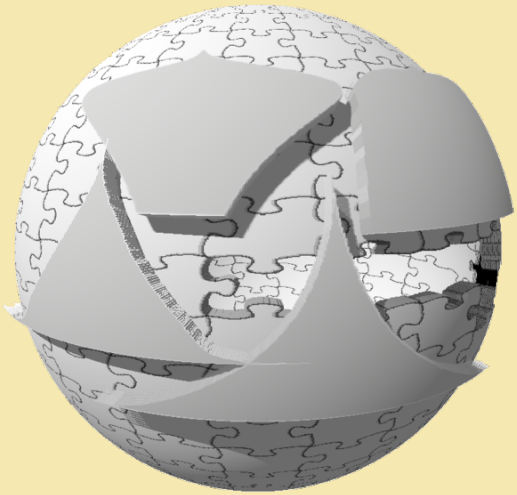
Demopædia

Multilingual Demographic Dictionary

unified second edition, English volume



http://en-ii.demopaedia.org

United Nations
Departement of
Economic and
Social Affairs
Population Division

International
Union for the
Scientific Study
of Population

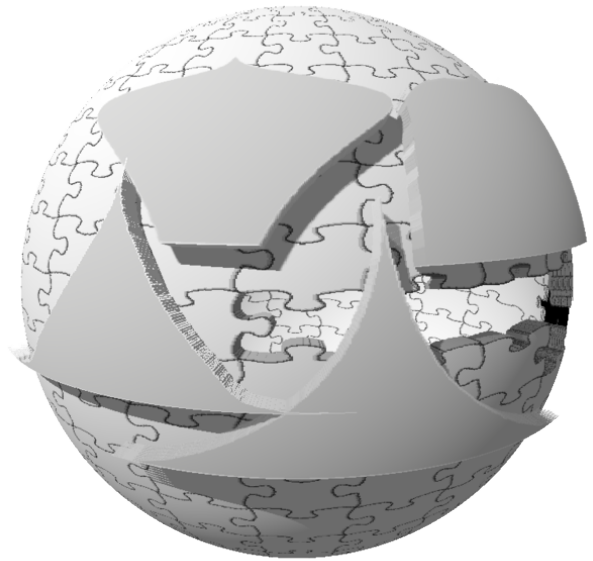
ined
INSTITUT NATIONAL
D'ÉTUDES DÉMOGRAPHIQUES

CePeD
Centre
Population
& Développement

Demopædia

Multilingual Demographic Dictionary

unified second edition, English volume



http://en-ii.demopaedia.org

This document has been generated the 23 August 2013.

Content is available under Attribution-Share Alike 3.0 Unported
(http://creativecommons.org/licenses/by-sa/3.0/).

Table of contents

Introduction 3
Preface 7
Notice 17
Chapter 1 • General concepts 21
Chapter 2 • The treatment and processing of population statistics . 41
Chapter 3 • Distribution and classification of the population 51
Chapter 4 • Mortality and morbidity 71
Chapter 5 • Nuptiality 83
Chapter 6 • Fertility 91
Chapter 7 • Population growth and replacement 107
Chapter 8 • Spatial mobility 113
Chapter 9 • Economic and social aspects of demography 125
Index 133

Introduction

History

The first edition

In 1953, the Population Commission of the United Nations requested the preparation of a Multilingual Demographic Dictionary, a task in which the International Union for the Scientific Study of Population (IUSSP) offered to collaborate. In 1955, an ad hoc Committee under the chairmanship of P. Vincent of France was established to prepare the English, French and Spanish versions of the Dictionary. The Committee included as members: C.E. Dieulefait (Argentina), H.F. Dorn (United States), E. Grebenik (United Kingdom), P. Luzzato-Fegiz (Italy), M. Pascua (Switzerland) and J. Ros Jimeno (Spain). The French and English versions of the Dictionary were published in 1958 and the Spanish version in 1959. Versions in ten other languages appeared between that date and 1971.

The second edition

Because of the rapid development of demography and population studies during the 1960s, in 1969 the Population Commission recommended the updating of the Multilingual Demographic Dictionary, a task that was pursued once more in collaboration with IUSSP. A new Committee on International Demographic Terminology was set up under the chairmanship of P. Paillat (France) and started work in 1972 with financial support from the U.S. Bureau of the Census. Other members of the Committee were: A. Boyarski (USSR), E. Grebenik (United Kingdom), K. Mayer (Switzerland), J. Nadal (Spain) and S. Kono (Japan). The Committee submitted a revised draft to the consideration of a hundred or so demographic centres that provided comments. In 1976, Prof. Louis Henry was commissioned by IUSSP to edit the work and produce the second edition of the Dictionary in French. IUSSP then requested Prof. Etienne van de Walle to adapt and translate the French second edition into English.

The second edition in English was published in 1982. Eventually, the second edition would be issued in all official languages of the United Nations.

From the second edition to Demopædia

The series of Multilingual Demographic Dictionaries is one of the most enduring products in the history of demography and one of the most fruitful thanks to the work and engagement of scholars who have translated the original French or English versions into their own languages. As a result of those efforts, the international community can benefit today from access to 14 language versions of the second edition of the Demographic Dictionary, mainly thanks to the initiative undertaken by Nicolas Brouard in compiling the out-of-print versions of the Dictionaries in different languages and developing a Wiki-based presentation of all of them as a web-accessible Multilingual Demographic Dictionary. The United Nations Population Division, IUSSP and the Comité national français of the IUSSP have all supported this work in order to facilitate access to these valuable reference texts.

Why on-line?

Because the Demographic Dictionaries in various languages were conceived as tools to serve people in many countries, making them accessible via the Internet was thought mandatory. Today, thanks to the project led by Nicolas Brouard, standard demographic terminology and its meaning is only two clicks away for students, teachers, professors, researchers, government officials, journalists, non-governmental organizations and the public at large, all working in their own languages.

Functionality

Visitors to Demopædia can consult the different language modules, read them, or download and print them. All copyright owners have made this possible. Users can search for a demographic term, surf between linked terms and expressions, or switch to another language or edition. Because each Dictionary consists of thematic chapters, terms are located in context, providing not only a definition of each term but also an understanding of the subject matter for which a term is relevant. Each language module has a built-in index that facilitates navigation and cross-referencing. In addition, the Wiki platform provides powerful tools for further development. It is envisaged that the next stage of the project will allow specialists to post additions, revisions or corrections to the second edition.

What is next?

Demographic knowledge made huge advances since the last editions of the Dictionary have been published. There is a clear sense that the structure and texts need updating. Doing it in a traditional format of 'live' panels and working groups would be hardly feasible. Developing on-line a renewed edition of multilingual encyclopedic demographic dictionary should be efficient and will unleash the potential of wide cooperation of professionals. Demopædia will host this project.

Demopædia also has the potential to become a platform for sharing and building a wider knowledge base in demography and population studies. Our vision is an extensive and constantly evolving encyclopedia on population, serving the world community and benefiting from influxes of ideas and texts.

For an *unified second edition* of the dictionaries as an intermediate step

Since the training in Marrakech, a lot of work has been done to improve the quality of the scanned texts. Specific computer programs using parsers have cross check the texts of the first and second editions in about 12 to 13 languages in order to detect the missing text terms in one or another language.

The first analysis of this work reveals that the second edition is not as rigorous as the first was. The first edition was the result of the Commission on terminology during the mid 50's, but the second was first revised in French in 1981 and translated and adapted to English in 1982 and in Spanish in 1985, German in 1987 etc. up to Czech in 2005.

Some terms, expressions and even complete paragraphs have not been translated into English, but in Spanish, Arabic, German etc.. And a few sentences and paragraphs have been added into the English second edition but never translated into the French second edition which was already published. Also the Spanish second edition added a few new text terms which are not translated into any other language but Arabic.

The German second edition (1987) defined a lot of more modern text terms which haven't been translated in any other language.

Editions, published after 1987, did not add any new term and thus a natural limit is 1987 (German) but harmonization between the three languages of the IUSSP could be an important step.

In many language specific editions, the numbering of the text terms differed (even between French and English) most of times due to errors but sometimes because a text term was not translated. The advantage of the technical work is

to highlight the missing text terms in order to decide if the word is not used in this language or if it is an omission.

Preface

Preface of the first edition (1958)

At its fourth session the Population Commission of the United Nations requested the Secretary-General to include the preparation of a multilingual demographic dictionary in the Secretariat's work programme. Several months later the International Union for the Scientific Study of Population, at its General Assembly in Geneva, offered to collaborate with the United Nations in this project and set up a sub-committee to prepare a plan of work. At the fifth session of the Population Commission the Secretary-General was asked to accept the Union's offer, and the Dictionary Committee was given the task of drafting versions of the dictionary in English, French and Spanish.

The primary purpose of the dictionary is to serve as a useful tool for technical translation. It consists of separate sections, each of which presents in one language the technical terms used in demography; the text is followed by an alphabetical index of terms. The texts in, the various languages correspond to one another, and equivalent terms in different languages have the same reference number so that it is possible to identify them in the different volumes. The Committee entrusted with the task of preparing the three initial volumes consisted of:

- Paul E. Vincent (France) (Chairman and Rapporteur);
- Carlos E. Dieulefait (Argentina);
- Harold F. Dorn (U.S.A.);
- Eugene Grebenik (United Kingdom);
- Pierpaolo Luzzatto-Fegiz (Italy);
- Marcelino Pascua (Switzerland);
- Jose Ros Jimeno (Spain).

The first draft consisted of a basic French text which was prepared in the Institut national d'études demographiques in France under the general super-

vision of M. Vincent. This text was translated into English and Spanish by Messrs. Grebenik and Ros Jimeno respectively. The draft bad to be completed somewhat hurriedly in view of the approach of the World Population Conference, at which participants received a provisional edition, dated June 1954, published by the United Nations. The dissemination of this provisional edition made it possible for a number of experts to comment critically on the draft and gave the Committee an opportunity to take account of the comments received. Some of the imperfections of the first draft were due to the fact that the basic text had been prepared in a single language only—French. It was clear that considerable differences existed between the terminologies in English and in the Romance languages, and that a compromise between different conceptions was essential. It was further realized that a mere list of equivalences was not sufficient but that definitions of terms would have to be included in the text, so that translators might have the opportunity of noting differences in usage between different languages. The Committee recommended accordingly and, the recommendation having been approved by the Union, Mr. Grebenik was requested to prepare a new text in English, making use of the basic French text. Mr. Grebenik's new text was then revised in collaboration with M. Vincent, and a second draft produced in English and French, which was used by Sr. Ros Jimeno in preparing the Spanish version. The three drafts w[r]ere then submitted for approval to the Dictionary Committee, the Council of the Union and a number of experts, with a view to producing a final edition.

In publishing the English, French and Spanish sections of the *Multilingual Demographic Dictionary* it is necessary to emphasize certain points. Firstly, the dictionary is the result of collaboration, not only between the three principal editors, but also on the part of all members of the Committee. The final version owes much to the recommendations made by a number of demographers who read various versions of the draft and commented on them, frequently in great detail. Most of their comments were accepted either in whole or in part. Some other comments the editors—perhaps mistakenly—felt unable to accept.

The editors were frequently faced with difficult problems of choice between a number of possible formulations. The nature of the dictionary, however, makes it impossible to give a detailed justification for using one version, rather than another. Final responsibility for choice rests on each of the principal editors, in this English section, Mr. Eugene Grebenik. At the same time the editors were not free to prepare a text entirely according to their own wishes. The necessity to produce parallel texts in different languages and the desire to take into consideration the comments that were made, have frequently led them to include certain expressions or definitions which they would have preferred to formulate differently had they been entirely free agents. Nevertheless, they agreed to accept responsibility for the text as it stands.

It must also be stressed that this dictionary does not pretend to be a treatise on demography. In preparing the text the fundamental aim has always been that it should serve as an aid to technical translation, and it was therefore necessary

to consider the terminology of various languages in order to make the dictionary truly multilingual. Languages differ in their structure, and demographic terminology depends, moreover, not only on the language but on the development of demographic research in various countries, so that it is sometimes illogical and at variance with the requirements of science. Occasionally, terms in different languages are not wholly equivalent. In one language there may exist a profusion of terms referring to a particular subject which in another is practically neglected. In the text, notes to the different paragraphs have been used in an attempt to reduce as far as possible the inconveniences arising from these difficulties. Had the aim been to produce a set of definitions in one language, without taking account of the others, the result would have been very different. This preoccupation also accounts for a certain imbalance in the contents. It has seemed useful in certain cases to include in the dictionary terms which are not properly demographic but are frequently encountered in demographic literature and do not always appear in general dictionaries, thus causing difficulties to translators who are not expert in the subject. In considering the needs of translators the Committee has been led to adopt the principle that no opinions should be expressed on particular usages, and no recommendations made unless there was a general consensus of opinion that a particular nomenclature was undesirable. The dictionary is therefore not normative. It does not lay down new definitions. Where definitions are included, their main purpose is to establish terminological equivalences and to make them more accurate. The necessity for extreme conciseness in these definitions has occasionally led to a certain lack of precision. Standardization of definitions requires studies of a different kind. In order to avoid any misunderstanding, a list of recent documents published by various international organizations concerned with the definition of various demographic concepts is given at the end of the alphabetical index. The reader will have to consult these studies when he has to solve a problem connected with definition rather than translation.

The purpose of the dictionary will be better served if it is extended to other languages. Some sections in other languages have already been planned, or are in draft. Moreover, the Population Commission at its ninth session requested the Secretariat to study the possibility of preparing a Russian section of the dictionary. Experience will show whether the compromise that has been reached between the English and Romance languages can be extended to other Germanic and Slavonic languages as well as to those outside the Indo-European group.

Preface of the second edition (1982)

The Population Commission of the United Nations in its fourth session requested the UN Secretariat to include the preparation of a multilingual demographic dictionary in its work programme. The Union offered to collaborate in this project, and at the end of the fifth session of the Population Commission

an ad hoc Committee* was given the task of drafting a multilingual demographic dictionary in English, French and Spanish.

Notwithstanding its great complexity, this work was successfully completed and the French and English volumes were published in 1958. Other versions appeared later: Spanish (1959), Italian (1959), German (1960), Finnish (1964), Russian (1964), Czech (1965), Polish (1966), Swedish (1969), Portuguese (1969), Arabic (1970) and Serbo-Croatian (1971).

At its fifteenth session, held in Geneva in November 1969, the Population Commission of the United Nations adopted a recommendation suggesting that the U.N. Secretary-General should collaborate closely with the Union in carrying out projects of mutual interest, such as the preparation of a multilingual dictionary of demographic terms.

At a previous meeting in Liege in April 1969, the Council of the Union noted with great satisfaction that the dictionary had, in every respect, come up to the expectations of demographers all over the world; the Council felt, however, that the time had come to bring the dictionary up to date, in view of the profound changes which had affected the science of demography during the decade following its publication.

A new Committee** was therefore set up, and thanks to the generous financial aid granted by the U.S. Bureau of the Census, work on the project was started in 1972 and completed in 1974.

The Committee's field of action was not limited to its members, since a hundred or so demographic centres responded to its appeal by giving their comments on the drafts submitted to them, In this way, an immense documentation was collected which dealt not only with the definitions of demographic terms and concepts, but also with the arrangement of the book. All this was placed at the disposal of Professor Louis Henry, to whom in 1976 the Union entrusted the task of editing the final version of the second French edition of the demographic multilingual dictionary. Thus the new text prepared by Louis Henry is a synthesis of the one edited by the late regretted Paul Vincent for the first edition of the French version, and the texts prepared by the Committee on International Demographic Terminology.

The Union subsequently requested Professor Etienne van de Walle to adapt and translate the French version of the dictionary into English. I would like to take this opportunity of thanking him warmly for having successfully carried out such a very exacting task.

I also wish to expess my deep gratitude to my predecessor, Professor Massimo Livi Bacci who, during his mandate, was one of the principal promoters of this new series of dictionaries.

This English edition, following on the French one, is thus the second in a collection which will continue to increase as time goes on and provide support to the international community of demographers.

Georges Tapinos Secretary-General

[*] Multilingual Demographic Dictionary Committee : Chairman : P. Vincent (France), Members: C.E. Dieulefait (Argentina), H.F. Dorn (U.S.A.), E.Grebenik (Great Britain), P. Luzzato-Fegiz (Italy), M. Pascua (Switzerland), J. Ros Jimeno(Spain).

[**] Committee on International Demographic Terminology: Chairman: P. Paillat (France); Members: A. Boyarski (U.S,S.R.), E. Grebenik (Great Britain), K. Mayer (Switzerland), J. Nadal (Spain), S. Kono (United Nations-Japan); Observers: S. Baum and J. Siegel (U.S. Bureau of the Census — U.S.A.); Research Assistants: A. Hill (Great Britain), A. Lifshitz (France) and A. Saez (Spain).

Acknowledgements

Although many persons have contributed to various stages of the preparation of this dictionary, Etienne van de Walle would like to acknowledge the assistance of Alex Mogielnicki in translating the French version, and the advice of his colleagues, Ann R.Miller, Samuel H. Preston, Norman Ryder and Christopher Tietze who were kind enough to comment on initial versions of the English text. It owes of course a great deal to the First Edition, and to the preliminary texts prepared by the committee of the Union.

Preface of the unified second edition

The unification of the second edition of the dictionary seemed necessary when computerization of all scanned paper volumes has been performed. The Demopædia databases showed significant omissions from each of the major releases published during the 1980s (French 1981, English 1982, Spanish in 1985 and Germany in 1987). In 1988, the Arabic edition and the tri-lingual English-French-Arabic edition, had already but partially filled the gaps by comparing the French and English translations, but had failed to translate 92 new concepts introduced in the German edition. The Chinese editions (1994), Japanese (1994), Czech (2005) derived from the English version only like the Web only editions in Russian (2008), Portuguese (2008) and Polish (2010). On the other hand, the Italian edition, published on Web in 2010, drifted mainly from the French edition. Let us describe by the following example, the consequences of untranslated terms and the importance of a unified edition: a French term like "Nourrisson" which was retained, by the Commission of United Nations terminology in the 50s, and which appeared in any language of the first editions of the multilingual dictionary disappeared in the second English edition.

As an example, the forthcoming *unified dictionary* will be enriched by the term: *nourrisson* in French, *lactante* in Spanish, *Brustkind* in German, *kojenec* in Czech, *lattante* in Italian etc. or, if a common noun doesn't exist like in English, an expression like *child at the breast* was used in the first English edition of 1958 and is reinserted in the unified English edition, permitting to new modules, derived from English only, to keep this lovely word, even if babies were not so appreciated before the demographic transition!

New translations into several Asian languages being under consideration due to the demographical importance of this continent, it became mandatory to achieve this unification before engaging new translations. It is still an ongoing process, concerning all languages previously published; and the first *unified* French language edition was published at the 46th Annual Conference of the Italian Statistical Society in June 2012 in Rome. The French edition fills a gap because the last copies of the second edition of 1981 were distributed at the symbolic price of € 1 at the IUSSP conference in Tours (2005). An Italian edition was also very necessary because the first edition was published in 1959 and had never been updated.

Harmonized editions should be available soon or later in the twelve languages already published on paper volumes and on-line in their original edition as well as in four to six new Asian languages.

Although it is regrettable that this harmonized edition is not a *new* edition, which could be enriched with new concepts of contemporary demography, such as reproductive health, disability and dependency, international migrations, demographic windows, decreasing population, retirement etc… But the comparisons of the first two editions demonstrated to us that the important concepts of the population sciences resided mainly in the first edition: terminological elements have been selected carefully by the Commission on Terminology of the United Nations during the '50s in order to define our discipline and are mostly still valid.

We may also regret not having removed obsolete or even inappropriate words. Etienne van de Walle, lead author of the second English edition of 1982, told me at the Conference of Tours in 2005, that is to say, shortly before his premature death, his desire to participate in the new edition especially at removing terms on eugenics, a term or theory which already in 1981 had only an historical interest. Changes to the original editions have been done *a minima*, preserving the original spirit of the 1980s.

These changes justify the paper publication of this unified edition. New volume will also be available on paper once the unification in the specific language is complete. This unification is a mandatory prerequisite for a third edition.

Publishing digital books allow indeed a paper publication at low cost even if at demand. Thus the work of Joseph Larmarange, a demographer at the French

"Research and Development Institute" (IRD) working at the mixed research unit CEPED, permits to download from the multilingual demographic dictionary website (http://demopaedia.org/tools) any unified edition in various electronic formats (HTML, PDF or EPUB). It is also possible to order a hard copy from a publishing company *on demand*. The web site is also a place for generating a "current" version of the dictionary or even multilingual indexes.

If a publication with broad distribution does not seem justified for languages that have already been published in the past, an impression "on demand" seems to meet certain needs, especially when it will be available in several languages in the same format. In addition, a print "on demand" includes the corrections of the inevitable errors and shells.

It seems to us that the main authorship of the multilingual dictionary returns to the first work of the Population Commission of the United Nations chaired by Paul Vincent. Himself is partly in debt of the revolutionary indexing system of numbered paragraph which appeared in the work of John Edwin Holmstrom. He proved in his "Report on Interlingual Scientific and Technical Dictionaries" written in 1949 that unique entries in a dictionary were inadequate when the dictionary included more than two or three languages.

