 8 Expanded	V, VI, X, XII
19.	Economically active population by industry, sex and age groups.	First	No. 25 First	No. 14 Minimum	V, VI, VIII
20.	Economically active population by occupation, status, and sex.	First	No. 28 First	No. 9 Expanded	VI, VIII
21.	Economically active population by occupation, sex and age.	First	No. 22 First	No. 13 Minimum	VI, VIII; X
22.	Economically active population by occupation, marital status, sex, and age.	Second	No. 23 Second	No. 5 Minimum Expanded <sup>e/</sup>	VI, VIII
23.	Economically active population by status, sex, and age.	Second	No. 27 Second	No. 15 Minimum	VI
24.	Population dependent upon each major industry group, by sex.	Second	No. 26 Second	No. 12 Expanded <sup>f/</sup>	V, X
25.	Population by language (mother tongue, language usually spoken, or ability to speak designated languages), by sex and age groups.	First	No. 36 First <sup>g/</sup>	None	VII

<sup>e/</sup> By marital status, sex, and age groups, by marital status, sex, and occupation; industry, occupation and sex; occupational status (as to employer, employee, etc.) and sex; occupational status, major occupation group and sex; and employment status, sex and age.

<sup>f/</sup> Population dependent upon agriculture only, classified as: (a) economically active; (b) economically inactive, under fifteen years of age; (c) economically inactive, fifteen years of age and over.

<sup>g/</sup> Total population by mother tongue, sex and age; or population five years of age and over by usual language or designated language, sex and age.

## Annex II (continued)

Tabulation Number	Topic	Priority	Corresponding CES Tabulations, Priority and No.	Corresponding COTA, Tabulations, programme and No.	References To Sections In This Text
26.	Ethnic or nationality groups of the population, by sex and age groups.	First	No. 37 First	None	IV
27.	Population fifteen years of age and over by literacy, sex, and age groups.	First	No. 38 First	No. 9 Minimum	VII, VIII
28.	Population by level of education, sex, and age groups.	First	No. 39 First	No. 10 Minimum	VII, VIII
29.	Population by school attendance, sex and age groups.	Second	No. 40 Second	No. 11 Minimum	VII
30.	Women by number of live-born children, by age of women.	First	No. 41 First	No. 17 Expanded	IV

B. Tabulations included in the Conference of European Statisticians Programme but not in the United Nations standard

Tabulation number in the Conference of European Statisticians list, and topic	Priority	References to sections of this text
13. Population in private households by sex, marital status, relationship to main supporter (or head) of household and (for persons living in family nuclei) relationship to main supporter (or head) of family nuclei.	First	IX
15. Population in family nuclei by type of household and type and size of family nucleus.	Second	IX
16. Main supporters (or heads) of private households by type of household, sex and age.	Second	IX
17. Population in family nuclei by type of family nucleus and number of children.	First	-



Annex II (continued)

	Tabulation number in the Conference of European Statisticians list, and topic	Priority	References to sections of this text
18.	Population in family nuclei by type of family nucleus, sex and age of head family nucleus and number of children.	Second	-
24.	Economically active population by occupation, sex, broad age group and level of education completed.	Second	VII
30.	Total population by socio-economic category, sex and age.	First	V, X
31.	Population above the minimum school-leaving age by socio-economic category, sex, broad age group and level of education completed.	Second	V, IX
32.	Private households by type and size of household, socio-economic category of head of household and number of dependents.	First	-
34.	Private households by type and size of household, socio-economic category of head of household and type and number of dependents.	Second	-
35.	Private households, excluding persons not related to head of household, by size and number of dependent persons.	Second	-
42.	Women by number of live-born children (of the current, or most recently dissolved marriage; or the current marriage if it is also the first marriage), type of activity (economically active not active, with subdivisions for those in agriculture and others) and number of years married.	Second	IV

C. Tabulations included in the COTA 1960 expanded programme but not in the United Nations standard

	Expanded programme, tabulation number and topic	References to sections of this text
3.	Population receiving specialized education, by type and level of education and sex.	-
4.	Population attending regular schools by level of education, sex, and age groups.	VII
7.	Economically active population by industry, occupation and sex.	VI

Annex II (continued)