Therefore, authorships are multiple and multilingual too; the detailed names are mentioned in each of the prefaces of the two possible editions which we reproduced before this current generic preface of all unified versions. If we had to mention explicit authors we should gratify, Paul Vincent for the first French edition of 1958, Eugene Grebenik for the first English edition of 1958, Louis Henry for the second French edition of 1981, Etienne van de Walle for the second English edition of 1982 and Guillermo A. Macció for the second Spanish edition. The second German edition was coordinated by Charlotte Höhn in 1987.

This multiple paternity has led us to move the status of all the different editions of the multilingual demographic Dictionary under the Creative Commons Share Alike license (CCSA). Thus, since the computerization of old paper editions, any additional work to the dictionary which is published on-line requires the acceptance of this license. It permits to consider the exact contribution of each author involved. Note also that the MediaWiki software which is used by Demopaedia for both, browsing the dictionary and editing, is also under the same open-source license.

Once we know a little handling of Demopaedia which is identical to Wikipedia, you can easily compare the text of the first edition with that of the unified edition. The digitized text uses the same paragraph numbering (101, 102 etc..), each being bundled within the same page (eg page 10 http://ko-ii.wikipedia/wiki/10). If the reader wants to know the reasons that led a writer to adopt a particular reformulation, the *discussion page* lists the problems that have arisen and the decisions that have been taken (eg http://ko-ii.wikipedia/wiki/Talk:10). All members of professional associations of population studies

in partnership with the Demopædia project are allowed and encouraged to contribute to the discussion pages. This is already the case for members of the IUSSP and soon for members of the Population Association of America. Rights to edit the dictionary itself, that is, not only the related discussion page, are given to a limited number of authors.

It is also the goal of the project Demopædia to invite professional demographers to update the multilingual demographic Dictionary by providing this wiki platform. But as it is a first step to create new pages and even new chapters such as "reproductive health" already mentioned, we believe that it is easier to adopt a more open structure similar to that of Wikipedia, where consistency between languages is not essential. The site of this free encyclopedia is the URL http://fr.demopaedia.org for French and http://en.demopaedia.org for the English version as well as http://ko.demopaedia.org for Korean, etc.

The new pages created gradually should allow us to better measure both, the extent of our discipline and its new terminology. A third edition of the multilingual dictionary could come someday.

The goal of science is to share results with colleagues around the world but also to fellow countrymen and thus, it seems necessary that the scientific vocabulary can be well translated and understood so that the media as well as students can use it safely. We also note that in some countries such as Sweden, there is no second edition of the dictionary, giving the impression that the scientific vocabulary doesn't need to be renewed in Swedish, but English only. By contrast, a clear need has been felt at the IUSSP Conference in Marrakesh by Asian academics who, under pressure from many local students who do practice English, are struggling with rough translation of English demographical terms (even old terms) to be adopted by the entire community. Today, in India, there are several languages spoken by a number of users exceeding 70 million which is the total number of humans whose mother tongue is French. Malayalam is spoken, in Kerala at least, by as many speakers as Thai-speaking Thais. Hopefully this wiki platform is a multilingual opportunity to discuss the understanding of new concepts conveyed in the English scientific journals but also in international conferences still in French or Spanish and national conferences in many different languages.

This project could not have been completed without the ongoing support of the Population Division of the United Nations in the person of Hania Zlotnik who was her director from 2005 to 2012. This support took the form of the organization of Demopædia workshops, including Paris (2007) and Marrakesh (2009). Special thanks to Sergey Ivanov (UNPD), co-organizer of two workshops and author of the first draft of the Russian edition. Giudici Cristina and Elena Ambrosetti, authors of this Italian translation which has been published concurrently, have established a partnership between the University La Sapienza and the French Committee of the IUSSP, to organize a workshop on the Wiki technology in Rome in 2011. Some materials due to Laurent Toulemon's tutorial at INED in Paris having been reused, we are extremely hap-

py with the Franco-Italian collaboration which is driving the development of the Demopædia project, particularly in Chiang Mai at the end of August 2012. The last Chiang Mai workshop, funded by INED, co-organized by Géraldine Duthé (INED) and locally organized by Sophie Le Coeur (IRD/INED), Joseph Larmarange and Elena Ambrosetti was an opportunity to train 13 senior demographers in the Demopaedia/Wiki technology in order to produce a unified edition in six Asian new languages (Korean, Indonesian, Malaysian, Nepalese, Thai and Vietnamese). They should be completed by the next IUSSP conference of Busan in August 2013.

Also thank to Christine Gandrille, secretary of the French National Committee of the IUSSP, who scanned and corrected many of the issues due to her exceptional knowledge of several languages, Françoise Gubry and Martine Deville, librarians respectively at CEPED and INED for their obstinacy to find the old dictionaries such as the Arabic or Estonian editions. Their advices in thesaurus and index technology were also very helpful.

Finally, I would like to thank the French National Committee that I had the honor to preside until January 2012 and all members of the three successive bureaus for their help in starting and conducting the Demopædia project since 2005. Websites are requesting light but continuous supports which are provided by INED in hosting the server. In 20012, IUSSP created a group of interest so that the Demopædia project could take an international dimension.

Nicolas Brouard

Director of research at INED

Coordinator of the IUSSP Demopædia project

July 2013

Notice

Notes on the use of the dictionary

The dictionary consists of a text supplemented by notes in small type and an alphabetical index. All terms which are printed in bold face in the text and the notes are listed in the index. Where an expression consisting of several words is printed in bold face it will appear in the index under each of the principal constituent words, e. g., "density of population" is indexed under *D* as "Density population", and under *P* as "Population density".

Each term has a reference number which is composed of the number of the paragraph in which it appears and an identification number. For terms appearing in the body of the text the identification number is printed immediately after the term, and for those in the notes it is the number of the note; the latter also relates the note to the corresponding term in the text. Terms occurring in the notes which are not in the text are followed by an asterisk (*) in the index and reference numbers.

Due to the harmonization of all second editions of the dictionary, new terms have been introduced in this unified second edition of the English volume compared with the original second edition of 1982. These new terms are starred (⋆).

Text terms with the same reference numbers in the various sections of the dictionary correspond to one another. For instance, the translator who wishes to find the equivalent French term for a given expression in English should look up the English expression in the alphabetical index of the English section and find the correspondingly numbered paragraph in the French section. *It is strongly recommended that the whole paragraph in which the expression occurs in both sections should be read* in order to guard against faulty translation due to slight differences in usage; this will also be useful if, in one of the languages, no term exists to express a particular concept.

Only terms in the text itself are comparable from one volume to one other using their number. Terms in the notes are specific to each volume and don't correspond between volumes.

Different terms which are used to express the same concept have the same reference number. Any term which is susceptible of different interpretations may have two or more reference numbers which refer to the appropriate contexts.

Terms printed in bold face in notes do not necessarily correspond to one another in the different sections. Moreover, in paragraphs 303 and 344, which deal with the administrative structures of different countries and with their educational systems, there is no correspondence between the different language sections. Terms introduced in these paragraphs have no identification numbers; the paragraphs themselves are subdivided into lettered sections, A and B in the English section referring to Great Britain and the United States of America respectively.

Exploring the dictionary on demopaedia.org

Comparing the dictionary between several languages will be easier online on the web site http://en-ii.demopaedia.org where hypertext links allow you to switch between the different volumes of the dictionary.

The dictionary is divided into *sections* or *sub-chapters*, each of them having is own page on the wiki. Each section is identified by a two-figures number. Usually, the section number of a paragraph corresponds to the two first figures of the paragraph number (the paragraph 104 is therefore located in the section 10). There are few exceptions: paragraphs 360, 361 and 362 are in section 35, paragraph 640 in section 63 and paragraphs 810 and 811 in section 80. Section breaks are indicated in the text by an asterism (⁂).

The URL of a section is obtained by adding the section number to *http://en-ii.demopaedia.org/wiki/*. Therefore, paragraph 357 could be seen online at *http://en-ii.demopaedia.org/wiki/35*. For more details, please read online http://en-ii.demopaedia.org/wiki/Instructions.

Tools to search a term in all indexes or to generate a multilingual index are available at http://www.demopaedia.org/tools.

Citation

Since the dictionary has been digitized, it is now available in different formats (online, printed books, electronic books…). Although this unified second edition will not change significantly, some minor corrections could be apply to

the text. Therefore, the copy you are currently reading, generated at a specific date, could differ slightly from the online version.

To cite the multilingual demographic dictionary, it is recommended to consult first the last version online, the website being the reference. You can cite the dictionary as follow:

Demopædia, *Multilingual Demographic Dictionary*, unified second edition, English volume, http://en-ii.demopaedia.org, consulted the *consultation_date*.

If you need to cite a specific paragraph of the dictionary, indicate the number of the paragraph (as any page number will differ between the different formats). For example, to cite paragraph 211:

Demopædia, *Multilingual Demographic Dictionary*, unified second edition, English volume, § 211, http://en-ii.demopaedia.org/wiki/21, consulted the 21st of August 2013.

List of abbreviations

adj.	adjective
n.	noun
pl.	plural
syn.	synonym
v.	verb.

Chapter 1
General concepts

101

Demography[1] is the scientific study of human populations primarily with respect to their size, their **structure**[2] and their development; it takes into account the quantitative aspects of their general characteristics. It is the core of the **population sciences**[8★], which in the broadest sense include interdisciplinary fields such as *economic demography* (104-1), *social demography* (104-2), *population genetics* (104-4), *historical demography* (102-1), *mathematical demography* (102-6) as well as contributions from the law, medicine, epidemiology (423-6), sociology, psychology, geography and philosophy. In statistical terminology any collection of distinct elements may be called a **population**[3], a word that is synonymous with **universe**[3]. However, in demographic usage, the term **population**[4] refers to all of the **inhabitants**[5] of a given area, though on occasion it may be used for part of the inhabitants only [e.g., the *school-age population* (cf. 346-7), the *marriageable population* (cf. 514-2)]. Such groups are properly called **sub-populations**[6]. The term population is often used to denote more specifically the **size**[7], i.e., the **total number**[7] of the aggregate referred to in no. 101-4.

1. **Demography**, n. - **demographic**, adj. - **demographer**, n.: a specialist in demography.

4. **Population**, n. - Note that this term may also be used adjectivally as a synonym for demographic, e.g., in population problems, population analysis, population studies.

5. **Inhabitant**, n. - **inhabit**, v.: to occupy as a place of settled residence.

102

Certain sub-disciplines within demography have received special names reflecting their objectives or their methodology. **Historical demography**[1] deals with populations of the past for which written records are available. In the absence of such sources, the study of ancient populations takes the name of **paleo-demography**[2] . In **descriptive demography**[3] the numbers, geographical distribution, structure and change of human populations are described by means of **population statistics**[4] or **demographic statistics**[4] . The treatment of quantitative relations among demographic phenomena in abstraction from their association with other phenomena, is called **theoretical demography**[5] or **pure demography**[5] ; because of its resort to various mathematical methods, in practice it is identified with **mathematical demography**[6]. A piece of research that applies the tools of *demographic analysis* (103-1) to an actual population is often called a **demographic study**[7]. This study can focus on the **current demographic situation**[8★] or **current demographic conditions**[8★], i.e. the population change and its indicators during a short and recent period. All the preceding disciplines place a great emphasis on the numerical aspects of the phenomena, and are sometimes referred to as **formal demography**[9], when they apply only to the size and structure of the population. In contrast the broader term **population studies**[10] also includes the treatment of relations between demographic events and social, economic or other phenomena.

103

Demographic analysis[1] is that branch of formal demography which controls for the effect of population size and structure on **demographic phenomena**[2] by isolating the effects of each demographic variable from the others, the latter of which are called **disturbing phenomena**[3★]. It also studies the relations between demographic variables and how they interact to form population structures. A distinction is made between **cohort analysis**[4] or **generational analysis**[4] which focuses on a well defined *cohort* (cf. 117-2) followed through time, and **cross-sectional analysis**[5] or **period analysis**[5] which focuses on the demographic phenomena that occur during a precise time interval (such as a calendar year) among several cohorts.

4. Cohort analysis is a form of **longitudinal analysis** which deals with aggregates of persons possessing the same characteristic. **Panel analysis** follows the same individuals case by case.

104

The study of relations between demographic phenomena on one hand and economic and social phenomena on the other forms another branch of the subject. The terms **economic demography**[1] and **social demography**[2] have been used by some writers. Demography also deals with the study of **population quality**[3]. This phrase may be used with reference to all sorts of social and personal characteristics. In a slightly different sense the term primarily refers to the distribution and transmission of *hereditary characteristics* (910-3) which are the subject of **population genetics**[4] . **Human ecology**[5] is the study of the distribution and organization of communities with attention to the operation of competitive and cooperative processes and has part of its subject matter in common with demography. Fields of research and methodology are even more intertwined in the case of demography and **human geography**[7⋆]. It is also the case for **biometry**[6] or **biometrics**[6] and **epidemiology**[8⋆] which deal with the application of statistical methods to all forms of biological and medical research.

4. Population genetics is distinct from **human genetics**, which deals with the transmission of inheritable characteristics in man: population genetics includes the study of the distribution and transmission of hereditary traits in plant, animal and human populations.
5. **Ecology**, n. - **ecological**, adj. - **ecologist**, n.: a specialist in ecology.
6. **Biometry**, n. - **biometrics**, n. - **biometric**, adj. - **biometrician**, n.: a specialist in biometry. The terms **biostatistics**, n. - **biostatistical**, adj. - and **biostatistician**, n. are frequently encountered and are synonymous with the terms given for biometry.

105

Finally, there is the study of **population theories**[1]. This term should not be confused with *theoretical demography* (102-5). Population theories are designed to explain or predict the interaction between changes in population and economic, social, psychological or other factors; they include purely conceptual treatments. Population theories occasionally form the basis of **population policy**[2] (cf. §930), which deals with measures designed to influence population changes.

*
**

110

A fundamental **statistical unit**[1] used in demography is the **individual**[2] or **person**[2] . The term **head**[2] has also been employed but this usage is now largely out of date. The **household**[3], a socio-economic unit, consists of individuals who live together. Statistical definitions of the household vary. According to the definition which has been recommended as an international standard a household consists of a group of individuals who share *living quarters* (120-1) and their principal meals. The term **hearth**[3] has been used in the past, showing that in the past members of the household used to share the same fire. Classifications of households also vary between different countries and different enquiries. Most classifications involve the distinction of two types: **private households**[4] and **collective households**[5] . An individual living by himself is considered to be a **one-person household**[6] . A **boarder**[7] is a person other than a domestic servant, who is unrelated to other members of the household and who habitually takes his meals with the household. A **lodger**[8] or **roomer**[8], on the other hand, does not habitually take his meals with the household. These two categories may or may not be included in the household for statistical purposes.

4. Private households are called **family households** when their members are related.

5. Collective households may include **institutional households** composed of persons who reside in specifically designated institutions (e.g. hospitals, prisons, etc.). They may also include unrelated persons who reside in *group quarters* (120-1*) other than institutions. However, recent internationally recommended definitions restrict the terms household and **household population** to private households, and refer otherwise to **persons not living in households**.

111

When a *private household* (110-4) contains several persons they are called **members of the household**[1] and one of them will be the **head of the household**[2]. There is no universally accepted rule as to who is considered the head of the household; in some cases it may be the **principal earner**[3]. On most census schedules there appears a question dealing with the **relationship**[4] (114-3*) of members of the household to its head. This enables a distinction to be made between different groups in **composite households**[5] or **complex households**[5] which contain members of more than one *biological family* or *nuclear family* (113-1). A composite or complex household can be disaggregated into several **nuclei**[6], including a **primary nucleus**[7] and **secondary nuclei**[8]. The nuclei are more commonly called *families* (112-1). The **primary family**[9*] is that of the household head when it is defined, the others are called

secondary families[10⋆]. **Household size**[11] denotes the number of persons included in the household.

2. The term **householder** is sometimes used to refer to the head of the household. The term **headship** is frequently encountered, as in **headship ratio**, the ratio of the number of heads of households by age, sex or other characteristics to the corresponding categories of population.

6. The nucleus is also called a **conjugal family unit**.

112

The **family**[1] (cf. § 113 and § 115) is a different unit which must be carefully distinguished from the *household* (110-3). It is defined primarily by reference to relationships which pertain to or arise from marriage, reproduction or adoption, all of which are regulated by law or custom. The fundamental relationships are those established between a couple by marriage — and that existing between a couple as **parents**[2], i.e., **father**[3] and **mother**[4], and their **children**[5], i.e., **sons**[6] and **daughters**[7] .

2. **Parent**, n. - **parental**, adj. - **parenthood**, n.: the state of being or becoming a parent.

3. **Father**, n. - **paternal**, adj.

4. **Mother**, n. - **maternal**, adj.

6. **Son**, n. - **filial**, adj.

7. **Daughter**, n. - **filial**, adj.

113

Parents and their children are sometimes referred to as the **biological family**[1], or **nuclear family**[1] . **Brothers**[2] and **sisters**[3], without distinction of sex are called **sibs**[4] or **siblings**[4] . Siblings with only one parent in common are called **half-brothers**[5] or **half-sisters**[6]. **Extended families**[7] are larger family units generally composed of combinations of nuclear families. The **vertically extended family**[8⋆] consists of three or more generations living in the same household or very close to each other. The **horizontally extended family**[9⋆] involves siblings with their spouses and their children living together. The vertically extended family can generate special types such as the **stem family**[10⋆] in which only the heir and his family may continue to reside with their parents.

1. The term **simple family** and **elementary family** are frequent synonyms for the terms biological or nuclear family. In a restricted sense, such as in fertility analyses, the term biological family may refer to parents and their own children, excluding adopted children.

7. The terms **composite family** and **joint family** are frequent synonyms for the term extended family. In the most general sense of the term, an extended family may refer to all members of a kinship group.

114

Persons related through common **descent**[1] from the same **progenitor**[2] or **ancestor**[2] are called **blood relatives**[3] or **genetic relatives**[3] . The terms **kin**[3] and in an aggregate sense **kinship group**[3] are also used. The **degree of relationship**[4] is generally computed by reference to the number of steps which are necessary before a common ancestor is reached, but there are many different methods of computation. The fundamental relation in each of these steps is the **filial relation**[5] (cf. 112-6* and 112-7*) of child to parent, which is the reciprocal of **parenthood**[6] (112-2*) i.e. the relation of a couple or of a father or a mother to **offspring**[7] or **progeny**[7] . Blood relationship must be distinguished from **relationship by marriage**[8], which marriage establishes between one spouse and the kin of the other..

1. **Descent**, n. - **descendant**, n.: one linked through descent

2. **Ancestor**, n. - **ancestral**, adj.

3. **Relative**, n. - **related**, adj. - **relationship**, n.: the state of being related. The term relative is used for persons related by blood or marriage.
Kin, n. and adj. - **kinship**, n.: the state of being kin. **Relatives** is sometimes also used for the collection of all kin.

7. **Progeny**, n.: this term may also be used for all of the descendants of a common ancestor.

8. In certain countries persons related by marriage may be referred to as **in-laws**.

115

The **family**[1] (cf. 112-1) as a unit in demographic studies representing all or part of a *household* (110-3) needs to be specifically defined, and definitions for different purposes may vary. A **statistical family**[1] or **census family**[1] generally consists of all members of a household who are related through blood, adoption or marriage. A household may, or may not include a family. A statistical family cannot comprise more than one household, although a household

may include more than one family. In some countries the definition of a statistical family may approximate to the *biological family* (113-1); in others the definition may be based on the **family nucleus**[2] consisting of either a married couple without children, a married couple with one or more never-married children or one parent with one or more never-married children. These may either form the census family itself or be the core of such a family. Married couples living with their children are called **traditional families**[3★]. A **broken family**[4★] is one in which one of the parents has been lost by death, divorce or desertion.}} Families where one parent, separated or widowed, lives with her children may be also be named **single parent families**[4★]. Married couples, widowed or separated people who, at the time of the declaration, have no more children living in the household, may have special name, like in Germany, **residual family ("Restfamilie")**[5★]. When these types of families are living within a household, they are called **family household**[6★].

1. In the United States of America, a **sub-family** is a married couple with or without children, or a parent with one or more never-married children, under 18 years of age, living as members of a household and related to but not including the head of the household and his wife. In Great Britain, the **primary family unit** consists of parents and their children, the parents' sibs and ancestors.

116

In demographic literature, the term **generation**[1] has been given a precise meaning and refers to a group of persons born within a specified period of time, generally taken as a calendar year. The term **cohort**[2] denotes a group of persons who experience a certain event in a specified period of time: thus birth cohort is a synonym for generation in the sense of 116-1, a marriage cohort is a group of persons married within a defined period, etc. In demography as in genealogy the term **generation**[3] may also be used to denote the descendants of a group of persons who are themselves a generation in the sense of 116-1. Thus the children of a group of migrants are often referred to as the **second generation**[9★]. Occasionally we also use the expression *third or fourth generation*. Generations can be qualified according to their current age and, for example, the **young and rising generation**[6★], the **middle-aged generation**[7★] or the **generation in the prime of life**[7★] and the **older generation**[8★] while the age limits are often vague and therefore require clarification. Cohorts of people born during historical periods related to low birth rates (respectively high) can be referred as **low-birth-rate cohorts**[11★] (respectively **high-birth-rate cohorts**[10★]). Occasionally consideration is restricted to lines of descent through one sex only, thus a **male generation**[4] or **paternal generation**[4] are the sons of a generation of males, a **female generation**[5] or **maternal generation**[5] the daughters of a generation of females. These distinctions are normally used when the length of a generation or *mean interval between successive*

generations is calculated. (cf. 713-1).{Note|11|Because of the depletion of births during the first World war, particularly in France, the French term "

2. **Cohort**, n.: the term cohort analysis is used to denote a method of analyzing data, in which the experience of individual cohorts is studied throughout their lives, or other specified periods.
   For purposes of military service the number of men who become liable to conscription in a given year is sometimes called the **class** of that year. In the United States the same term is used for a group of students who complete their studies at a particular school or university in a particular year.

*
**

120

A **dwelling**[1], a **dwelling unit**[1], or **living quarters**[1] are statistical abstractions denoting housing accommodations appropriate for occupation by one household (110-3). The size of a dwelling is measured by the number of its **rooms**[2] or by its **surface area**[3]. The **degree of crowding**[4] is a function of the size of the dwelling and the number of its inhabitants. Crowding standards are applied to distinguish **overcrowded dwellings**[5] and **insufficiently occupied dwellings**[6] . An **unoccupied dwelling**[7] is a dwelling which is not used for residence either permanently or occasionally.

1. A dwelling may consist of a **private house**, or part thereof, or a **flat** or an apartment which forms part of a **block of flats** or **tenement house**. In the United States of America a distinction is made between a **one-household structure** and a **multiple-household structure**, and all persons who are not members of households are regarded as living in **group quarters**. Statistics of houses by the number of **floors** or stories are sometimes provided. It should be noted that in Europe, the **ground floor** is not generally counted, whereas in the United States of America it is called the **first floor**.

2. There is no general rule as to whether or not the **kitchen** is included in the number of rooms.

5. **Overcrowded**, adj. - **overcrowding**, n.

121

The occupier of a dwelling may be its **owner**[1] or a **tenant**[2] who rents it from an owner, who is then called **landlord**[1]. A tenant who rents a dwelling to a sub-tenant is called the **principal tenant**[5*]. A **sub-tenant**[3] is a person who rents from a tenant. A person occupying a dwelling to which he or she has no legal title is called a **squatter**[4] .

2. A dwelling or apartment may be rented with or without furniture in which case it is respectively called a **furnished dwelling** or an **unfurnished dwelling**.

*
**

130

The terms **population statistics**[1] or **demographic statistics**[1] refer to **numerical data**[2] about populations, which are based on **observations**[3] . After such observations have been **collected**[4] on appropriate *forms* (206-1), the documents are **edited**[5] and **verified**[5] to eliminate obvious inconsistencies. The data are **tabulated**[6] into certain **groups**[7] or **classes**[8] with common characteristics. **Data processing**[9] includes all the steps between collecting and **statistical analysis**[10*] (132-1).

1. **Statistics**, n. - **statistical**, adj. - **statistician**, n.: specialist in statistics.

4. **Collect**, v. - **collection**, n.

5. **Edit**, v. - **editing**, n. **Verify**, v. - **verification**, n.

6. **Tabulate**, v. - **tabulation**, n.

9. **Process**, v. - **processing**, n.

131

Data are usually referred to as **raw data**[1] or **crude data**[1] prior to their *processing* and *tabulation* and **basic data**[1] or **primary data**[1] after processing and tabulation. Basic data usually consist of **series**[2] of **absolute numbers**[3] which are put together in the form of **statistical tables**[4] . In such tables the data are generally classified with respect to certain **variables**[5] or **variates**[5] such as age, number of children, etc., or with respect to certain **attributes**[6] or **characteristics**[6] (i.e. sex, marital status, etc.). Where data are classified with respect to several variables or attributes simultaneously the tables are called **cross-tabu-**

lations[7] or **contingency tables**[7] . **Summary tables**[8] give information in less detail than do **individual tables**[9] .

1. When the data relate to *individuals* (110-2) as their unit of analysis they may be referred to as micro-data. Aggregate data or macro-data relate to a unit of analysis other than an individual, for example, a nation or an administrative unit within a nation. Micro-data can be derived from several sources such as a *field survey* (203-5) or a sample of vital registration records. A new source of micro-data is the census public use sample, which is a systematic or a random sample of census returns that is made available for analytical purposes to interested individuals.

7. A table which presents the distribution of a single variable or attribute within a population is generally called a **frequency table**.

132

Using the basic data generally involves two phases. **Analysis**[1] aims at isolating the components of the observed numbers (size, structure, extraneous factors and the phenomenon under investigation); **synthesis**[2] is the process of recombining the disaggregated components in various ways. Either phase involves the **calculation**[3] or **computation**[3] of **indices**[4] which may be denoted by various names (cf. § 133). In contrast to the basic data, these indices are referred to as **results**[6] or **synthetic indices**[5★]. In a more restricted sense an **index**[7] (pl. *indexes* or *indices)* or **index number**[7] is a ratio showing the value of a given quantity relative to a **base**[8], which is usually taken as 100. Some indices are good **indicators**[9] of a complex situation; thus the infant mortality rate is sometimes used as an indicator of the health status of a population.

1. **Analysis**, n. - **analytical**, adj. - **analyze**, v.

3. **Calculate**, b. - **calculation**, n. - **calculator**, n.: a machine with minimal to modest data storage capabilities designed to facilitate a modest amount of arithmetic and statistical calculating.
   Compute, v. - **computation**, n. - **computer**, n.: a machine system designed to effect the transmission, storage and calculations of large data sets; it permits arithmetic and statistical calculations as well as logical processing of data. In a dated sense, the terms calculator and computer were used to designate the person(s) engaged in the computations.

133

One of the first stages of *analysis* (132-1) consists of relating the population totals or number of events to other totals or numbers. The resulting indices are

given various names. A **ratio**[6*], also used for various purposes, is the quotient obtained by dividing quantities of the same kind. When the dividend and divisor belong to the same kind but different categories (men and women, children and women, different age-groups, for example) an other terminology might be used in non English languages, relating both quantities with a **specific ratio**[1] (like a sex ratio). A **proportion**[2] is a ratio which indicates the relation in magnitude of a part to the whole. A **percentage**[3] is a proportion expressed per hundred. A **rate**[4] is a special type of ratio used to indicate the **relative frequency**[5] of the occurrence of a particular event within a population or a subpopulation in a specified period of time, usually one year. Although this usage is recommended, the term has steadily acquired a wider meaning and is often incorrectly used as a synonym for ratio (e.g. labor force participation rate, which is actually a proportion).

2. **Proportion**, n. - **proportional**, adj.

4. Rates are generally given per thousand, and where the term "rate" is used without additional qualification "per thousand" is generally understood. Some rates, however, are given per ten thousand, per one hundred thousand, or per million e.g. *cause-specific death rates* (421-10). On other occasions rates may be given per person or per hundred. The word "rate" is sometimes omitted, thus one may find the expression "a mortality of ten per thousand," but this is not recommended.

6. The *total fertility rate* (cf 639-4) is the sum of **age-specific fertility rates** (cf 633-9) over the age reproductive period and thus lost its inverse temporal dimension (per year). The difference is as important as between length and surface or velocity and acceleration. The term **synthetic index** (cf 132-5) is preferred in some languages to avoid the confusion with the inverse temporal dimension (per year) of a rate: number of demographic events divided by the time exposure or person-years. If used, the term **rate** in the expression ''total fertility rate'' refers to the implicit ''per woman'', which is not enough to qualify as a rate but enough for a dimensionless ratio.

134

The *relative frequency* (133-5) of a non-renewable event is often regarded as an empirical measure of the **probability**[1] of occurrence of that event. This presumes that all the individuals who appear in the denominator have been **exposed to risk**[3] in some way, i.e. there must have been a **chance**[2] or **risk**[2] that the event in question could happen to them. The use of the term "risk" does not imply that the event in question is in any way unwanted; thus the term "risk of marriage" is used. The population is often divided into different sub-groups, in which the risk of the event in question is less variable between individuals than in the population as a whole; the subgroup is more **homogeneous**[4]

with respect to the risk than the relatively **heterogeneous**[5] whole population. Rates calculated for such subgroups are called **specific rates**[6] as opposed to *crude rates* (136-8) which apply to the population as a whole. **General rates**[7] sometimes involve an age restriction, as in the instance of *general fertility rates* (633-7).

1. **Probability**, n. - **probable**, adj.

4. **Homogeneous**, adj. - **homogeneity**, n.

5. **Heterogeneous**, adj. - **heterogeneity**, n.

135

Age-specific rates[1] are computed for single years of age or for age groups (**age-group specific rate**[2★] or **age group-specific rate**[2★]). **Duration-specific rates**[3] take into account the time elapsed since a **baseline event**[4] or **event-origin**[4] such as marriage or a previous birth. **Central rates**[10] are obtained by dividing the number of events during a year, or some other period (often five years) either by the **average population**[6] or **mid-year population**[6] or by the number of **person-years**[7] of exposure to the event in question during that year or period; the number of person-years is the sum, expressed in years, of the exposure time for all individuals in the observed group, over the year or period. The term rate is often used also for another type of measure, obtained by dividing the number of non-renewable events in a year or a period of years by the size of the cohort considered at the beginning of the year or period; this peasure is sometimes called an **attrition probability**[5] or more simply a **probability**[5], and contrasted with the *central rate*, defined earlier. In this paragraph, the word "period" has referred to a length of time. In the expression **period rates**[8], however, the word is used in its chronological meaning and refers to a specific calendar year or group of years; it is opposed to **cohort rate**[9] or **generation rate**[9].

5. The word **quotient**, used in French for this type of rate, has sometimes been used in English.

136

Data are called **provisional**[1] if they are based on incomplete or insufficiently controlled observations. They are replaced by **final**[2] data when the observations are complete. Rates based on such data are called **provisional rates**[3] and **final rates**[4] respectively. Where information becomes available after figures have already been published, **revised rates**[5] may be issued. The expression **corrected rate**[6] usually implies that defective data or inappropriate methods have yielded results which are either misleading or of limited value for the

purpose in hand and that an effort has been made to correct this, e.g., correction for underenumeration, correction for migration, correction for seasonal movement. **Standardized rates**[7] or **adjusted rates**[7] are designed to make it possible to compare different populations with respect to a variable, e.g. fertility or mortality, where the influence of another variable e.g. age, is held constant. The term **corrected rate**[7] has been used by some demographers as a synonym for standardized rate. When the data do not permit direct estimation of the rates (small population, for example), the use of **standard rates**[9*] (cf. 403-6 for example) computed from data of good quality and applied to the real population, provides an indirect estimation of the expected number of events which can be compared with the observed number of events. Unstandardized rates are called **crude rates**[8]. Although they may be used to measure actual trends, false inferences may result from their uncritical use when populations with different *structures* (144-4) are compared.

137

Demographic *indices* (132-7) will in most cases relate to a particular **period of observation**[1] ; this is true in particular of most *rates* (cf. 133-4). An **annual rate**[2] will relate to a period of twelve months. Where observations are collected for a number of years and then averaged, the term **mean annual rate**[3] or **average annual rate**[3] is often used for the result. Where rates are calculated for periods different from a year they are **converted to an annual basis**[4] through multiplication by an appropriate factor. **Instantaneous rates**[5] are sometimes computed; they relate to an infinitesimal period of time, cf. for instance the *instantaneous death rate* (431-4) or the *instantaneous rate of population growth* (702-5).

138

The primary objective of *cohort analysis* (103-4) is the study of the **intensity**[1] and **tempo**[2] or **timing**[2] of demographic phenomena. The intensity of a phenomenon initiated by one *non-renewable event* (201-4) may be measured by either the **ultimate frequency**[3] of occurrence for the given event or by its complement. The ultimate frequency reflects the proportion of persons who would have experienced the event, in the absence of extraneous influences, during the existence of the *cohort* (116-2). The intensity of a phenomenon initiated by a *renewable event* (201-5) such as births or migratory moves, can be measured by the **mean number of events**[4] per person in the cohort, also in the absence of extraneous influences. Tempo or timing may be defined as the distribution over time within the cohort of the demographic events corresponding to the investigated phenomenon. The results of *cross-sectional analysis* or *period analysis* (103-5) are summarized by **period measures**[5] — as opposed to **cohort measures**[6] — which can be constructed in various fashions. A com-

monly used technique consists in attributing the observed rates pertaining to various ages or durations to a **hypothetical cohort**[7] or **synthetic cohort**[7] .

3. This ultimate frequency or its complement has received various names according to the phenomenon studied: *parity progression ratio* (637-7), *frequency of definitive celibacy* (521-1) ... It is best not to use the word proportion as part of these names, and to reserve it for observed proportions. For instance, the frequency of definitive celibacy must be kept distinct from the proportion single at a given age, as recorded in a census.

4. It is not unusual to give the same name to the observed *mean number of events* per person, and to the number that would have been observed in the absence of extraneous influences such as mortality. Distinct phrases should be used; for instance, the *number of children ever born* (637-2) can be distinguished from *cumulative fertility* (636-2).

5. Because cross-sectional analysis and hypothetical cohorts were used before genuine cohort analysis, the names of period indices often seem to imply that they refer to a cohort. This usage may lead to apparent contradictions. For example, parity-specific birth probabilities may exceed one for certain years when many postponed births are made up.

*
**

140

The **average**[1] or **mean**[1] most frequently used in demography is the **arithmetic average**[2] or **arithmetic mean**[2] which consists of the sum of a series of quantities divided by their number.. Where the term average or mean is used without further qualification the arithmetic average is generally meant. The **geometric mean**[3] or **geometric average**[3] is sometimes used when all observed values are positive. It is the Nth root of the product of N values. A **weighted average**[4] or **weighted mean**[4] is obtained when different items are given varying importance by multiplying each item by a particular **weighting factor**[5] or **weight**[5]. The **median**[6] is the value of the element which divides a **set**[7] of observations into two halves. The **mode**[8] is the most common or frequent value in a set of observations.

1. **Average**, n., can be used as an adjective. **Mean**, n., can be used as an adjective.

5. **Weight**, n. - **weigh**, v.

6. **Median**, n., can be used as an adjective.

8. **Mode**, n., **modal**, adj.

141

The **dispersion**[1], **scatter**[1], **variation**[1] or **variability**[1] of a set of observations depends on the **differences**[2] or **deviations**[2] between its elements. Here the most common **measures of dispersion**[3] only are mentioned. The **range**[4] is the difference between the largest and the smallest values of a set of elements. The **interquartile range**[5] is the difference between the first and the third *quartiles* (142-2) and contains half the observations in the set. The **semi-interquartile range**[6], also called the **quartile deviation**[6], which is half the interquartile range, is often taken as a measure of dispersion. The **mean deviation**[7] or **average deviation**[7] is the arithmetic mean (140-2) of the positive values of the deviations of the individual items from the average, the **variance**[8] is the arithmetic mean of the squares of these deviations and the **standard deviation**[9] is the square root of the variance.

9. The common notation for the standard deviation is σ.

142

If a series of observations is arranged in ascending order, values which have below them a certain proportion of the observations are referred to as **quantiles**[1] or **order statistics**[1] . *The median* (140-6) has been previously mentioned. Other important order statistics are the **quartiles**[2], the **deciles**[3], and the **percentiles**[4] or **centiles**[4], which divide the observations into four, ten and a hundred equal parts respectively.

143

A variable is **continuous**[1] in a given interval when it can take on an infinite number of values between any two points contained in the interval. In the opposite case it is said to be **discontinuous**[2]. Where a variable can take only certain isolated values it is called a **discrete**[3] variable.

1. **Continuous**, adj. - **continuity**, n.
2. **Discontinuous**, adj. - **discontinuity**, n.

144

The arrangement of members of a population in various categories or classes of a specified attribute or variable produces a **frequency distribution**[1], often called a **distribution**[1] for short. The ratio of the number in the individual group or cell — the **absolute frequency**[2] or **class frequency**[2] — to the total number in all groups is called the **relative frequency**[3] in that group. In demography the terms **structure**[4] and **composition**[4] are often used interchangeably to describe the distribution of characteristics such as age, sex, marital status, occupation, etc. Structure is sometimes used in a more restricted sense to describe the distribution of the population according to age and sex only.

4. The term *population distribution* usually refers to its spatial distribution. However, when used with the name of the characteristic or attribute that is analyzed, the word distribution is a synonym for structure or composition. Thus one finds references to age distribution, age and sex composition, and age and sex structure.

*
**

150

When the movement of a demographic variable in time is considered, a demographic **time series**[1] is obtained. It is sometimes possible to decompose a time series into a **trend**[2] around which there are **fluctuations**[3], **variations**[3], or **deviations**[3] (141-2). Where such fluctuations tend to recur after certain periods, usually several years, they are called **cyclical fluctuations**[4] or, more generally, **period fluctuations**[4]. In demography the most common period for compiling data is a year, and the fluctuations in sub-periods of a year are called **seasonal fluctuations**[5]. The fluctuations that remain after trend, cyclical, and seasonal fluctuations have been eliminated are called **irregular fluctuations**[6]. They may be due to exceptional factors such as wartime mobilization, or sometimes they are **chance fluctuations**[7] or **random fluctuations**[7].

3. In a general sense the term **variation** may be used to describe change in any value or set of values for a variable.

4. **Periodic**, adj. - **period**, n. - **periodicity**, n. **cyclical**, adj. - **cycle**, n.

7. **Random**, adj.: under the influence of chance (cf. 161-1).

151

It is occasionally desirable to replace a series of figures by another series that shows greater regularity. This process is known as **graduation**[1] or **smoothing**[1], and it generally consists of passing a smooth curve through a number of points in the time series or other series, such as the number of persons distributed by reported age. If a free-hand curve is drawn the process is called **graphic graduation**[2]. When analytical mathematical methods are used, this is called **curve fitting**[3]. A mathematical curve is fitted to the data, possibly by the **method of least squares**[4], which minimizes the sum of the squares of the differences between the original and the graduated series. Other methods include **moving averages**[5] or involve the use of the **calculus of finite differences**[6]. Some of these procedures may be used for **interpolation**[7], the estimation of values of the series at points intermediate between given values, or for **extrapolation**[8], the estimation of values outside of the range for which it was given.

1. **Graduation**, n. - **graduate**, v. - **graduated**, adj. **Smoothing**, n. - **smooth**, v. - **smoothed**, adj.

7. **Interpolation**, n. - **interpolate**, v. - **interpolated**, adj.

8. **Extrapolation**, n. - **extrapolate**, v. - **extrapolated**, adj.

152

It is often necessary to graduate distributions to correct the tendency of people to give their replies in **round numbers**[1]. **Heaping**[2] or **digit preference**[2] is particularly frequent in age distributions and reflects a tendency for people to state their ages in numbers ending with 0, 5, or other preferred digits. **Age heaping**[3] is sometimes measured with **indices of age preference**[4]. Age data must often be corrected for other forms of **age misreporting**[5] or **age reporting bias**[5].

153

The numerical values of demographic functions are generally listed in **tables**[1], such as *life tables* (431-1), *fertility tables* (634-1), or *nuptiality tables* (522-1). A distinction is usually made between **calendar-year tables**[2] or **period tables**[2] which are based upon observations collected during a limited period of time, and **cohort tables**[3] or **generation tables**[3] which deal with the experience of a cohort throughout its lifetime. A **multiple decrement table**[4] illustrates the simultaneous effects of several non-renewable events, such as the effects of first marriage and death on the single population. The most used are **dou-**

ble decrement tables[4]. **Forecast tables**[5⋆] provide numerical values of demographic functions, like *survival functions* (431-6) for example, which can be used directly for *population forecast* (cf. 720-2). When a population is classified in two or more categories according to age, like economic status (women in the labor force or out of the labor force, for example), marital statuses, regions etc. and when continuous flows between categories are possible over time even if the individual state can usually be measured only at discrete times (waves of a longitudinal study, queries to population registers etc.), **increment-decrement methods**[6⋆] or **multi-state methods**[6⋆] are more and more developed and used.

154

Where insufficient data exist to establish the value of a given variable accurately, attempts may be made to **estimate**[1] this value. The process is called **estimation**[2] and the resulting value an **estimate**[3]. Where data are practically non-existent a **conjecture**[4] may sometimes be made to establish the variable's **order of magnitude**[5].

155

Methods of **graphic representation**[1] or **diagrammatic representation**[1] may be used to illustrate an argument. The data are represented in a **figure**[2], **graph**[2], **statistical chart**[3] or **map**[3]. A schematic representation of the relationships between variables is often called a **diagram**[4], for example the *Lexis Diagram* (cf. 437). A graph in which one co-ordinate axis is graduated logarithmically and the other arithmetically is called a **semi-logarithmic graph**[5], though such graphs are often inaccurately referred to as **logarithmic graphs**[5]. A **true logarithmic graph**[6] has both axes graduated logarithmically and is sometimes referred to as a **double logarithmic graph**[6]. A frequency distribution may be represented graphically by **frequency polygons**[7] obtained by joining points representing class frequencies with straight lines, by a **histogram**[8], where class frequencies are represented by the area of a rectangle with the class interval as its base, by **bar charts**[9], in which the class frequencies are proportionate to the length of a bar or by an **ogive**[10] representing the cumulative frequency distribution.