Expanded programme, tabulation number and topic	References to sections of this text
13. Population in private households by household relationship, marital status, and sex.	IX
14. Heads of private households by major occupation groups, sex, and age groups.	V, IX
15. Heads of private households by major industry groups, sex, and age groups.	V, IX
16. Families and number of family members, by size of family.	IX

D. Tabulations not included in the United Nations standard, the COTA 1960 programme or the CES programmes, but which can be derived from items included in international standards for census questionnaires

Topic	References to sections of this text
Women by number of live-born children, or "own children" ratios, by age of women and social-economic characteristics (such as literacy, level of education, occupation of the husband, nationality, and ethnic characteristics).	IV
Native population by place of birth, sex, and age groups.	IV, V, XII
Data on employment, unemployment and under-employment by sex and status, by sex and occupation, and by sex and industry.	VI, XI
Literacy by level of education, sex, and age groups	VII
Economically active and inactive population of school age, by school attendance and sex.	VII
Heads of households by marital status, sex and age groups.	IX
Characteristics of population for small areas, such as populations dependent on agriculture or number of economically active males engaged in agriculture, percentage of illiterates, median level of education, percentage of children of school age attending school, number of immigrants, selected occupational and industrial groups of the economically active population, and household characteristics.	V, VII, VII, IX, XI, XII

Annex II (continued)

E. Tabulations of items not included in international standards for census questionnaires

Topic	References to sections of this text
Place of residence at a stated previous date.	V, XII
Length of residence in present place, and place of prior residence.	V, XII

DEMOGRAPHIC PUBLICATIONS OF THE UNITED NATIONS

Selected list, February 1964

Studies of population trends and problems

- The Determinants and Consequences of Population Trends. A summary of findings of studies of interrelationships of demographic, economic and social factors based on a world-wide survey of scientific literature. English, French, Spanish. 404 pp., \$5.00\*. ST/SOA/Series A/17. Sales No.: 1953.XIII.3.
- Population Growth and the Standard of Living in Under-Developed Countries. A brief summary of major relevant findings from "The Determinants and Consequences of Population Trends". English, French, Spanish. 9 pp., \$0.35\*. ST/SOA/Series A/20. Sales No.: 1954.XIII.7.
- The Mysore Population Study. Report of a field study of interrelationships of demographic, economic, and social factors in Mysore State, India. English. 443 pp., \$4.50\*. ST/SOA/Series A/34. Sales No.: 61.XIII.3.
- The Aging of Populations and its Economic and Social Implications. A world-wide survey and analysis of aging, its causes and consequences. English, French. 168 pp., \$1.75\*. ST/SOA/Series A/26. Sales No.: 1956.XIII.6.
- Recent Trends in Fertility in Industrialized Countries. A comparative analysis of the recovery of the birth rate in various countries during and after World War II. English, French. 182 pp., \$2.00\*. ST/SOA/Series A/27. Sales No.: 1957.XIII.2.
- Foetal, Infant, and Early Childhood Mortality, Vol. I. The Statistics.  
Vol. II. Biological, Social and Economic Factors. English, French. Vol. I: 137 pp., \$2.00\*. Vol. II: 44 pp., \$0.75\*. ST/SOA/Series A/13 and Add.1. Sales Nos.: 1954.IV.7 and 1954.IV.8.
- Population Growth and Manpower in the Philippines. A joint study with the Government of the Philippines. English, French, Spanish. 66 pp., \$1.00\*. ST/SOA/Series A/32. Sales No.: 61.XIII.2.
- Demographic Aspects of Manpower. Sex and Age Patterns of Participation in Economic Activities. English, French, Spanish. 81 pp., \$1.00\*. ST/SOA/Series A/33. Sales No.: 61.XIII.4.
- Human Resources of Central America, Panama and Mexico, 1950-1980, in relation to Some Aspects of Economic Development. English, Spanish. 159 pp., \$2.00\*. ST/TAO/K/LAT/1, E/CN.12/548. Sales No.: 60.XIII.1.

\* Prices listed in United States dollars. Equivalent prices in other currencies.