*
**

160

Sampling procedures[1] are used to obtain information about a population from part of the population only, instead of having to study *every person* (110-2). The part of the population studied is called a **sample**[2]. A population is a collection of **elements**[3] which are the object of the investigation. A **sampling unit**[4] may be an element or a group of elements of the population and is used for selecting samples. In demographic samples the elements are usually *individuals* (110-2), *families* (115-1), or *households* (110-3) and sampling units may be individuals, households, blocks of houses, municipalities or areas. The sample will consist of a number of sampling units selected in accordance with a **sampling scheme**[5] or **sampling plan**[5].

161

A sample whose elements are selected by a chance process is referred to as a **random sample**[1] or **probability sample**[1]. If a complete list of sampling units is available, this is called a **sampling frame**[3]. In **simple random sampling**[4] a proportion of sampling units is selected from the frame at **random**[2]. This proportion is called the **sampling fraction**[5] or **sampling ratio**[5]. **Systematic samples**[6] are **drawn systematically**[7] from a frame in which the sampling units are consecutively numbered. The sample is selected by taking the n^{th}, $(n + s)^{th}$, $(n + 2s)^{th}$, ..., etc. unit, where n is not larger than s and is selected at random. In **cluster sampling**[8] population elements are not drawn individually, but in groups which are called **clusters**[9] .

2. **Random**, adj. - **randomness**, n. - **randomize**, v,

162

In **stratified random sampling**[1] the population is divided into a number of **strata**[2] which are in some sense more *homogeneous* (134-4) than the population as a whole with respect to the characteristics studied, and a simple random sample (161-4) is drawn in each stratum. Variable *sampling fractions* (161-5) may be used in the different strata. **Multi-stage sampling**[3] is a method where the selection of the sample is carried out in several stages. A sample of **primary units**[4] is first selected and each of these units is then regarded as a population (101-3) from which a **sub-sample**[5] of **secondary units**[6] is selected, and the process may be repeated. When there is no good sampling frame, a sample of areas delimited on a map may be selected: this procedure is called **area sampling**[7].

1. **Stratify**, v,: divide into strata (plural of stratum) - **stratification**, n.

163

In *probability sampling* (161-1), chance methods are used to obtain a **representative sample**[1] i.e., a sample which is a faithful reflection of the population with respect to all the characteristics under investigation except for random fluctuation. In **quota sampling**[2], on the other hand, the sample is purposely selected so as to reflect the population in certain characteristics, and each *interviewer* (204-2) is given a **quota**[3] of different types of sampling units which are to be included in his sample. Within the limits of the quota the interviewer is free to select the sampling units.

164

A **population parameter**[1] is a numerical value that characterizes a population. **Statistical estimation**[2] is the name given to the procedure by which the values of such parameters are estimated from the sample. Such estimates are subject to **sampling errors**[3] and a measure of the magnitude of the sampling error is generally given by the **standard error**[4]. Sometimes a **confidence interval**[5] is associated with an estimate to show the limits within which the estimated quantity may be expected to lie with a pre-determined probability. A difference between two values is referred to as a **significant difference**[6] when the probability that it is due to chance is less than a given value which is called the **level of significance**[7]. Thus a difference would be significant at the 5 percent level if the probability that it could have arisen by chance is less than 0.05. In addition to sampling errors, **observation errors**[8] or **response errors**[8] also affect estimates. These errors usually include **interviewer biases**[9] which are systematic errors introduced by the interviewers when the basic data are collected.

Chapter 2
The treatment and processing of population statistics

201

Current population statistics[1] may be distinguished from **statistics of population change**[2]. They deal with the static aspects of the subject and give an instantaneous picture of the population at a given moment of time: the *statistical units* (110-1) used are generally *households* (110-3), *individuals* (110-2), etc. Statistics of population change are concerned with the continuous processes of change which affect a population, and deal largely with **vital events**[3],such as births, marriages, deaths, and with migration (801-1). **Nonrenewable events**[4] (e.g. deaths) may be distinguished from **renewable events**[5] such as pregnancies, births or migratory moves; renewable events are assigned an **order**[6] based on the number of previous events of the same nature for the same person. Statistics of population change are a principal source for the study of **population processes**[7], sometimes called **population dynamics**[7]. *Censuses* (cf. *202*) are the main source of information on the **state of the population**[8] . *Vital Statistics* (212-1) are the primary source of data for the study of **population growth**[9] (cf. *701*). Occasionally they deal with **natural increase**[10] only, i.e. they do not take into account movement between the population studied and other populations, but logically *migration statistics* (812-1) are a part of the statistics of population change. The term **population movement**[11⋆] is used to refer to the geographical movement of a population.

202

Population censuses[1] are taken to obtain information about the *state of the population* (201-8) at a given time. Most commonly all inhabitants of a particular country are counted simultaneously:. the census is then called a **general census**[2] Occasionally, however, only a section of the population is counted,

e.g. the inhabitants of a given area, in which case the census is called a **partial census**[3]. The term "Census", however, denotes that an attempt was made to enumerate every member of the population concerned and to achieve **complete coverage**[4] of the population. A **micro census**[5] is limited to a sample of the population, usually large in size, and belongs in the category of **sample surveys**[6]. Censuses or surveys are sometimes preceded by **pre-tests**[7] or **pilot surveys**[7]. To verify the accuracy and completeness of enumeration (230-2), a **post-enumeration check**[8*] is performed using a **post-enumeration survey**[9].

1. **Census**, n. - **censal**, adj. The **intercensal period** is the time elapsing between two successive censuses.
   Modern censuses correspond to what used to be called **head counts**. **Population counts** included any estimation procedure, however imprecise, based for example on the counting of *baptisms* (214-2) registered for a number of years, or of *hearths* (110-3) or even *parishes* (214-1).

203

An **enumeration**[1] is any operation which is designed to yield a population total. It differs from a simple **count**[2] in that a **list**[3] is generally prepared. An **inquiry**[4] or **survey**[4] on the other hand, is generally an operation which is designed to furnish information on a special subject (e.g. the labor force) and which has limited aims. A **field inquiry**[5] or **field survey**[5] is an inquiry in which information is obtained by **personal interview**[6]. In **postal inquiries**[7] or **mailback surveys**[7] *questionnaires* (206-3) are sent out by post with a request to return them completed. A **retrospective survey**[8] focuses on past demographic events; in a **multiround survey**[9] those events that occurred since the previous survey are noted from the second round on. This type of survey should not be confused with a **call back**[10], a term used to describe the instance where the interviewer is obliged to make several attempts to reach a respondent. In censuses, information may be obtained by either **direct interview**[11], or by **self-enumeration**[12]. In the first method, also called **canvasser method**[11] the enumerator (204-2) notes the information provided by or about the respondents; in the second method, also called **householder method**[12], the questionnaire is completed by the *respondents* (204-1) themselves. Self-enumeration may take the form of a **mail census**[13].

1. **Enumeration**, n. - **enumerate**, v.
2. **Count**, n. - **count**, v.
3. **List**, n. - **list**, v.
4. **Survey**, n. - **survey**, v.

204

Persons who answer questions in a *census* (202-1) or a *survey* (203-4) are called **respondents**[1] or **informants**[1]. Persons who *collect* (130-4) the information are called **interviewers**[2], **field workers**[2] or **enumerators**[2], the last term being usually reserved for persons collecting information in a census. Enumerators usually work under the control of **supervisors**[3] or **inspectors**[3]. *General censuses* (202-2) are usually taken by the **statistical departments**[4] of individual countries. in England and Wales it is the [*NoteTerm‼General Register Office*], in Scotland the [*NoteTerm‼General Registry Office*]; both are headed by a [*NoteTerm‼Registrar General*].}

1. The term **interviewee** is sometimes used.

4. In the United States of America the office responsible for the census is called the **Bureau of the Census**;

205

Censuses are usually **compulsory**[1], i.e. *respondents* (204-1) are under a legal obligation to provide the required information; in this respect they are different from **voluntary inquiries**[2] (cf. 203-4), where the problem of **non-response**[3] may become important This is particularly the case in *postal inquiries* (203-7), where it is often necessary to **follow-up**[4] the first questionnaire by a second, or sometimes by a visit. **Non-respondents**[5] are frequently divided into those who **refuse**[6], i.e. who are unwilling to cooperate in the inquiry, and those who could not be found by the *interviewer* (204-2). The latter are counted as **absentees**[7] or **no contacts**[7]. The **proportion of refusals**[8] in response to a given question is an useful index of the reactions of the respondents. The replacement of an unusable sample unit with another unit is referred to as **substitution**[9]. j

6. **Refuse**, v. - **refusal**, n.

7. **Absentee**, n. - **absent**, v. - **absence**, n.

206

The **forms**[1] used for the collection of information have a number of different names. The term **schedule**[2] is frequently used, especially the term **census schedule**[2]. Most of the *forms* are **questionnaires**[3], particularly when they are designed for **completion**[4] by the respondents themselves. At other times, officials obtain **statements**[5], or **particulars**[6] which they **extract**[7] from documents primarily used for non-statistical purposes. The questions are usually of

two basic types: **closed ended questions**[8] in which a respondent replies by selecting one out of a limited number of responses listed on the questionnaire or **open ended questions**[9] to which the respondent may give a spontaneous answer.

207

A census *schedule* (206-2) may be an **individual schedule**[1] containing information relating only to a single individual, a **household schedule**[2] containing information relating to each of the members of the *household* (110-3), or a **collective schedule**[3], **nominal list**[3] or **enumerator's schedule**[3] on which the *enumerator* (204-2) enters successively data for all the persons he enumerates. There may be special schedules for the *institutional population* (310-7), which are called **institutional schedules**[4].

*
**

210

Census operations[1] usually begin with the delimitation of **census areas**[2] and **enumeration districts**[3]. Enumeration districts in towns and cities may consist of one or several **blocks**[4], a block being defined as a group of buildings around which it is possible to walk without crossing a street, or which are bounded by some obstacle, such as a railway line or a river. Most of the larger cities of several countries have been subdivided into statistical areas called **census tracts**[5] which may contain one or several enumeration districts.

211

Vital events[1] may be defined as births, deaths, stillbirths, foetal deaths, marriages, adoptions, legitimations, recognitions, annulments, divorces and separations; in short all the events which have to do with an individual's entrance into or departure from life together with changes in **civil status**[2]. Records of these events are generally called **vital records**[3], or **registration records**[3]. For legal reasons vital events have, in many countries, long been the object of **vital registration**[4] or **civil registration**[4]. **Birth registration**[5], **marriage registration**[7] and **death registration**[9] use special forms as **birth records**[6], **marriage records**[8] and **death records**[10]; these are the most common types of registration documents. The person responsible for maintaining these registers is called the **registrar**[11].

4. **Register**, n. - **register**, v. - **registration**, n.
   Civil registration systems are the descendents of *parish registers* (214-1) kept by the Church. A register was originally a bound book in which one or several lines were devoted to an event Today individual records often take the form of **certificates**. They are separate documents for each recorded vital event.

212

Vital statistics[1] or **registration statistics**[1] are obtained by processing the registration record or a **statistical report**[2] established at the time of registration. **Tabulations by place of residence**[3] of the mother or of the decedent are often regarded as more useful for demographic purposes than tabulations by place of occurrence.

3. In many countries, the **time of registration** of a birth may be markedly later than the **time of occurrence**.

213

The *registers* mentioned in a preceding paragraph (cf. 211-4) are distinct from the **population registers**[1] of those countries which possess a system of **continuous registration**[2]. In these registers every member of the population or every family may be represented by a **card**[3], and the register is **maintained**[4] or **updated**[4] through information which reaches it through the local registration offices and through registration of any **changes of residence**[5] (cf. 310-6). It is usually **matched**[6] with the census results and brought up to date at regular intervals by special **checks**[7].

3. A card file is a collection of cards. In general, a **file** is a collection of records arranged in convenient order.

214

Historical demography (102-1) often uses documents which precede or anticipate the development of *civil registration* (211-4) and *nominal lists* (207-3) from censuses. **Parish registers**[1] or **parochial registers**[1] contain information on the religious equivalents of vital events such as **baptisms**[2], *religious marriages* (503-2), and **burials**[3]. For **chrisoms**[5], **privately baptized infants**[4*] who die at home prior to a formal church ceremony, only the burial record is available. Nominal lists contain information either on a portion of the population or more rarely on the whole population. They include the a **status ani-**

marum[6] which are nominal lists of all parishioners, **lists of communicants**[7] and **confirmation lists**[8], as well as administrative and fiscal documents such as **hearth tax lists**[9], **taxation rolls**[10] and **military conscription lists**[11].

215

Data are extracted from parish registers with the help of several types of **forms**[1] or **slips**[1] . These include the **baptism slip**[2], **marriage slip**[3] and **burial slip**[4]. The names of the **subjects of record**[5] (i.e. the persons being baptized, buried or getting married) are inscribed on these slips, and information is recorded about the parents and other persons such as the **godfather**[6], the **godmother**[7] and the **witnesses**[8]. Other **anonymous statements**[9⋆], **nominal rolls**[10⋆] and **transcription forms**[11] are also used for summary extraction of the data, either with or without the names of the subjects. *Family re-constitution* (638-2) makes use of *family reconstitution forms* (638-1). When **genealogies**[12] reconstitute the descendance of an individual or a family, they are under certain conditions a valuable source of information on the demographic characteristics of the upper classes.

*
**

220

The process of obtaining statistical data from documents not primarily designed for this purpose is called **extraction**[1]. In general, whatever its source, statistical information is subjected to **processing**[2] which may be **manual**[3], **mechanical**[4], **electronic**[5] or a combination of these modes. Manual processing involves no equipment more complex than the **desk calculator**[6]. Mechanical processing uses *tabulating machines* (224-2) or *punch card* (224-3) machines; electronic processing uses *computers* (132-2*). Regardless of the mode of processing, certain **types of operations**[7] must be performed including **editing**[8] of the data, *tabulation* (130-6*) and *calculation* (132-2) and **table preparation**[9]. These operations are made more or less complex depending on the mode of processing which is selected.

1. **Extraction**, n. - **extract**, v.
2. **Processing**, n. - **process**, v. The terms to process information, data processing, are used widely.
8. **Editing**, n. - **edit**, v. In English, the term refers to an operation performed either on the basic document or on the machine - readable

data, to correct inconsistencies or eliminate omissions. In French, edition refers to the stage of table preparation.

221

Editing the data usually requires the prior **coding**[1] of a certain number of entries on the **basic document**[2]. The **coding scheme**[3] establishes a correspondence between an entry and its translation into numeric or alphabetic codes. The code book collects and describes the coding schemes used with a particular set of basic documents. A coding scheme is usually designed to facilitate later groupings of the data. In contrast, a **classification**[4] is a mere list of individual codes where each **heading**[5] is given one or several numbers. After the data have been coded, they constitute a *file* (213-3*) which can be converted to machine readable form. The second stage in the editing consists in the **cleaning**[6] of the file, through elimination of errors by **validity checks**[7] and **consistency checks**[7]; these can be internal checks within each *statistical unit* (cf. 110-1) or may result from the comparison of different units. After errors have been identified, they may be corrected in the original document or the file by some automatic procedure.

1. **Code**, n. - **code**, v. - **coding**, n.

222

The edited data are rarely used directly; they are subjected to *grouping* (130-7) and *tabulation* (130-6*), and this normally leads to a presentation in the form of *statistical tables* (131-4). These may be the outcome of **sorting**[1], either manual or mechanical, resulting in the reorganization of the elements in a set according to predetermined rules, or more simply of a systematic count of the elements presenting a selected characteristic. The choice of elements or of characteristics may be based on the values of one or several quantitative attributes, or on the **modalities**[2] of one or several qualitative attributes. Few studies can do without computation, simple or complex, isolated or repetitive, and the *computer* (225-2) now allows calculation that would have been too lengthy by hand. These capabilities have led to the development of techniques of **data analysis**[3]. Deterministic and stochastic *models* (cf. *730*) often require considerable computations, and so do *simulations* (730-6).

1. **Sorting**, n. - **sort**, v.

223

The stage of *table preparation* (220-9) aims at making the results of processing conveniently available in the form of **listings**[1], *numerical tables* (131-4) or *charts* (155-2), all of which are commonly used in **descriptive statistics**[2]. The use of **computer graphing**[3] and **computer cartography**[3] permits the mass production of graphical presentation at a preliminary stage.

224

Purely *mechanical processing* (220-4) did not involve the use of **electronic equipment**[1] which has come to replace the earlier **tabulating machines**[2] or **unit record machines**[2] and is much more versatile. In most instances the information is *coded* (221-1*) first, and then transcribed onto **punch cards**[3] by using a **keypunch**[4]. A **card verifier**[5] is a device used to check the accuracy of the punching. These two types of unit record machines remain in common use since the punch cards are still a frequent way of entering data into the computer. The use of other types of unit record equipment such as the **card sorter**[6] and the **tabulator**[7] has declined. Increasingly, the data are entered directly on *magnetic tapes* (cf. 226-4) or *disks* (cf. 226-5) without resorting to *punch cards*.

3. **Punch cards** or **punched cards**.
4. **Keypunch** or **card punch**.

225

Demographic research depends heavily on **electronic data processing**[1] using the **computer**[2]. The term **hardware**[3] refers to the physical component, whereas **software**[4] supplies the **user**[5] with ways to have access to the computer. **Computer specialists**[6] include **programmers**[7] who write **programs**[8] conceived by **system analysts**[9].

226

The *hardware* (225-3) components of a *computer* (225-2) include one or several **central processing units**[1], a **central memory**[2], one or more **mass storage devices**[3] which use **magnetic tapes**[4] or **disks**[5] and a set of **input-output devices**[6]. The *software* (225-4) components include the **operating system**[7], which has the task of efficiently managing the available **facilities**[8] for the *users* (225-5) running the **users' programs**[9] and the **processing programs**[10] which are preestablished *programs* (225-8) designed for the solution of standard problems.

227

A *user* (225-5) can process his problem by writing a *program* (225-8) in a general **programming language**[1] such as Fortran, Cobol, Basic or Algol, or a specific language, designed to use the *processing programs* (226-9) stored in the *central memory* (226-2) of the computer such as a **data base management system**[2] used to create and maintain a **data bank**[2], a **survey processing program**[3] or a **statistical package**[4]. The devices which are used to enter and receive information from the computer can differ according to the mode of processing. In **batch processing**[7], the normal input and output units are the **card reader**[5] and the **line printer**[6]. A **console**[8] is the normal input and output unit for processing in a **timesharing mode**[9]. In either instance the entry units may be spatially separated from the computer and processing under these conditions is accomplished by **remote terminal**[10].

1. In addition to *programming languages* as defined above, other types of languages can be used to manipulate the *operating system*; these are usually referred to as **job control language**.

228

Any information processed in a *computer* (225-2) undergoes three main phases. First, **data entry**[1] or **input**[1] which may be done by using *punched cards* (224-3*) or by using an **on line**[2] device such as a *keyboard console* (227-8). Data which is already stored in the computer may be accessed from either *central memory* (226-2) or from one of the *mass storage devices* (226-3) and used as *input data*. This is part of the **data collection**[3*] which goes from *extraction* (220-1) to the transcription on an electronic medium, through *validity checks* (221-7) and *consistency checks* (221-18 that can be made during data entry when working on line. The second phase, *processing* (220-2), is divided into two main types: **numerical processing**[4] and **non-numerical processing**[5]. Statistical or arithmetic computations are normally the operations contained in the former while data manipulation operations are the focus in the latter. In a third phase, occasionally referred to as output phase, the **processed results**[6] or **output**[6] may be printed out on the *line printer* (227-6) or saved as a file on a *mass storage device* (226-3) for further processing. Results may also be diverted to a **plotter**[7] to obtain processed results in the form of a graph or a figure.

*
**

230

The **accuracy**[1] of population statistics will depend among other factors on the **completeness**[2] of the count of individuals, groups or events on which they are based. **Omissions**[3] and **undercount**[3] tend to generate **underestimation**[4] while **multiple counting**[5] leads to **over-estimation**[6]. Additional sources of error include **misreporting**[7] of a characteristic such as age and **classification errors**[8]. Such inaccuracies are sometimes detected by **post-enumeration tests**[9] or **quality checks**[10]. Occasionally certain questions are not answered or insufficiently answered and this may lead to considerable inaccuracy, the incidence of which is indicated by the frequency of the class designated as **non-response**[11], **not stated**[11], **unknown**[11], **undeclared**[11], **not specified**[11], **poorly defined**[11] or **misspecified**[11] etc...

1. **Accuracy**, n. - **accurate**, adj.
2. **Completeness**, n. - **complete**, adj. The terms "complete" and "completeness" are used here to express the absence of omissions. The same terms may also be used to refer to coverage, as in 202-4.
3. The omission of some events from vital registration is called **underregistration**, and from a census or survey, **underenumeration**.
5. The expression **double counts** is often used in this sense.

Chapter 3
Distribution and classification of the population

301

Population statistics are generally presented in terms of the **geographical distribution of the population**[1] or the **spatial distribution of the population**[1], and also by *structure* (144-4). Each population lives in a given **area**[2] or **territory**[2] (305-6), and the study of the **geographical distribution**[3] or **spatial distribution**[3] deals with the way in which they are distributed over the territory.

2. **Territory**, n. - **territorial**, adj.

302

The territory (301-2) in which a population lives will generally be divided into **sub-areas**[1]. For administrative purposes it may be divided into **administrative areas**[2], **administrative units**[2] or **administrative districts**[2] sometimes known as **legal divisions**[2] or **political divisions**[2]. Geographers on the other hand, may divide the area into **regions**[3] or **zones**[4] which may or may not correspond to administrative units. The term "region" or "zone" may be used in a number of different senses and the areas referred to may be of very different sizes. Thus one speaks of the polar regions, of climatic zones or of metropolitan regions. The terms **natural region**[5] and **economic region**[6] are used by geographers. The term **natural area**[7] is used in *human ecology* (104-5) to define an area occupied by a population with distinct characteristics.

303

Administrative units differ from country to country and over time in the same country, so that the same word may cover different situations. Minor civil divisions include **townships**[1] and **parishes**[1]; major civil divisions receive names such as **states**[2] or **provinces**[2], and intermediary units are often called **counties**[5] and **districts**[6]. In Canada, for example the main administrative divisions, by increasing order of size, are the **township**[8], the **county**[9] and the **province**[10]. As an other example, the main administrative division in France are now the **regions**[2] which correspond to the province and the **departements**[3⋆] which correspond to the **cantons**[4⋆] in Switzerland where **districts**[7⋆] and **circles**[11⋆] are minor civil divisions. In the United States, parishes are equivalent to counties.

1. **Villages**, **boroughs** and **cities** are other names sometimes given to the smaller administrative units. **Municipality** is a general descriptive term for minor civil division.

304

A population may be **settled**[1], **sedentary**[1], or **nomadic**[2], i.e., migrating back and forth within a given area and without fixed abode. Nomads who are in the process of becoming settled are called **semi-nomadic**[3]. Occasionally primitive peoples may have a territory allocated exclusively to themselves called a **native reserve**[4] or **reservation**[4].

2. **Nomadic**, adj.- **nomad**, n.

305

A **country**[1] is usually the territory (301-2) of a **people**[2] (cf. 333-3) or a **nation**[2]. Persons belonging to a nation share, in general, a common culture. A **state**[3] is a political body. The term may be used in two different senses: most commonly a state is a body possessing full sovereignty in its territory and over its inhabitants. However, a number of **federations**[4] of **federal states**[4] are divided into smaller units which are also called **states**[5] and whose sovereignty is not absolute (e.g. in the United States of America and Australia). The term **territory**[6] (301-2) is generally used for a geographical area, but it is occasionally used to denote a political unit which has been settled relatively recently. A distinction is sometimes made between **self-governing territories**[7] and **non-self-governing territories**[8].

2. **Nation**, n. - **national**, adj.

306

Within a *territory* (301-2), certain terms are used to describe different kinds of **conglomerations**[1] or **aggregations**[1] of population, sometimes known as **population aggregates**[1], **population clusters**[1] or more generally as **localities**[1]. In rural areas, the smallest unit is referred to as a **hamlet**[2], which generally consists of a very small collection of houses. A slightly larger conglomeration is the **village**[3] which is generally a small community and which may have a mainly agricultural population. A **town**[4] or **city**[4] is a larger conglomeration in which there are in general few people engaged in agriculture, but the point at which the transition from village to town or city occurs is difficult to specify and varies in different countries. The seat of government of a *territory* (in the sense of 305-1), is called its **capital**[5]. In a county, the place where the local government is situated is called the **county town**[6] or **county seat**[6]. Towns and cities may be further divided into **districts**[7] or **quarters**[7] and for electoral purposes into **wards**[7].

1. The term **agglomeration** is also used in this sense. See however 307-1.

4. A very large town or city is sometimes called a **metropolis**, n. - **metropolitan**, adj.
   Town, n. - **urban**, adj.

307

Continuously built-up areas may arise through the coalescence of neighboring localities which, while retaining their administrative independence, may constitute one **agglomeration**[1], containing a **central city**[2] and **suburbs**[3] with specialized functions. The terms **conurbation**[4] or **metropolitan area**[4] are generally employed to designate a number of different agglomerations which, though geographically contiguous, have retained their own individuality. In many cases, however, the term conurbation is used as a synonym for agglomeration. The fusion of conurbations and large cities leads to the **megalopolis**[5] or **metropolitan belt**[5] which may extend over a large area. **Metropolitan regions**[6*] may refer to agglomerations which include the commuter belt.

2. Another term used as synonym is **urban nucleus**.

3. Other terms used as frequent synonyms are **satellite communities** and **suburban zone**.
   Suburb, n. - **suburban**, adj. - **suburbanization**, n.: the process of rapid population growth in the suburban zones adjacent to a large city. Densely populated areas contiguous to large cities are occasionally referred to as the **urban fringe**, and the zone marking the transition

between urban and rural settlement, as the **rural-urban fringe** or **exurbia**.

4. Urban populations are often regrouped in **statistical areas** such as the **standard metropolitan statistical area** (United States), the **densely inhabited district** (Japan) or the **conurbation** (England).

*
**

310

In census practice a distinction is made between the **resident population**[1] or **de jure population**[1] of a given area, which consists of the people who habitually live in that area, and the **actual population**[2], or **de facto population**[2], which is made up of the persons in the area on census day. In the resident population, **temporary absentees**[4] are included with those **permanent residents**[3] who are present in the area on census day; the actual population consists of residents together with **visitors**[5] or **transients**[5]. The two methods of enumeration will give different results even for the country as a whole. The place where a person lives is called the **place of residence**[6]. For administrative reasons, certain persons who live together in large communities (i.e. boarding schools, military persons in barracks, prisoners, etc. (cf. 110-5*) are often separately enumerated. These persons form the **institutional population**[7]. Special rules are used to enumerate **vagrants**[8] or **persons of no fixed abode**[8].

6. The term **domicile** is a technical legal term for **legal residence** and denotes the place where a person is legally deemed to **reside**. This may differ from his actual **residence**. In the United States of America, the *de jure* population is the population of **usual residence**.

7. In the United States of America the term **institutional inmates** is reserved for persons living under care or custody in correctional institutions, hospitals for mental disease and tuberculosis, homes for the aged, handicapped and dependent or neglected persons; **other residents of group quarters** include such persons as students in college dormitories, or soldiers in military barracks.

311

In many countries a **rural area**[1] is defined as an administrative district in which the population size is below a certain level (often taken as 2,000). Other areas are called **urban areas**[2]. The **rural population**[3] is the population liv-

ing in rural areas, the **urban population**[4] that living in urban areas. Criteria for allocating the population of particular areas to the rural or urban sector respectively differ in different countries. Certain definitions of rural and urban population may lead to distinguish an intermediate category referred to as the **semi-urban population**[5].

3. **Rural**, adj. - **realization**, n.: growth in the proportion of persons living in rural areas.
   Rural population should not be confused with *agricultural population* or *farm population* (359-2).
4. **Urban**, adj. - **urbanization**, n.: growth in the proportion of persons living in urban areas.

312

The **density of population**[1] or **population density**[1] is an index showing the relation between a population and the area in which it lives. The simplest **density index**[2] is obtained by dividing the total population by the area of the territory and is generally expressed as the number of persons per acre, square kilometre or square mile. The **scatter of the population**[3] depends on the type of **settlement**[4], **grouped settlement**[5] or **dispersed settlement**[6]. Some writers have computed the **population center**[7] of a given area by the methods used to find the center of gravity in applied mathematics; each individual in the population is given an equal weight.

1. **Density**, n. - **dense**, adj.

313

Where the pattern of settlement of different populations is to be compared and other factors besides surface area are taken into account, **comparative density indices**[1] are sometimes computed. There are various such indices, among which we may mention the **density of population per unit of cultivable area**[2] and the **density of the agricultural population per unit of cultivable area**[3]. Occasionally these indices are based on the **cultivated area**[4] rather than the **cultivable area**[5]. The density may also be expressed as a relation between population and total economic resources; the **maximum potential density**[6] or **population carrying capacity**[6], showing the relationship between resources and the maximum population that can be supported with these resources, may be considered. The concept of **optimum density**[7], i.e., the density which will give the maximum real income per head with given resources, is used in population theory.

*
**

320

The **sex structure**[1] or **sex distribution**[1] of the *population* is measured by the ratio of the total number of one **sex**[2] to the total number of the population or, more frequently, to the total number of the other sex. By convention, the male sex is usually considered in the numerator and we speak of the **masculinity**[3] of the population. The **masculinity proportion**[4] is the proportion of males in the total population. The **sex ratio**[5] is the ratio of the number of males to the number of females; it is usually expressed as an *index value* (132-7) i.e. the number of males per 100 females.

3. Occasionally, the numerator of this ratio relates to the female population, and the feminity of the population is measured.

321

The terms **males**[1] and **females**[2] are commonly used in demography in place of **men**[1] and **women**[2] to refer to persons of each sex at all ages including *children* (323-3). In a similar fashion the terms **male child**[3] and **female child**[4] replace **boy**[3] and **girl**[4]. The term man is also used in the general sense of **human being**[5⋆].

322

Age[1] is another fundamental characteristic of population structure. Generally it is expressed in years, or years and months; in the case of very small children, it may be given in months and days, or in years and decimal fractions of years. Demographers usually truncate the age to the number of **complete years**[2] lived, and this is called **age at last birthday**[3]. Occasionally demographic statistics refer to the **age reached during the year**[4]. Where the fraction of the last complete year lived is counted as a whole year, as in some actuarial applications, we speak of **age at next birthday**[5]. **Stated age**[6] or **reported age**[6], in a census or vital registration, is often rounded upward to the next integer especially when the next birthday is near. The term **exact age**[7] is used, particularly in life table calculations, to denote the time when an individual reaches his birthday. Census questions include either the date of birth, age at last birthday, or even simply age without further precision. When the knowledge of ages is not widespread, a **historical calendar**[8] may be used to estimate ages. This is a list of events with a known date that occurred during the lifetime of the respondents.

2. Thus, *age groups* (325-2) are usually expressed in completed years and the group aged 6-13 years includes the individuals whose *exact ages* (322-7) are comprised between 6 and 14 years.

323

In demography, certain terms which have been taken from everyday language are used to denote different **stages of life**[1] or an approximate range of years. At the beginning of life comes **childhood**[2]. In general a **child**[3] is a person who has not yet attained puberty (620-2). In the very early days of life, the child is called **newborn**[4]. A **child at the breast**[5★] is a child who has not yet been weaned from its mother. The term **infant**[6] may be used to denote a child who has not reached its first birthday, though in colloquial language it may be applied to slightly older children. Children who have not yet reached the compulsory school age are called **pre-school children**[7], a **school-age child**[8] is a child at an age at which it is customary to attend school.

6. **Infant**, n. - **infancy**, n.: the period of being an infant - **infantile**, adj.

324

Childhood is followed by **adolescence**[1] or **youth**[1] which starts at *puberty* < 620-2). The terms **adolescents**[2] or **young persons**[3] are employed for men and women between childhood and **adult age**[4]. Those who have reached **maturity**[4] are called **adults**[5]. **Old age**[6] is frequently used to define the period of life during which most persons are retired. Persons above that **retirement age**[7★] are called **old people**[8], **the aged**[8] or **the elderly**[8].

3. The term **youth** is also employed collectively. When used in the singular, it more frequently refers to a male. In the United States of America, **teenager** refers to persons in their teens, i.e., between 13 and 19 years.

4. **Maturity**, n. - **mature**, adj. - **maturation**, n.: the process of growing to maturity.

325

The age distribution of a population is either given by **individual years of age**[1] or by **age groups**[2], which may be **five-year age groups**[3], also called **quinquennial age groups**[3], or **broad age groups**[4], such as 0-19 years, 20-59 years, 60 years and over. Occasionally a population's **age distribution**[6] or **age**

structure[6] is given by classifying the population by **year of birth**[5]. Graphically an age distribution may be represented by a **population pyramid**[7] which is a *histogram* (155-8) showing the population by age and sex and so named because of its pyramidal shape.

326

The **mean age**[1] of a population is the average age of all its members, the **median age**[2] is the age which divides the population into two numerically equal groups. When the proportion of old people in a population increases, we speak of the **aging**[3] of the population. An increase in the proportion of young people involves a **rejuvenation**[4] of the population. An **old population**[5] has a high proportion of old people, a **young population**[6] has a high proportion of young people or children. The term aging used above should not be confused with the technique used in population projection, which consists of **aging**[7] a population by applying *survival probabilities* (431-6) by age to determine the number of survivors at a later date.

3. Also written **ageing**.
4. The word **younging** is used by American demographers.

327

Aging (326-3) of a population must also be distinguished from **individual aging**[1] or **senescence**[1], and from an increase in the duration of human life or **increased longevity**[2] which is the result of improved standards of living and of medical progress. An individual's **physiological age**[3] will depend on the state of his tissues and organs. In the case of children we speak of **mental age**[4], which is defined as the age at which the attainments of the individual child as measured by certain tests can be performed by the average child. In studies of mental and physiological age, a distinction is made between these ages and chronological age measured by the time elapsed since the individual's **date of birth**[5]. The ratio of mental to chronological age is called the **intelligence quotient**[6] (often abbreviated to I.Q.).

1. **Senescence**, n. - **senescent**, adj.

*
**

330

Inhabitants of a nation or state may be **subjects**[1] **citizens**[1] or **nationals**[1] of that state, who enjoy certain political rights, or they may be **aliens**[2] or **foreigners**[2] who are citizens of another state, or citizens of no state at all and called **stateless**[3]. The term "subject" used to have a servile connotation but has tended to lose it and is frequently taken as a synonym of citizen, though occasionally a distinction is made between a subject and a citizen. Citizens of a state generally possess the **nationality**[4] of that state. This term is nowadays used as a synonym for **citizenship**[4], but in some **multi-national states**[6] a distinction may be drawn between **political nationality**[4] and **ethnic nationality**[5].

331

Aliens may acquire the nationality of their country of residence by **naturalization**[1] and become **naturalized citizens**[2] of **naturalized persons**[2]. In some countries **certificates of naturalization**[3] may be **revoked**[4] and naturalized persons will then suffer **loss of nationality**[5]. Persons may occasionally have more than one nationality, and will then be said to possess **dual nationality**[6]. A distinction is sometimes drawn between **resident aliens**[7], who habitually live in a country other than their own, and **alien visitors**[8] or **visiting aliens**[8], who are there only for relatively short periods.

332

Individuals born in the territory in which they live are called **natives**[1] of that territory. If their ancestors were among the original inhabitants of that territory, they are called **autochthonous**[2], **indigenous**[2] or **aboriginal**[2] inhabitants; the last term is often reserved for primitive peoples. Statistics frequently distinguish between **native-**[3] and **foreign-born**[4] individuals.

2. **Aboriginal**, adj. - **aborigines**, n., pl.

333

The term **race**[1] is generally taken to mean a group of persons with certain common physical characteristics which are hereditarily transmitted. In some census practice, the term is sometimes used more loosely, sometimes for a group of people bound together by a common culture or national origin, or even for people inhabiting a given territory. Another term which is sometimes used is **ethnic group**[2] and here again there is no uniformity in meaning. Eth-

nic group generally refers to a group of people with common culture, language, or religious traditions. An ethnic group may be a racial group. A **people**[3] (cf. 305-2) is generally a collection of persons who are linked by a common past or a common culture. Persons living is a given territory who exhibit notable difference from the majority of the population are called **minorities**[4], e.g., **ethnic minorities**[4], **national minorities**[4], **linguistic minorities**[4], or **religious minorities**[4].

1. **Race**, n. - **racial**, adj.

1. **Racism**, n.: theory that certain races are inherently superior to others; **racist**, adj.

2. **Tribe**, and **tribal group**, still used in certain contexts, tend to be replaced by "ethnic group".

334

Individuals are sometimes distinguished by their **color**[1], which is used loosely to refer to the apparent pigmentation of the skin. In some countries a distinction is drawn between **white persons**[2] and **colored persons**[3] sometimes called **non-whites**[3]. Mating between persons of different colors is sometimes referred to as **miscegenation**[4]. A person who is the issue of such a union is said to be of **mixed blood**[5] or **mixed parentage**[5].

4. **Crossing** is sometimes used in that sense. It also refers to the change in racial self-identification of an individual between one date and another.

5. The issue of a white and a **negro** is called **mulatto**. In Spanish America the issue of a person of European extraction and an American Indian is called a **mestizo**. The issue of a person of European extraction and an Asian is sometimes referred to as an **eurasian**.

*
**

340

The population may be classified by the **language**[1] or **dialect**[2] habitually spoken. A distinction is drawn between an individual's **mother language**[3] or **mother tongue**[3] which is the language spoken in his home in his earliest childhood, and his **usual language**[4], which is the language customarily used by him. The distinction between the two is not always very easy among people who are **bilingual**[5] or **multilingual**[5]. The statistics that present information on these topics are called **statistics of language**[6].

1. **Language**, n. - **linguistic**, adj.
   Linguistics, n.: the study of the nature, structure, origin and meaning of language and human speech.

2. **Dialect**, n. - **dialectal**, adj. A dialect is a variety of language that is distinguished by its pattern of pronunciation, grammar or vocabulary.

5. **Bilingual**, adj. - **bilingualism**, n.

341

Religious statistics[1] divide the population by religious affiliation. A distinction is generally drawn between the major **religions**[2] and their principal **denominations**[3], **rites**[4] or **sects**[5]. Persons who have no religion may describe themselves as **agnostics**[6], **freethinkers**[6] or **atheists**[6].

4. **Rite**, n. may also be used in the sense of a religious ceremony.

342

The population is also often classified by **educational status**[1]. Individuals who can read and write are called **literate**[2]; those who have reached a certain age and cannot are **illiterate**[3]. Often completion of a particular grade or level of schooling is assumed to confer literacy. **Educational attainment statistics**[4] classify individuals by **grade attainment**[5], **years of school completed**[5] or, more rarely, by **age at leaving school**[6]. Another type of classification is based upon the **diploma**[7], **degree**[7] or **certificate**[7] obtained, and depends on the organization of **instruction**[8] in each country.

2. **Literate**, adj. - **literacy**, n. **Literacy statistics** are the part of **education statistics** that refer to the ability to read and write. The **literacy ratio** is the proportion of the population covered that is literate. Its complement is the **illiteracy ratio**.

3. **Illiterate**, adj. - **illiteracy**, n. A person who is able to read but not write may be called **semi-literate**, and such persons are sometimes classed with the literate and at other times with the illiterate population.

4. The *school-age population* (346-7) is often classifed by grade or **level of enrollment**, and attainment is then presented only for the population beyond normal school age.

343

The **education system**[1] includes all institutions, public and private providing instruction in a country. Where both types exist a distinction is made between **public education**[2] and **private education**[3]. After **pre-school education**[4], it is usual to distinguish between three **levels of education**[5] which are in ascending order: **primary education**[6], **secondary education**[7], itself often divided into several **cycles**[8] or **tracks**[8], and **higher education**[9]. The latter includes, among others and at different **levels**[10⋆], courses of study that lead to a **university degree**[11]. **Technical education**[12] or **vocational education**[12] may be offered either at the secondary or higher education level.

344

Types of **educational institutions**[1] and their names are a function of each country's particular educational system. *Pre-school education* (343-4) is offered in **nursery schools**[2] or **kindergartens**[2]. The institutions that offer the three *levels of education* mentioned above (343-5) are usually called respectively: **primary schools**[3] or **elementary schools**[3], **secondary schools**[4] and **colleges**[5] or **universities**[5]; in addition to the latter, there may be various kinds of **professional schools**[6]. *Technical education* (343-12) is given in **learning centers**[7⋆], **technical schools**[8⋆], **technical colleges**[9⋆], **technical institutes**[10⋆] and **educational institutes**[11⋆].

5. The term **college** is used in a variety of senses; a **university college** is either an institution of higher learning which has not full university status, or it may be a constituent college of a university.

345

A **class**[1] (cf. 130-8) is a group of **pupils**[2] with the same **teacher**[3] who meet in the same **class-room**[4] and are generally instructed simultaneously. A group of pupils who are at the same level of educational advancement are said to be in the same **grade**[5] in the United States of America, or in the same **class**[5] or **form**[5] (cf. 206-1), in Great Britain. The term **student**[6] is generally used for those receiving higher education, but is also interchangeable with "pupil" at the secondary level.

2. A **scholar** in Britain is generally a pupil or student who has been given a scholarship from public or private funds; the use of the term as a synonym for pupil is archaic. In the United States of America such a student would be called a **scholarship holder** or **scholarship student**.

6. A university student who has not yet taken his first degree is an **undergraduate**. A **graduate** (cf. 151-1*) in Great Britain is the holder of a university degree; in the United States of America the term may be used for anyone completing his studies at the university, high school, or even primary school. In the *U.S.*, a **graduate student** is one who is pursuing a second degree, the equivalent of a **post-graduate student** in the British system.

346

Current school statistics[1] may distinguish between the number of **pupils enrolled**[2] and the number of **pupils in attendance**[3]. A comparison of these two figures gives an **attendance ratio**[4]. **Compulsory education**[5] implies the existence of a range of ages where school attendance is obligatory by law. This makes it possible to specify the number of children of **school age**[6] or the **school-age population**[7] according to a legal criterion.