Population and Food Supply. Report prepared for the United Nations as a contribution to the Freedom from Hunger Campaign sponsored by the Food and Agriculture Organization of the United Nations. Future population growth and related food requirements are compared with prospects for increased food production. English. 49 pp., \$0.50\*. FFHC, Basic Study No. 7. Sales No.: 62.I.22.

Guanabara Demographic Pilot Survey. A joint project with the Government of Brazil, carried out in the State of Guanabara, Brazil. (English, French and Spanish in press). \_\_\_\_ pp., \$ \_\_\_\_\*. ST/SOA/Series A/35. Sales No.: 64.XIII.3.

#### Future population estimates

The Future Growth of World Population. Population projections to 2000 for world regions and to 1975 for each country. English, French, Spanish. 75 pp., \$1.00\*. ST/SOA/Series A/28. Sales No.: 58.XIII.2.

#### Regional reports giving projections by sex and age for individual countries:

Report I: The Population of Central America (including Mexico), 1950-1980. English, Spanish. 84 pp., \$0.70\*. ST/SOA/Series A/16. Sales No.: 1954.XIII.3.

Report II: The Population of South America, 1950-1980. English, Spanish. 139 pp., \$1.25\*. ST/SOA/Series A/21. Sales No.: 1955.XIII.4.

Report III: The Population of South-East Asia (including Ceylon and China: Taiwan), 1950-1980. English, French. 166 pp., \$1.75\*. ST/SOA/Series A/30. Sales No.: 59.XIII.2.

Report IV: The Population of Asia and the Far East, 1950-1980. English, French. 110 pp., \$1.50\*. ST/SOA/Series A/31. Sales No.: 59.XIII.3.

#### Reports on methods of demographic analysis

Age and Sex Patterns of Mortality. Model Life Tables for Under-Developed Countries. English, French, Spanish. 38 pp., \$0.40\*. ST/SOA/Series A/22. Sales No.: 1955.XIII.9.

Manual I: Methods of Estimating Total Population for Current Dates. English, French, Spanish. 45 pp., \$0.75\*. ST/SOA/Series A/10. Sales No.: 1952.XIII.5. (Russian offset edition available)

Manual II: Methods of Appraisal of Quality of Basic Data for Population Estimates. English, French, Spanish. 67 pp., \$0.70\*. ST/SOA/Series A/23. Sales No.: 1956.XIII.2. (Russian offset edition available)

Manual III: Methods for Population Projections by Sex and Age. English, French, Spanish. 81 pp., \$1.50\*. ST/SOA/Series A/25. Sales No.: 1956.XIII.3. (Russian offset edition available)

\* Prices listed in United States dollars. Equivalent prices in other currencies.

## Compendia of demographic statistics

Demographic Yearbook. World-wide source-book of statistics of area and population, vital statistics and international migration statistics. Bilingual, English and French. 1962 issue: 665 pp. Paperbound, \$8.00\*; clothbound, \$10.00\*. Sales No.: 63.XIII.1. Issues of 1948 to 1961 also available. Special topics: 1962 - Population census statistics; 1961 - Mortality statistics; 1960 - Population trends; 1959 - Natality statistics; 1958 - Marriage and divorce statistics; 1957 - Mortality statistics; 1956 - Ethnic and economic characteristics of population; 1955 - Population censuses; 1954 - Natality statistics; 1953 - General demography; 1952 - Population distribution; 1951 - Mortality statistics; 1949-50 - Natality statistics; 1948 - General demography.

Population and Vital Statistics Reports (quarterly). Gives world-wide coverage of basic demographic series for the current year. English. Annual subscription \$1.00\*. \$0.30\* per copy. Statistical Papers, Series A.

Sex and Age of International Migrants: Statistics for 1918-1947. Bilingual, English and French. 281 pp., \$3.00\*. ST/SOA/Series A/11. Sales No.: 1953.IV.15.

Economic Characteristics of International Migrants: Statistics for Selected Countries, 1918-1954. Bilingual, English and French. 314 pp., \$3.50\*. ST/SOA/Series A/12. Sales No.: 58.XIII.3.

Analytical Bibliography of International Migration Statistics, 1925-1950. English, French. 195 pp., \$2.00\*. ST/SOA/Series A/24. Sales No.: 1956.XIII.1.

### Reports on methods and standards for demographic statistics

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