4. The **attendance ratio** is the ratio of pupils in attendance to pupils enrolled, whereas the **enrollment ratio** is that of pupils enrolled to the school-age population.

347

Other statistics concern educational progression. An individual progresses normally grade by grade, from the lowest class of elementary school, to the end of his studies. **Leaving school**[1], where compulsory education is enforced, is exceptional during school age, barring illness or death. The **dropout rate**[2] is the probability of leaving school before obtaining a degree, either during the year or at the end of a grade, and it is constructed in the same way as a probability of dying in a life table; its complement to one is the **retention rate**[3]. Such rates can be used to compute a **table of school life**[4], from which it is possible to infer the **mean length of education**[5]. At the end of the school year, pupils or students who do not terminate their studies, may either repeat the grade or move on to the next grade, with or without **change of track**[6]. According to the fate of these pupils or students at the end of the academic year, **proportion repeating a school year**[7*] are established.

*
**

350

A distinction is generally made between the **working population**[1] or **economically active population**[1] and the **unoccupied population**[2] or **economically inactive population**[2]. Generally speaking, the working population consists of those individuals engaged in **gainful activities**[3]. A gainful activity, or **economic activity**[3], is an activity which contributes to the production of income. *Unpaid family workers* (353-5) are usually included in the economically active population. **Homemakers**[4] or **housewives**[4] engaged in unpaid domestic duties, students, retired workers, etc. are usually excluded. The members of the economically inactive population are sometimes referred to as **dependents**[5] (358-1) in the sense that they subsist on the product of the working population. (See, however, the different sense of this term stated in § 358). The ratio of the working population to the total population, usually computed with reference to a given sex-age group or other category, is called the **activity ratio**[6] or **labor force participation ratio**[6].

1. The terms **gainfully occupied population**, **gainful workers**, **labor force** are used as synonyms for working population and economically active population.
   For statistical measurement of the working population, the gainful worker concept or the labor force concept may be used. According to the **gainful worker concept**, the working population is defined as being composed of those persons who have a gainful activity which they normally exercise. According to the **labor force concept**, it is defined as the group of persons who were working at a gainful occupation or wanting or seeking such work during a specified period preceding the inquiry.

351

Workers[1] who make up the working population can be classified as **employed**[2] or **unemployed**[3]. Under the *labor force concept* (350-1 *), only persons who were actively **seeking work**[4] or are on temporary layoff during the specified period are usually counted as unemployed. It is important to distinguish between persons who have never had a job and **persons who are looking for their first job**[11⋆] or **first-time job seekers**[11⋆]. The **employed population**[5] consists of all those currently working for pay or profit. Among the economically active, a substantial portion of workers may be compelled by the economic conditions of the country or of the time, to perform less work than they would normally be able and willing to perform; in this instance, the terms **underemployment**[6] or **partial employment**[6] are used. **Marginal workers**[7] who only very occasionally participate in economic activity, are most often classified as not in the labor force under the *gainful worker con-*

cept (350-1 *). The **employment to population ratio**[8★] is the proportion of employed persons in the working age group (usually 15 to 64). **Inactive persons**[9★] are those who do not accomplish any kind of professional activity neither are looking for any employment. **Hidden unemployment**[10★] or **labor reserve**[10★] includes people who, although not officially registered as unemployed, are looking for a private work as well as those who do not exercise nor are looking for a job but if some job opportunities arose to them, could respond.

2. **Employed**, n. and adj. - **employment**, n.: situation of an individual exercising an economic activity. **Employment** status refers to the classification as either employed or unemployed.

3. **Unemployed**, n. and adj. - **unemployment**, n.

6. One refers occasionally to **underutilization** of the labor force. Underemployment and underutilization also sometimes refer to the situation of persons who perform below their level of qualification.

352

The **occupational classification**[1] of the working population (350-1) shows its members grouped by **occupation**[2]. The similarity of the work done by workers, including the similarity of skills and training required are the main criteria used for grouping occupations into **occupational groups**[3] or **occupational classes**[3].

1. For purposes of comparability, the **International Labour Office** has prepared an **International Standard Classification of Occupations**.

353

The working population (350-1) is also usually classified by **work status**[1]. In this classification **employers**[2] are distinguished from **employees**[3] on the one hand and from **workers on own account**[4] or **independent workers**[4] on the other. The latter do not employ labor for pay, but they, as well as employers, may be assisted by unpaid **family workers**[5] or **family helpers**[5] who are usually distinguished as a separate group. A combination of occupational and status classifications may be used to construct **social status categories**[6].

1. The classification by **status** (as **employer**, **employee**, etc.) is designated by many different terms in the censuses of various countries, including "**industrial status**", "**states in employment**", "**position in industry**", "**class of worker**", etc.

2. **Managers** are sometimes counted with employers though they are themselves employed.

354

Various sub-groups of the category of employees (353-3) are sometimes distinguished. One such sub-group is **home workers**[1] or **cottage workers**[1], who work in their own homes, sometimes for several employers. Among the employees a distinction is sometimes made between **manual workers**[2] and **non-manual workers**[3] or **clerical and office workers**[3]. Manual workers may be further sub-divided according to their **skill**[4], with **skilled workers**[5], **semi-skilled workers**[6], and **unskilled workers**[7] being distinguished. **Apprentices**[8] are sometimes shown as a sub-category of employees.

2. Another type of classification of employees is that which distinguishes between **wage earners** who are paid daily or weekly and salaried employees who are paid monthly or at even less frequent intervals. The statistics of the United States distinguish four broad occupational categories: **white collar workers**; **blue collar workers**, including **craftsmen**, **operatives** and **non-farm laborers**; **service workers**; and **farm workers** (cf. *356*).

7. A **laborer** is an unskilled worker, who does very heavy physical work.

355

Among the employees (353-3) a distinction is often made between the **managerial staff**[1], who make policy decisions; the **executive staff**[2] who apply the decisions; and **supervisors**[3] or **foremen**[3] who direct the operative. Officials () are divided into **simple or lower service**[4★], mainly for positions of menial work(eg, administrative assistants, technical assistants), **middle service**[5★], mainly for positions requiring roughly the equivalent of a completed apprenticeship (eg, editors, administrative secretaries), **upper service**[6★], mainly for positions requiring a Bachelor's degree or its equivalent (administrative frameworks or technical) and **senior service**[7★], restricted to graduates holding a Master's degree or its equivalent.

1. The term **executive** in the United States of America refers to a member of the managerial staff.

356

Special classifications apply in agriculture. **Farmers**[1] or **farm operators**[1] are those who farm the land for profit; among them we distinguish between **farm-owners**[2], who own their land, **tenant farmers**[3], who rent it from a landlord, and **share-croppers**[3], who give a portion of the crop in return for the use of land and livestock. **Agricultural laborers**[4] are persons working who are employed by farmers.

2. A **farm manager** who is salaried is generally classed as a farmer.
3. In Scotland a small farmer is sometimes called a **crofter**. A farmer with a very small farm is also known as a **smallholder**.
4. Agricultural laborers are of three general types: **fulltime agricultural laborers**, **day agricultural laborers**, and **seasonal agricultural laborers**. This last category often consists of **migrant laborers**.

357

The working population may also be classified by **industry**[1] or **branch of economic activity**[1]. This classification depends on the nature of the **firm**[2] or **establishment**[2] that the individual works for. Generally importance is attached to the division of the population into **agricultural workers**[3] and **non-agricultural workers**[4]. **Government employees**[5] are sometimes, and **military personnel**[6] or **members of the armed forces**[6] are generally shown separately, but employees of public enterprises are counted as a rule with the rest of the industrial population. Industries are generally classified in three sectors, the **primary sector**[7] (agriculture, hunting, fishing and mining), the **secondary sector**[8] (manufacturing, construction and utilities), and the **tertiary sector**[9] (commerce, finance, transport industries, and service industries). In developing countries the **traditional sector**[10] is often listed separately and opposed to the modern sector of the economy.

1. For purposes of international comparability, the United Nations have prepared an International Standard Industrial Classification of All Economic Activities.
5. A **civil servant** is an *employee* (353-3) of the central government. An **official** is an employee of a public body but the term is occasionally used for salaried employees of large companies. A distinction is often drawn between **government employees** and **private workers**.

358

The economically inactive population may be divided into **dependents**[1] (350-5) and **self-supporting persons**[2]. Dependents depend for their support on the efforts of **earners**[3] or **breadwinners**[3]; this is for example the case of *housewives* (350-4) and **dependent children**[4]. Self-supporting persons have sufficient means for their subsistence. They may be **rentiers**[5] or **persons of independent means**[5], **retired persons**[6] or **pensioners**[6]. A special category of dependents is that of **persons receiving public assistance**[7] or **public welfare recipients**[7]. Persons incapable of work are called **unemployable**[8]. The ratio of the inactive to the active population is called the **economic dependency ratio**[9].

1. **Dependent** or **dependant**, n. - **dependent**, adj. - **dependency** or **dependancy**, n.: the state of being dependent.

9. The ratio of the young and the elderly to the adult population is called the **age dependency ratio**.

359

It is possible to classify the population by the sector of economic activity from which they derive their livelihood, dependants being put into the same category as their breadwinners. We speak of the **population dependent on**[1] a particular branch of activity and in particular of the **population dependent on agriculture**[2]. The term **agricultural population**[2] is sometimes used as a synonym, but may also be employed in the sense of **farm population**[2] which lives on farms or is dependent on agriculture and which is distinguished from the **non-farm population**[3] or **non-agricultural population**[3].

360

The **infirm**[1] or **handicapped**[1] are often separately shown in censuses. They are classified according to the nature of their **infirmity**[2] or **handicap**[2]. **Physical infirmities**[3] or **physical handicaps**[3] such as blindness, or deaf-mutism are generally distinguished from **mental infirmities**[4] or **mental handicaps**[4], such as feeblemindedness or dementia.

361

The study of the **working life**[1] of individuals includes the study of the **accession to the labor force**[2] and of the **separation from the labor force**[3]. At accession it is possible to distinguish those who have never been active, from

those who belonged to the labor force at an earlier date; separations may be listed by cause, e.g. death, **retirement**[4], temporary withdrawal. The analysis may proceed by cohort or period, and it involves **rates of accession to the labor force**[5], or **probabilities of accession to the labor force**[6], **rates of separation from the labor force**[7] or **probabilities of separation from the labor force**[8], eventually by cause; these indices are computed by age or age-group.

362

These indices serve to compute **tables of working life**[1], by period or cohort. In addition to the probabilities described in the previous paragraph, these tables contain the distributions by **age at accession to the labor force**[2] and by **age at separation from the labor force**[3], (eventually by cause, before and after accounting for mortality), the **mean age at accession to the labor force**[4] and the **mean age at separation from the labor force**[5]. The **expectation of working life**[6], the **gross expectation of working life**[7] (which excludes the effect of mortality) and the **net expectation of working life**[8] (which includes it) all represent the mean number of years of working life that remain to be lived at each age by the active population. For those entering the labor force at that age, this expectation constitutes the **mean duration of working life**[9]; a similar index can be computed for all ages at accession taken together.

1. Such tables are computed when temporary withdrawals from the labor force are a negligible proportion of the total, and this condition is approximately realized for males. For females, it is necessary to distinguish **first accession to the labor force**, or **entry into the labor force**, from **re-entry into the labor force**.

Chapter 4
Mortality and morbidity

401

The study of **mortality**[1] deals with the effect of death on the population. The general terms **mortality rate**[2] or **death rate**[2] encompass all the *rates* (133-4) which measure the frequency of **deaths**[3]. Where the expression death rate is used without any qualifying adjective the **crude death rate**[4] is usually meant (cf. 136-8 for a general discussion of *crude rates).* This is generally an annual rate and consists of the ratio of the annual number of deaths occurring during a calendar year to the number exposed to the risk of dying during the same period. This number is equivalent to the **mean population**[5] or **average population**[5] for the period, and the population at the mid-point of the period can usually be substituted for the average population without appreciable error, if the size of the population is changing fairly uniformly. If the mortality of a *sub-population* (101-6) only is studied, we speak of *specific death rates* (134-6) among which **sex-age-specific death rates**[6] are the most common. **Age specific death rates**[7] without distinction of sex are also used on occasion.

2. Occasionally the term **mortality** is used as a synonym for mortality rate or death rate.

3. **Death**, n. - **die**, v. - **dead**, adj. syn. - **deceased**, adj. or n.

5. When the observation period exceeds one year, the mean population is generally obtained as the average of several estimates of the size of the population for each year. The *average number of persons years* (135-6) is also used as denominator.

402

Specific death rates may be used to study **differential mortality**[1] or **mortality differences**[1] between groups, and reference is made to an **excess mortal-**

ity[2] of one group as compared with another, or with the rest of the population. It is measured by an **excess mortality index**[3*]. The study of differences in the death rates of specific occupations is called the study of **occupational mortality**[4]. In a rather different sense the term **occupational mortality**[5] may refer to the mortality from hazards associated with a particular occupation. Among these, we may mention **occupational diseases**[6].

1. Differentials in mortality is also encountered.
2. The expression **excess male mortality** implies a comparison with the corresponding female mortality, e.g. at the same age.

403

Crude death rates (401-4) will depend upon the structure [particularly the *age structure* (325-6)] of the population as well as on the level of mortality. If the mortality of different populations is to be compared **standardized mortality rates**[1] or **adjusted mortality rates**[1] are sometimes computed to eliminate the effect of differences in *population structure* (144-4). Age is the characteristic for which mortality rates are adjusted most frequently by reference to a **standard population**[2] with a given structure. If *specific rates* (134-6) for the population studied are available, it is possible to use the **direct method of standardization**[3] which consists of applying these rates to the corresponding groups of the standard population. If specific rates are not available, it is still possible to obtain standardized mortality rates by the **indirect method of standardization**[4]. More frequently, **comparative mortality indices**[5] are computed by applying **standard mortality rates**[6] to the different groups of the population studied and summing these to obtain an expected number of deaths; the indices are then obtained by comparing the **observed deaths**[7] in the population with the **expected deaths**[8] which would have occurred had the standard rates applied.

1. **Standardize**, v. - **standardized**, adj. - **standardization**, n.: the process of standardizing.
5. If a crude death rate (401-4) is multiplied by a comparative mortality index, we obtain an **indirectly standardized death rate**. In British official terminology, when occupational mortality is studied, the figure obtained by direct standardization is called a **comparative mortality figure** and that obtained by indirect standardization a **standardized mortality ratio**.

*
**

410

The mortality of live-born children who have not yet reached their first birthday is called **infant mortality**[1]. The mortality of live-born children who die before reaching a certain age taken as four weeks or 28 days, the so-called **neo-natal period**[3], is called **neo-natal mortality**[2]. The mortality during the first week of life and between the first week until before 28 days are called respectively **early neo-natal mortality**[4] and **late neo-natal mortality**[6★]. The term **post-neonatal mortality**[5] refers to deaths after the neo-natal period, but before reaching the age of one year.

3. In certain statistics the neo-natal period is defined as the first month of life. The term **early infancy** is occasionally used as an approximate equivalent to the neo-natal period, as, e.g., in "diseases of early infancy."

411

The expression **foetal mortality**[1] is used for deaths prior to the complete expulsion or extraction from its mother of a *product of conception* (602-6) irrespective of the *duration of pregnancy* (603-3). The terms **intra-uterine mortality**[1] or **mortality in utero**[1] may also be used. The corresponding deaths are called **foetal deaths**[2] or **intra-uterine deaths**[2]. **Early foetal mortality**[3] occurs before the twentieth week of gestational life, while **intermediate foetal mortality**[4] occurs between the twentieth and the 28th week of gestation. After the twenty-eighth week, one refers to **late foetal mortality**[5] and the product is called a **late foetal death**[5] or, popularly, a **stillbirth**[5]. **Perinatal mortality**[6] includes late foetal mortality and a portion of infant mortality that may include either early neo-natal deaths, or all neo-natal deaths. The **foeto-infant mortality**[7★] includes stillbirths and deaths of children under one year.

1. **Foetal** - also spelled **fetal**.
2. Also designated as **pregnancy wastage**. These terms include *abortions* (603-5), *miscarriages* (604-1) and stillbirths.
3. Early foetal deaths are also popularly known as **miscarriages**.
5. **Stillbirth**, n. - **stillborn**, adj. In certain countries, including France, children born alive who died before registration may be legally included among the stillborn, and are called **false stillbirths**.
6. The corresponding deaths are called **perinatal deaths**.

412

The ratios of **deaths under one year of age**[1], of deaths of less than 28 days, and of deaths of less than one week, occurring in a year, to the number of live births of the same year give respectively the **infant mortality rate**[2], the **neo-natal mortality rate**[3] and the **early neo-natal mortality rate**[4]. These rates are generally expressed per one thousand live births. When deaths are cross-classified by age and year of birth, it is possible to divide the deaths under one year by the births in the two cohorts to which they belong. The resulting index is an **adjusted infant mortality rate**[5] equivalent to a **probability of dying before age one**[5]. In the absence of such information **separation factors**[6] may be estimated, which divide infant deaths into those occurring to infants born in the current calendar year and to infants born in the previous calendar year.

413

The proportion of *late foetal deaths* (411-5) among all births is called a **late foetal mortality rate**[1]. The ratio of late foetal deaths to *live births* (601-4) is called a **late foetal mortality ratio**[2]. A **foetal mortality rate**[3] represents the number of known intra-uterine deaths per one thousand births in the same year while the **foetal mortality ratio**[4] is the ratio of intra-uterine deaths to live births in a given year. These indices greatly understate intra-uterine mortality since early intra-uterine deaths frequently remain unobserved or unknown. A better measurement of intra-uterine mortality is provided by **intra-uterine mortality tables**[5], a specialized application of the *life table* (cf. *432*) which takes into account the duration of gestation. The **perinatal mortality rate**[6] relates *perinatal deaths* (411-6*) to the sum of late foetal deaths and live births. The **foeto-infant death rate**[7⋆] represents the number of known still-births and deaths in the first year of life per one thousand live births and still-births of the same reporting period.

1. Also called **stillbirth rate**. This usage is not recommended.
2. Also called **stillbirth ratio**. This usage is not recommended.
6. The **perinatal mortality ratio** relates perinatal deaths to live births only.

414

In the study of **age-specific mortality**[1], the terms *infant mortality* (410-2) and *neo-natal mortality* (410-3) refer to generally accepted time periods. The usage of such terms as **child mortality**[2], **youth mortality**[3⋆], **adult mortality**[4]

or **mortality of old age**[5] is not uniform. **Post-infantile child death rate**[6] sometimes refers to the death rate between one and 4 years of age.

*
**

420

The study of **morbidity**[1] deals with the investigation of **illness**[2], **sickness**[2], **ill-health**[2] or **disease**[2] in a population. Two aspects are considered: the **incidence of disease**[3] and the **prevalence of disease**[4] according to whether the new **cases of disease**[5] are considered or the number of cases existing at one point in time. The compilation of **morbidity statistics**[6] is hampered by the lack of a sharp distinction between health and the **morbid state**[7]. **Nosology**[8] and **nosography**[9] contribute respectively to the classification and description of diseases.

2. **Disease**, **illness**, or **sickness** are used as collective nouns in the singular, or both in the singular or plural to designate specific **ailments**.

421

Health statistics[1] encompass morbidity statistics, but also cover all aspects of the health of a population, and are generally taken to include statistics of **cause-specific mortality**[2]. The classification of deaths by **cause of death**[3] is made difficult because in many cases there may not be a **single cause of death**[4] but **multiple causes of death**[5] or **joint causes of death**[5]. When this is the case we may distinguish between the **immediate cause of death**[6] and the **underlying cause of death**[7] or, looking at the problem from a different point of view, we may distinguish between the **primary cause of death**[8] or **principal cause of death**[8] and the **secondary cause of death**[9], **contributory cause of death**[9] or **associated cause of death**[9]. The **cause-specific death rate**[10] is generally expressed per 100,000 population. The ratio of the number of deaths from a specific cause to the number of deaths from all causes is referred to as the **cause-specific death ratio**[11]. Such ratios calculated for specific age groups or the general population provide information of the underlying **structure of causes of death**[12⋆].

422

Death or *disability* (426-2) may be the consequence of *disease* (420-2) or of **injury**[1] or **poisoning**[2]. Injuries may be due to **accident**[3] or **violence**[4]. Among cases of violence it is normal to distinguish **suicides**[5] and **attempted suicides**[5], **homicides**[6] and **deaths or injuries due to operations of war**[7].

3. **Accident**, n. - **accidental**, adj.
4. **Violence**, n. - **violent**, adj.
6. **Homicide**, n.: May in law be **murder** or **manslaughter**.
7. Abbreviated to **war deaths** and **war injuries**.

423

An **endemic disease**[1] is one that permanently affects substantial segments of a population, in contrast with an **epidemic**[2], which spreads and then disappears within a fairly short time; when it appears in a large number of countries, it is called a **pandemic**[3]. Certain **infectious diseases**[4] or **communicable diseases**[4] have attracted particular attention, because they are capable of infecting large numbers of persons within relatively short time intervals. In such instances we speak of **epidemic diseases**[5], and special **epidemiological statistics**[6] are collected to show their incidence. It is possible to obtain information about these illnesses in various countries because legislation has made their reporting compulsory; they are therefore called **notifiable diseases**[7]. A distinction is sometimes made between **chronic diseases**[8] and **acute diseases**[9]. These terms are not precisely defined, but acute diseases are generally understood to be those of abrupt onset and short duration while chronic diseases are those with slow onset and long duration, and often causing prolonged disability.

2. **Epidemic**, n., also used as adj.
4. **Infectious**, adj. - **infect**, v. - **infection**, n. The terms **communicable diseases**, **contagious diseases** and **infectious diseases** are not synonymous. A contagious disease can only be transmitted from person to person; thus, malaria, a communicable disease, is not contagious. Moreover, certain infectious diseases are not communicable.
6. **Epidemiology**, n.: the science dealing with epidemics - **epidemiologist**, n.: a specialist in epidemiology - **epidemiological**, adj.: pertaining to epidemiology. The meaning of these terms has expanded greatly, and epidemiology now covers the study of relations between a biological or medical phenomenon and various factors, such as tobacco for example in "the epidemiology of lung cancer," or

alternatively the statistical analysis of geographic variations in health phenomena.

424

Demographers devote particular attention to certain aspects of mortality: **endogenous mortality**[1] which results from the genetic constitution of the individual, **congenital malformations**[2], injuries connected with birth, or degenerative diseases associated with aging; **exogenous mortality**[3], in contrast, results from external causes such as infectious or parasitic diseases and accidental injuries other than those incurred by the child during birth. Also of special interest are diseases connected with pregnancy, labor and the **puerperium**[4]. Mortality from these latter diseases is called **maternal mortality**[5], and a **maternal death rate**[6] may be computed as the ratio of maternal deaths in a year to the births of the same year. The proportion of deaths due to **senility**[7] has mostly drawn interest as an index of poor reporting of causes of death.

1. *Infant mortality* (410-1) can thus be decomposed into **endogenous infant mortality** and **exogenous infant mortality**.

3. See note 1.

4. The **puerperium** is the **lying-in period** following a birth, and the mortality of mothers during the period is called **puerperal mortality**.

7. **Senility** n. - **senile**, adj.

425

Three aspects of morbidity (420-1) are commonly measured by **morbidity rates**[1] or **morbidity ratios**[1]: frequency, duration and severity. These indices may be computed for specific diseases, or for all diseases. Two indices of the frequency of ill-health are the **incidence rate**[2], the number of new cases of disease during the period related to the average population, and the **prevalence rate**[3], the number of cases existing at a given moment of time expressed per unit of the average population. Either the **average duration per case**[4], or the **disability rate**[5], which is the **mean number of days of illness**[5] per person in the population, may serve as a measure of the duration of illness. The **case fatality rate**[6], which is the proportion of fatal cases among the reported cases of the specified diseases, may be used as an index of severity.

6. This is said to measure the **lethality** of the disease.

426

An **impairment**[1] refers to any physical, functional or psychological defect, which results from illness, injury or congenital malformation. When an impairment inhibits an individual's ability to work or participate in normal activities it is referred to as **incapacity**[2] or **disability**[2]. This may be total or partial; in either case, **permanent disability**[3] or **infirmity**[4] refer to an irreversible condition which gives rights to **professional incapacity**[7★] or **work incapacity**[8★] compensations. The probability that a healthy individual aged exactly x years will become disabled in the next year or over the course of some number of years starting with this exact age, is called the **risk of disability**[5] or the **probability of disability**[5]. A series of these probabilities can be combined into a **disability table**[6], which is a specialized extension of the *life table* (cf. §432). It give rights to Professional incapacity or occupational disability

*
**

430

Mortality statistics are generally compiled from death registration (cf. *211*). When a death takes place a **death certificate**[1] is generally issued; statistics are compiled from the information given on death certificates. In some countries a distinction is made between the **medical certificate of death**[2] issued by a medical practitioner who has attended the deceased person during his or her last illness, and an ordinary death certificate issued by the registrar of deaths for legal purposes.

1. The first death statistics in England and Wales were compiled from **bills of mortality** which were generally drawn up on the basis of **burial registers**. In countries where vital registration is deficient, statistics can be gathered by the survey technique; questions may be asked on deaths during a reference period, generally the previous year; the **indirect estimation of mortality** relies on such question as the **number of children surviving** among *children ever born* (637-2), **orphanhood status** or **widowhood status**.

431

Probabilities of dying[1] or **death probabilities**[1] are used to study in detail the mortality of a period or of a cohort. They are the probabilities that an individual of exact age x will die before exact age $x + n$, and are represented by the symbol ${}_nq_x$. If $n = 1$, we talk about **annual death probabilities**[2]; if $n = 5$,

about **quinquennial death probabilities**[3]. The **instantaneous death rate**[4], or as it is occasionally called the **force of mortality**[4], is the limit of the ${}_nq_x$ value as *n* tends to zero. The **projective mortality probability**[5★] is the probability that individuals of the same cohort or group of cohorts died between two January 1st. The name of this probability comes from its use in the calculation of population projections. The complement to one of the probability of dying from exact age *x* to exact age *x + n* is the **probability of survival**[6] over this interval. In the preparation of population projections, we use **survival ratios**[7]; they represent the probability that individuals of the same birth cohort or group of cohorts will still be alive n years later.

1. The probability of death between age *x* and *x + n* is defined as the ratio of deaths between ages *x* and *x + n* to the number of survivors at exact age *x*. It is not to be confused with the **central death rate**, the ratio of deaths between ages *x* and *x + n* to the mean population alive at that age. The central death rate is written ${}_nm_x$.

6. The probability of survival from age *x* to age *x + n* is written ${}_np_x$.

432

The course of mortality throughout the life cycle may be described by a **life table**[1]. A life table consists of several **life table functions**[2], all of which are mathematically related and may be generally derived when the value of one of them is known. The **survivorship function**[3] shows the number of **survivors**[4] of a *cohort* (116-2) of births to various *exact ages* (322-7) on the assumption that the cohort is subjected to the rates of mortality shown. The number of births in the original cohort is known as the **radix**[5] of the life table and the process by which the original cohort is reduced is known as **attrition**[6].

4. The number of survivors to exact age x is denoted by l_x .

5. The radix is usually a power of 10: 10,000 or 100,000 for example.

433

To the survivors function corresponds a **death function**[1] which is calculated as the differences between the number of *survivors* (432-4) at different ages within the given age interval. It is named the **distribution of life table deaths**[2★] in order to be distinguished from the crude distribution of deaths. Life tables typically include the **expectation of life**[3] or **life expectancy**[3] at age x ; this is the mean number of years to be lived by those surviving to exact age x, given the mortality conditions of the table. The **expectation of life**

at birth[4] is a particular case of expectation of life, and represents the **mean length of life**[4] of individuals who have been subjected since birth to the mortality of the table. The reciprocal of the expectation of life at birth is the **life table death rate**[5] or **death rate of the stationary population**[5].

3. By integrating the *survivorship function* (432-3) between two exact given ages we obtain the **total number of years lived** by the cohort between these ages; the notation for the total number of years lived between age x and $x + n$ is ${}_nL_x$. This function is often called the **stationary population** in life table column headings. By summing it from a given age x to the end of life, we obtain the total number of years to be lived after attaining age x by those reaching that age; the conventional notation is T_x .

4. The notation for the expectation of life at age x is e_x

434

The **median length of life**[1] sometimes called the **probable length of life**[1] is the age at which half the original cohort of births have died. After infancy the distribution of deaths by age in the life table will usually have a mode and the corresponding age is called the **modal age at death**[2], or sometimes the **normal age at death**[2]. It may be of interest as an indicator of **human longevity**[3] or the **length of life**[3] corresponding more closely to the sense in which the term is used in everyday language than either the average (433-4) or the median length of life. The term **life span**[4] is used to refer to the maximum possible length of human life.

435

A **complete life table**[1] is usually one in which the values of the *life table functions* (432-2) are given in single years of age. An **abridged life table**[2] is one in which most functions are given only for certain pivotal ages, frequently spaced at five or ten year intervals after infancy; intermediate values for the functions are usually obtained by some form of interpolation (151-7). The term **life table for selected heads**[3] is used to refer to a life table relating to the experience of a number of specially selected individuals, such as the clients of a life insurance company, in opposition to **general life tables**[4] which relate the experience of a whole *population* (101-4). Life tables are generally presented on a sex-specific basis although on occasion they are presented for both sexes. A life table which is based only upon the generalization of empirical relationships is called a **model life table**[5].

436

A **calendar-year life table**[1] or **period life table**[1] (cf. 153-2; 432-1) is one in which the mortality rates used relate to a specified time interval and the *cohort* (116-2) is therefore hypothetical. A **generation life table**[2], or **cohort life table**[2] on the other hand, traces the experience of an actual birth cohort and the mortality rates contained in the table are then spread over a prolonged period, usually about 100 years. A **mortality surface**[3] is drawn when *probabilities of dying* (431-1) are plotted against age and time period simultaneously in a three-dimensional diagram.

437

The **Lexis diagram**[1] is commonly used to illustrate the usual method for computing death probabilities and other demographic measures. In this diagram, every individual is represented by a **life line**[2] which begins at birth and ends in the **point of death**[3]. A method for the study of mortality at very advanced ages has been called the **method of extinct generations**[4], because it uses observed deaths for cohorts which have been completely eliminated by mortality.

Chapter 5
Nuptiality

501

The study of **nuptiality**[1] deals with the frequency of **marriages**[2] i.e. of **unions**[3] between persons of opposite sexes which involve rights and obligations fixed by law or custom; with the characteristics of persons united in marriage; and with the dissolution of such unions. By extension, it also includes the study of other *conjugal unions* (503-8) where their frequency makes their inclusion necessary. A **marriage**[4] or **wedding**[4] is the ceremony, prescribed by law or custom, which establishes such a union between a man and a woman as **spouses**[5], i.e. **husband**[6] and **wife**[7]. The spouses jointly are called a **married couple**[8].

4. **Marriage**, n. - **marry**, v. - **married**, adj. - **marriageable**, adj.: capable of contracting a marriage.

6. A man at, or soon before or after his marriage, is a **bridegroom** (abbreviation: **groom**).

7. A woman at, or soon before or after her marriage, is a **bride**.

502

Marriage laws[1] or **marriage customs**[2] differ in different societies. A society in which a person may be married to only one person of the opposite sex at a time is called **monogamous**[3]. Societies in which a person may be married to several persons simultaneously are called **polygamous**[4]. A distinction is made between **polyandrous**[5] societies, where a woman may have several husbands, and **polygynous**[6] societies, where a man may have several wives. The term "polygamy" is frequently used in the sense of polygyny.

3. **Monogamous**, adj. - **monogamy**, n.

4. **Polygamous**, adj. - **polygamy**, n.
5. **Polyandrous**, adj. - **polyandry**, n.
6. **Polygynous**, adj. - **polygyny**, n.

503

In some countries a legal union can be established only through a **civil marriage**[1] performed by an official of the state; in other countries a **religious marriage**[2] in accordance with the regulations of a church is recognized as having legal force. Social or legal recognition may be given under various conditions in different countries to stable unions which have not been solemnized by a legal or religious ceremony, for instance to **customary marriages**[3] or to **common law marriages**[3] conforming to local traditions. Different types of relationships and degrees of social acceptance are implied in terms applied to various unions but their significance varies widely in different countries. The term **consensual union**[4] implies a socially recognized stable union, the term **companionate marriage**[4] has a similar connotation. The terms **free union**[5] and **temporary union**[6] both imply a less stable union that may or may not include **cohabitation**[7]. Two persons of opposite sexes living in a stable union, whether legal or not, are called a **couple**[8]. The term **conjugal union**[8] has been used by demographers to include both legal unions and more or less stable illegal unions.

3. **Concubinage**, n.: a type of illegal union. A concubine in the restricted sense is a woman with an accepted conjugal status inferior to that of a legally recognized wife, particularly in polygynous societies. In other societies, the word concubine is sometimes used loosely to denote any woman other than a wife living in conjugal union with a man. Today such terms as **companion** or **mate** are preferred.
7. **Cohabitation**, n.- **cohabit**, v.

504

In many countries a **minimum age at marriage**[1] is laid down by law. The age differs from country to country and may be different for the two sexes. Marriages among persons closely related by blood are called **consanguineous marriages**[2] and are generally prohibited by either law or custom. Persons who are forbidden to marry one another for these reasons are said to be within the prohibited **degrees of consanguinity**[3].

505

In some countries the **publication of banns**[1] or **intent to marry**[1] is a necessary preliminary to a *marriage* (501-4), giving public notice to persons interested, who may then oppose the marriage if they have reason to do so. In many countries a **marriage license**[2] must be obtained before the marriage ceremony can take place. A **marriage certificate**[3] is usually delivered to the **newly married couple**[4] after the ceremony. The **consummation of marriage**[5] has occurred, or a marriage has been **consummated**[5] when sexual relations have taken place between the spouses.

1. Before the celebration of the marriage the future spouses are said to be **engaged** or **betrothed**, words which come from the custom of **engagement** or **betrothal** which consists of a more or less formal exchange of promise to marry.

506

Endogamy[1] exists where both spouses must belong to the same group (e.g. tribe, clan). The term is also used to denote a tendency for spouses to be members of the same social or geographical group or **isolate**[2], which is generally of limited size. The opposite requirement or tendency is called **exogamy**[3]. **Mixed marriages**[4] are marriages between persons of different nationalities, races, religions, etc. When marriage is contracted between persons with certain common characteristics, social, physical or mental, it is called **homogamy**[5], the opposite is called **heterogamy**[6].

1. **Endogamy**, n. - **endogamous**, adj.
3. **Exogamy**, n. - **exogamous**, adj.
5. **Homogamy**, n. - **homogamous**, adj.
6. **Heterogamy**, n. - **heterogamous**, adj.

*
**

510

At the close of **married life**[1] or **conjugal life**[1], the **end of union**[2] coincides with the **dissolution of marriage**[3], i.e. the breaking of all legal obligations resulting from the status of spouse, including the removal of legal obstacles to a new marriage. If a marriage is dissolved by death the surviving spouse is

called a **widower**[4] if male and a **widow**[5] if female. **Widowed persons**[6] live in a state of **widowhood**[7].

511

Where **divorce**[1] as an institution is recognized, the dissolution of *marriage* (510-2) may take place through the granting of a **decree of divorce**[2] to one of the spouses. In some countries a spouse may be **repudiated**[3] by the other. Persons whose marriages have been dissolved by divorce are called **divorced persons**[4]. The French words **divorcée (fr)**[6] (woman) or **divorce**[5] (man) are sometimes used in English, though the masculine form is rare.

1. **Divorce**, n. and v.

512

In some countries the principle of the **indissolubility of marriage**[1] is upheld by law or custom and *divorce* (511-1) is not allowed; only the death of one of the *spouses* (501-5) may bring about *dissolution of the marriage* (510-3). Under any legal system, however, lack of harmony may lead to **separation**[2] of the spouses. This may take the form of a **de facto separation**[3], either through common consent or as the result of the **desertion**[4] of one of the spouses by the other. Or it may take the form of a **legal separation**[5] or **judicial separation**[5]. A judicial separation absolves the parties from certain obligations, including the duty of living together, or cohabitation, but does not enable either of them to contract a new marriage. Persons whose marriages have been broken by separation are called **separated persons**[6]. Marriages in which the spouses no longer cohabit but which have not been legally dissolved may be called **broken marriages**[7].

513

A **decree of nullity**[1] or an **annulment of marriage**[1] is a declaration by a court of law that, although a marriage ceremony has taken place, there has been no **valid marriage**[2]. The expression **dissolved marriage**[3] is frequently understood to include cases of annulments and of legal separation, although legally the marriage is not dissolved. The term *end of union* (510-2) is more appropriate than dissolution in such cases and may also refer to unions other than marriage.

514

From a legal point of view, any person who meets the conditions set by law or custom to contract a marriage is **marriageable**[1], and the **marriageable population**[2] is made up of such persons; the **non-marriageable population**[3] consists of those who are not free to do so by law or custom. The **marriage market**[4], the **marriageable circle**[5*] or **group of persons**[5*] among whom **mate selection**[6] takes place however, does not include all marriageable persons; **candidates to marriage**[7] include only those who are not excluded, at least temporarily, by reasons of health or other circumstances from the marriage market. Widowed or divorced persons may contract a new marriage; there is thus a distinction between a **first marriage**[8] and a marriage of higher order, or **remarriage**[9]. Because the **order of marriage**[10] may differ for the two spouses, the term "first marriage" is ambiguous unless specified as referring to *groom* (501-6*) or to *bride* (501-7*) or to both parties; unless otherwise specified, it refers to a marriage between a bachelor (515-3) and a spinster (515-4).

9. **Remarriage**, n. - **remarry**, v. - **remarried**, adj.

515

The population may be divided into different groups by **conjugal status**[1], **marital status**[1] or **marital condition**[1]. **Single**[2] persons, **bachelors**[3] (men) and **spinsters**[4] (women), are those who have never been married; they are also sometimes called the **never-married**[2] class. The class of **married persons**[5], **married men**[6] and **married women**[7], consists of those who have been married and whose marriages have not been *dissolved* (513-3). All persons except single persons are **ever-married persons**[8].

2. A synonym is **celibate**, adj. - **celibacy**, n.: the state of being single.

*
**

520

Relative marriage frequency is measured by **marriage rates**[1] or **nuptiality rates**[1], among which the **crude marriage rate**[2] gives the ratio of the total number of marriages to the total population in a given period. **Male nuptiality**[3] and **female nuptiality**[4] are often different, and can be studied separately. The terms male nuptiality and female nuptiality are used for the marriage frequency of the different sexes. A **sex-specific marriage rate**[5] can be computed

with the appropriate population of each sex as a base. It is usual to distinguish between a **first marriage rate**[6], which relates the number of *bachelors* or *spinsters* (515-3 and 4) marrying to the total number of bachelors and spinsters respectively and a **remarriage rate**[7] which relates the number of remarriages to the total number of widowed and divorced persons. Similar rates can be computed by age or age-group of husband and wife whenever marriages are classified by **age at marriage**[8] of each spouse; such rates are called **age-specific marriage rates**[9]. The tabulation of spouses by age at marriage permits the computation of the **mean age at marriage**[10] or **average age at marriage**[10] for the given year or period. **Age differences between spouses**[11] can be analyzed from a classification of the **combined ages**[12] of the spouses.

2. Sometimes the crude marriage rate is obtained by relating the number of newly married persons to the total population.

9. The terms **marriage frequencies** and **first marriage frequencies** have sometimes been used to refer to the ratio of the number of marriages or first marriages at a certain age, to the total number of persons of that age, irrespective of their marital status. **Cumulated marriage frequencies** and **cumulated first marriage frequencies** are used in cohort studies.

521

The prevalence of marriage in a generation of men or women is measured by the **proportion never married**[1]. This is usually equivalent to the **proportion remaining single**[2] at an age such as 50 after which first marriages are rare. The proportion remaining single at each age in a cohort can be computed from **first marriage probabilities**[3], i.e. the proportion of single persons at exact age x who will marry before exact age x + 1, assuming that there is no mortality. For practical purposes, however, the proportion remaining single is usually obtained from census data as the **proportion single**[4] at that age in the corresponding cohort. When a classification of first marriages by age of the spouses is available the **mean age at first marriage**[5], the **median age at first marriage**[6] and the **modal age at first marriage**[7] can all be computed. In the absence of data on the timing of marriages, it is often possible to compute a **singulate mean age at marriage**[8] from census data on the proportions single by age.

522

Nuptiality tables[1] resemble life tables, and combine various nuptiality functions. The **gross nuptiality table**[1] includes, by age, the *first marriage probabilities* (521-3) and *proportions remaining single* (521-2), as well as the **number**

of first marriages[2] in a cohort of given size subjected to the prevailing nuptiality on the assumption that there is no mortality; it also gives the **numbers remaining single**[3] at various ages. The **net nuptiality table**[4] takes mortality as well as nuptiality into account, and is a particular case of *double decrement tables* (153-4). Such a table includes the **single survivors**[5], the **ever-married survivors**[6], the **probability of single survival**[7] and the **expectation of unmarried life**[8].

523

A **divorce rate**[1] can be calculated in different ways. The **crude divorce rate**[2] gives the ratio of the number of divorces to the average population during a given period. The ratio of divorces to the number of married couples is sometimes computed and may be called the **divorce rate for married persons**[3]. If divorces are tabulated by the age of the divorced person or by duration of marriage, **age-specific divorce rates**[4] and **duration-specific divorce rates**[5] can be computed. Another index of divorce frequency is obtained by computing the **number of divorces per new marriage**[6].

6. This is a period measure which relates the divorces of one year, either to the marriages of that year, or to a weighted average of the marriages of several years. In cohort analysis, it is possible to relate divorces in successive years to an initial marriage cohort to compute the **cumulated proportion divorced**.

524

When the requisite basic statistics are available, **marriage dissolution probabilities**[1] may be computed, showing for each sex the probability of the marriage being dissolved by death or divorce according to **duration of marriage**[2]; marriage dissolution tables are an application of double decrement life tables. Remarriage tables for widowed and divorced persons can also be computed, but the most common indices of remarriage are the **relative frequency of remarriage**[3], i.e. the proportion of widowed or divorced persons who remarry, often given by age at widowhood or divorce, and by the interval between widowhood or divorce and remarriage. The latter information enables one to compute the **mean interval between widowhood and remarriage**[4] and the **mean interval between divorce and remarriage**[5].

Chapter 6
Fertility

601

Demographic studies of **fertility**[1] deal with certain phenomena connected with human **childbearing**[2] or **reproduction**[2]. The term **natality**[1] is sometimes used instead of fertility. These terms refer to the frequency of occurrence of **births**[3] or more specifically **live births**[4] — within populations and sub-populations. A birth is the process of delivering a child. Live births or the births of **live-born children**[5] are distinguished from *late foetal deaths* (cf. 411-5) by evidence of life, such as respiration, movement of voluntary muscles or heartbeat of the child after complete expulsion or extraction. The term **effective fertility**[6], which was once used to indicate that late foetal deaths were not counted among the total number of births, should refer to the cases in which the deaths of infants or children are excluded from consideration. The term **crude fertility**[7⋆] should refer to all births including stillbirths (411-5) or foetal deaths. The term **differential fertility**[8] designates fertility differences between the subgroups of a population.

1. On the meaning of the term **fertility** in demography, see also § 623.
2. **Reproduction**, n. - **reproduce**, v. - **reproductive**, adj. Frequently, reproduction refers to the balance of births and deaths (as in § 711) rather than to the process of childbearing or **procreation**.
3. The word **birth** is now commonly used to mean live birth.
4. **Live-born**, adj. also used as noun to mean: infant born alive.

602

Conception[1] results from the **fertilization**[2] of an **ovum**[3] by a **spermatozoon**[4] or **sperm cell**[4] and marks the beginning of **pregnancy**[5] or **gestation**[5]

for the impregnated woman. In the course of its development the **product of conception**[6] is successively called an **embryo**[7] and then a **foetus**[7] — sometimes written as **fetus**[7]. The moment at which the embryo becomes a foetus is not precisely determined: certain scientists set it at the end of 12 weeks or three months of intra—uterine life, although successive developmental stages after the eighth week are often termed foetal. **Nidation**[8] refers to the implantation of the egg in the wall of the **uterus**[9] or **womb**[9], a process which occurs a few days after fertilization.

1. **Conception**, n.- **conceive**, v.
2. **Fertilization**, n. - **fertilize**, v.
   Artificial fertilization: fertilization obtained by **artificial insemination**, i.e. by a process other than *coitus* (627-2).
3. A fertilized ovum is called an **egg** or **zygote**.
5. **Pregnancy**, n. - **pregnant**, adj.: gravid, expectant. Certain scientists consider that a pregnancy begins only at the time of *nidation* (602-8) of the egg.
7. **Embryo**, n. - **embryonic**, adj. - **embryology**, n.: the science dealing with the development of the embryo.
   Foetus or **fetus**, n. - **foetal** or **fetal**, adj. (cf. *411*).
9. **Uterus**, n. - **uterine**, adj.

603

A foetus is said to be **non-viable**[2] during the first part of a pregnancy and **viable**[1] thereafter. The change occurs when the foetus becomes capable of independent existence outside its mother, which is commonly considered to take place when the **period of gestation**[3] or **duration of pregnancy**[3] has exceeded 28 weeks. If the pregnancy has lasted longer than this, the expulsion of the foetus (alive or dead) takes place during **confinement**[4]; an earlier explusion associated with an early foetal death is called an **abortion**[5] (cf. § *604)*. The period of about six weeks after delivery (during which the uterus usually regains its normal size and in which the probability of conception is low) is called the **puerperium**[6].

1. **Viable**, adj. - **viability**, n.
2. The minimum period determining viability varies between 20 and 28 weeks among countries, but the World Health Organization has recommended that 28 weeks be the standard time period. Generally the duration of pregnancy is computed from the onset of the **last menses**. This constitutes the **conventional duration of pregnancy**,

as opposed to the **true duration of pregnancy**, computed from the time of conception.

4. The actual process of expulsion of the foetus is called **delivery** or **parturition**, which is the termination of **labor**. In addition to those, **confinement** includes expulsion or removal of the **placenta** or **afterbirth**.

5. **Abortion**, n. - **abort**, v.t. or v.i. - **abortifacient**, adj. used as n.: capable of inducing abortion. - **abortionist**, n.: a person who performs abortions. In everyday language, the term *abortion* often takes the meaning of *induced abortion* (604-2), as opposed to *spontaneous abortion* (604-1).

6. **Puerperium**, n. - **puerperal**, adj. (cf. 424-4).

604

Abortions following a non-induced infra-uterine death, which may have occurred some time before expulsion, are called **spontaneous abortions**[1] or **miscarriages**[1], in contrast to **intentional abortions**[2], or **induced abortions**[2]. A **therapeutic abortion**[3] is one undertaken for medical reasons. The laws of certain countries permit abortions for health or other reasons; these are **legal abortions**[4]. Abortions which are induced contrary to law are called **illegal abortions**[5] or **criminal abortions**[5]. According to the technique used, there are **abortions by curettage**[6], **abortions by vacuum aspiration**[7], **abortions by dilatation and evacuation**[7], **hysterotomies**[8] (involving surgical cutting into the uterus), and **abortions by medical induction procedures**[9].

6. Also called **abortions by dilatation and curettage**, (abbreviated to D and C).

7. Also called **abortions by suction**. When the procedure is used very soon after a presumed conception, the terms **menstrual regulation** or **menstrual extraction** are used.

9. Such procedures involve **amniotic fluid exchange** as in the instance of an **abortion by saline injection**, or the use of **prostaglandins**.

605

Full term deliveries[1] occur when the pregnancy has lasted at least 37 weeks, measured in *conventional duration of pregnancy* (603-3*). A pregnancy ending before the normal period is termed a **premature delivery**[2] or **premature confinement**[2] or **premature birth**[2] and the product of this delivery is called

a **premature baby**[4]. Births which are not premature are called **births at term**[3] or **full-term births**[3]. The word **prematurity**[5] is used to refer to phenomena connected with premature delivery. A classification of births by stage of development that does not depend upon an estimate of the period of gestation is used in many countries. In this classification a live-born infant with a **birth weight**[6] of 2,500 grams (5 1/2 lbs.) or less is said to be **immature**[8]. **Immaturity**[7] is often combined with **debility**[9], an abnormal state of weakness.

606

At most confinements there is a **single birth**[1] or **single delivery**[1] but at some there are **plural births**[2], **multiple births**[2] or **multiple deliveries**[2]. Two children born during the same confinement are called **twins**[3] and we may distinguish between **monozygotic twins**[4], **uniovular twins**[4] or **identical twins**[4] on the one hand, and **dizygotic twins**[5] or **biovular twins**[5] on the other. Monozygotic multiple births occur when one ovum splits after fertilization; the resulting children must always be of the same sex. Dizygotic multiple births are due to the simultaneous fertilization of two or more ova and the resulting children may be of different sexes.

2. In British official terminology the term **maternity** is used to denote a confinement resulting in the birth of one or more children; the number of **births per maternity** may be computed.

3. Where a multiple birth results in three children, these are-called **triplets**, four are **quadruplets**, and five **quintuplets**. The terms "twins", "triplets", etc. are generally used in accordance with the total number of deliveries during a confinement; occasionally, however, multiple births are classified only in accordance with the number of children born alive.

*
**

610

Births are classified by **legitimacy**[1]. Strictly speaking, a **legitimate child**[2] may be defined as one whose father and mother were married to one another at the time of conception. But in practice, the classification depends upon the marital status of the mother at the time of the birth or, after the *dissolution of marriage* (510-3), at the time of conception. A **legitimate birth**[3] is the delivery of such a .child; other births are **illegitimate births**[4]. It is general practice to consider as legitimate the children who result from **pre-marital conceptions**[5] or **pre-nuptial conceptions**[5] (i.e., conceptions occurring before mar-

riage) provided that the parents are married to each other at the time of the birth. An **illegitimate child**[6] or **child born out of wedlock**[6] may be **legitimized**[8] or **legitimated**[8] by the subsequent marriage of its parents. The process of **legitimation**[9], which varies in different countries, may confer on the illegitimate child some or all of the legal rights of legitimate children. In some legal systems it is possible for a father to grant **recognition**[7] to, or **acknowledge**[7], his illegitimate child, i.e., to admit in legal form that he is the child's father.

5. **Bridal pregnancies** is also used in this connection.

6. The legal term **bastard** has acquired a derogatory meaning but is occasionally used by historical demographers. According to the law of some countries a child is illegitimate if it results from **adulterous relations** or **extra-marital relations** i.e., a connection between a married woman and a man other than her husband, but such a birth is not always registered as illegitimate.

611

Births are also classified by **birth order**[1], e.g. first births, second births, etc. Birth order is usually determined by considering all **previous births to the mother**[3], and sometimes only **births of the present marriage**[2]. Birth order is generally based on live births only, but occasionally late foetal deaths are taken into account as well. A classification of women by **confinement order**[4] is made in the same way as for births by counting all pregnancies which lasted at least 28 weeks, and reckoning multiple births as one confinement (cf. 603-4). Similarly a classification by **pregnancy order**[5] is made by counting all known pregnancies. In medical parlance, a woman is called **nulligravida**[6] if she has never been pregnant; the terms **primigravida**[7] and **multigravida**[8] respectively are used for a woman who is pregnant for the first time or who has been pregnant before. Women are also classified by **parity**[9], usually on the basis of the number of children born alive, although in biological literature the term refers to the number of confinements, and a woman who has had no confinement at all is said to be a **nullipara**[10] or **nulliparous**[10]. Similarly, a woman is termed a **primipara**[11] and deemed to be **primiparous**[11] at her first confinement and a **multipara**[12] or **multiparous**[12] at subsequent confinements.

1. **Higher order births** are births occurring after the last specified order, e.g. fifth and higher order births.

9. A woman who has not borne any live children is called a **zero-parity woman**, a **one-parity woman** has borne one child but no more, and so on.

612

Studies of **birth timing**[1] deal with the length of **birth intervals**[2]. These include the **interval between marriage and the first birth**[3] and **intervals between successive births**[4]. The interval between a birth and a fixed date, such as that of a *census* (202-1 *) or *survey* (203-4), is called an **open birth interval**[5]; intervals that begin before and end after that date are called **straddling intervals**[6]. The **interval between marriage and the Nth birth**[7] is also used to study the timing of births.

1. **Birth spacing**, although sometimes found in the sense of birth timing as above, is commonly used to refer to the deliberate efforts of couples to postpone a birth.

3. Also called **first birth intervals**. The **second birth interval** is that between the first and the second birth; and so on.

4. As seen from the vantage of that census or survey, the intervals between the recorded successive births are called **closed birth intervals**.

613

In computing the period of **exposure to the risk of conception**[1] it is necessary to consider **pregnancy intervals**[2]. The interval between marriage and the first pregnancy is the **conception delay**[3] or **first pregnancy interval**[3]. The period between the end of one pregnancy and the beginning of the next is the **inter-pregnancy interval**[4]. If the time when the woman had no sexual activity is subtracted, a **net inter-pregnancy interval**[5] is obtained. The period between the end of the last pregnancy and the date of a survey is called an **open inter-pregnancy interval**[6].

*
**

620

The **reproductive period**[1] (or in women the **childbearing period**[1]) begins at **puberty**[2]. **Menstruation**[3] — the appearance of the **periods**[4] or **menses**[4] in women — also begins at puberty. The first period is called the **menarche**[5] and menstruation ceases with the **menopause**[6], which is also sometimes called the **climacteric**[6]. In practice, the reproductive period is often made to start, by convention, at 15 years or at the *minimum age at marriage* (504-1) and, for some, to end at 45 or 50 year. The temporary absence of menstruation, be it

normal or pathological, is called **amenorrhea**[7]. **Pregnancy amenorrhea**[8] occurs after a conception, and **post-partum amenorrhea**[9] after a confinement.

1. The terms **reproductive ages** or **fecund ages** are also used.
3. **Menstruation**, n. - **menstruate**, v. - **menstrual**, adj.
6. **Menopause**, n. - **menopausal**, adj. The expression **change of life** is used as a synonym for menopause in colloquial language.

621

The capacity of a man, a woman or a couple to produce a live child is called **fecundity**[1]. The lack of that capacity is called **infecundity**[2] or **sterility**[2]; **inability to conceive**[3] and **inability to procreate**[10★] are the main, but not the single causes of sterility. Used alone, sterility usually carries the connotation of irreversibility, but occasionally **temporary inability to conceive**[4★] and **temporary sterility**[5] are distinguished from **permanent inability to conceive**[6★] and **permanent sterility**[7]. Among women we distinguish **primary sterility**[8] where the woman has never been able to have children, and **secondary sterility**[9], which arises after one or more children have been born.

1. **Fecundity**, n. - **fecund**, adj. An alternative meaning of the term implies the ability to conceive, rather than to produce a live child. The terms **sub-fecundity** and **sub-fecund** mean either that the capacity to produce a live child is below normal, or that the probability of conception is low.
2. **Sterility**, n. - **sterile**, adj. **Infecundity**, n. - **infecund**, adj.

622

The term *temporary sterility* (621-5) is used even in instances where a woman's inability to conceive is not the result of a pathological condition.Women are said to have **sterile periods**[1] in each **menstrual cycle**[2], because generally conception can occur only during a few days around the time of **ovulation**[3]. The period of sterility that extends from *conception* (602-1) to the return of ovulation after a delivery, which includes *pregnancy* (602-5) and is influenced by the duration of **breastfeeding**[4], is called the **nonsusceptible period**[5], particularly in mathematical models of reproduction. Temporary sterility is also used to refer to the occurrence of **anovulatory cycles**[6] (i.e., menstrual cycles in which ovulation does not occur) or to abnormal periods of amenorrhea. The **sub-fecundity**[7] of very young women is commonly called **adolescent sterility**[8]; it would be better to talk about **adolescent sub-fecundity**[8].

5. The period between delivery and the return of ovulation is often called the period of **post-partum sterility**.

6. Also called anovular cycles.

623

Fertility[1] and **infertility**[2] refer to reproductive performance rather than capacity, and are used according to whether there was actual childbearing or not during the period under review. When it concerns the complete reproductive period, the term **total infertility**[3*] may be used while **permanent infertility**[4] may extend from a certain age or marriage duration to the end of the childbearing years. **Voluntary infertility**[5*] is used when the absence of procreation corresponds to a decision of the couple (503-8).It should be noted that in many Latin languages, the cognates of fertility and fecondity are used in a sense diametrically opposite to that in English. Thus, the French *fécondité* and the Spanish *fecundidad* are properly translated by fertility, and *fertilité* and *fertilidad* by fecondity.

1. **Fertility**, n. - fertile, adj.

2. **Infertility**, n. - infertile, adj.
Childlessness, n. - **childless**, adj. : refer to the state of a women, man or couple who have been so far infertile.

624

The *fertility* (623-1) of couples will depend upon their **reproductive behavior**[1]. A distinction is drawn between **planners**[2], couples who attempt to regulate the number and *spacing* (612-1*) of their births, and **non-planners**[3], couples who make no such attempt. **Family planning**[4] has a broader meaning than **family limitation**[4] which refers to efforts not to exceed the **number of children wanted**[5]. The terms **birth control**[6] or **fertility regulation**[6] are not restricted to the activities of married persons.

4. A classification according to **family planning status** distinguishes couples who have not tried to regulate the number and spacing of their children from those who have tried to do so.

5. **Unwanted births** or **unintended births** are those that occur after the total family size desired by the couple has been reached. They are distinguished from **unplanned births** that may have occurred at a time that was not intended, and perhaps outside of wedlock.

625

Family planning implies a concern with **planned parenthood**[1] or **responsible parenthood**[1], i.e., the desire to determine the number and spacing of births in conformity with the best interest of each couple, or of society. The number of children expected by a couple may differ from the **desired number of children**[2] or **intended number of children**[2] reported by the couple in a survey. Even if these goals are not revised, they may be exceeded as a result of **contraceptive failures**[3] ; the frequency of the latter depends on **contraceptive effectiveness**[4] which has two aspects. **Theoretical effectiveness**[5] or **physiological effectiveness**[5] indicates how reliable a method is when used all the time according to directions. **Use effectiveness**[6] measures its reliability when used in everyday situations by a given population. Reasoning in terms of *residual fecundability* (638-7), use effectiveness is usually measured by the **contraceptive failure rate**[7] which relates the number of unintended conceptions to the length of exposure to the risk of conceiving.

2. In other terms, **birth expectations** differ from **reproductive intentions**. A distinction is made between **desired family size**, the number of children a woman, man or couple wants to have, and the **ideal family size** which they envision for their society. **Intended family size** may be lower than desired family size.
3. **Unplanned births** are often opposed to **planned births**.
4. 5. and 6. **Efficacy** is a synonym for effectiveness in these expressions.
4. Not to be confused with the **demographic effectiveness** of a family planning program (see 626-7), or of a method in a population.

626

A **family planning program**[1] seeks to introduce and diffuse birth control in a group of **potential users**[2] or in a **target population**[2]. Teams of **fieldworkers**[3], including **canvassers**[3], **motivators**[3] and **distributors**[3], attempt to reach and convince the population to use contraception or abortion. The success of the program can be measured by the **proportion of new acceptors**[4] in the target population, or by the **acceptance rate**[4]; for the acceptors of contraception, the **continuation rate**[5] after a certain lapse of time and its complement, the **termination rate**[6] or **drop-out rate**[6] are also computed. Estimates of the numbers and proportions of **births averted**[7] reflect the *demographic effectiveness* (625-4*) of the program. Contraceptive prevalence in a population is estimated by the **proportion of current users**[8] of contraception from a relevant universe, such as married women of reproductive age.{

8. Special **surveys of knowledge, attitudes and practice** of contraception have been called **KAP surveys** in abbreviation.

627

Contraception[1] refers to measures which are taken in order to prevent **sexual intercourse**[2] or **coitus**[2] from resulting in conception; the term covers contraceptive *sterilization* (631-1). **Birth control methods**[3] is used in a broader sense than **contraceptive methods**[3] to include induced *abortion* (604-2). **Abstinence**[4] from coitus, particularly *periodic abstinence* (628-4) is often included among contraceptive or birth control methods.

1. **Contraception**, n. - **contraceptor**, n.: one who practices contraception. **Contraceptive**, adj. : used for contraception.

4. **Abstinence**, n. - **abstain**, v.

628

A distinction is frequently drawn between **appliance methods**[1] of contraception and **non-appliance methods**[2]. One principal non-appliance method of contraception is **coitus interruptus**[3] or **withdrawal**[3]. Another non-appliance method of contraception is **periodic abstinence**[4] or the **rhythm method**[4], in which coitus is avoided during the period when the woman is believed to be fecund and takes place only during the so-called **safe period**[5] of the menstrual cycle. The **basal body temperature method**[6] refers to the method in which the woman keeps track of her temperature to identify the safe period.

1. Appliance methods include not only **barrier methods** which are used to prevent the union of the sperm and ovum, but also methods using other **contraceptive devices** such as the intra-uterine device (629-10) and other types of **contraceptives** such as the pill (630-4).

4. The term **natural family planning methods** has been applied collectively to cover the rhythm method, the basal body temperature method, and other techniques which attempt to identify stages of the woman's ovulatory cycle.

629

The barrier methods which are more commonly used alone or in combination include the **condom**[1] or **sheath**[1], used by men, and the **cervical cap**[2] or **pessary**[2], the **diaphragm**[3], **tampon**[4] or **sponge**[4], **contraceptive jelly**[5], **suppos-**

itory[6], **foam tablets**[7] and **douche**[8] with or without **spermicide**[9], used by women. There are various types of **intra-uterine devices**[10] (abbreviated to **IUD**[10]), including the **loop**[10], the **coil**[10], the **copper T**[10], etc.

*
**

630

Oral contraceptives[1] are a method of **hormonal contraception**[2] or **contraception by steroids**[3]. These inhibit ovulation by regular ingestion of the **pill**[4], or by injections or implants.

631

Sterilization[1] results from various surgical procedures: on the male, **vasectomy**[2] or **occlusion**[3⋆] involves tying and cutting the vas deferens; on the female **tubal ligation**[4] and **salpingectomy**[5] or **tubectomy**[5] involve interventions on the fallopian tubes. **Hysterectomy**[6] or excision of the uterus, also involves sterilization of the woman.

4. and 5. Various procedures are used to gain access to the Fallopian tubes, such as **laparotomy**, **colpotomy** or **laparoscopy**.

632

The general term **birth rate**[1] refers to a rate calculated by relating the number of live births observed in a population or sub-population during a given period to the size of the population or sub-population during the period. The rate is usually stated per 1,000, and the most usual period is one year. Where the term birth rate is used without qualification, it is understood to be the **crude birth rate**[2], and all live births are related to the entire population. The **total birth rate**[3] based on live births and late foetal deaths is sometimes calculated. **Legitimate birth rates**[4] and **illegitimate birth rates**[5] are also calculated with legitimate and illegitimate births in the numerator and the currently married and unmarried female population, respectively, in the denominator. The **illegitimacy ratio**[6], the number of illegitimate births per 1,000 total births, is more frequently used, however. To compare the fertility of different populations, **standardized birth rates**[7] are often used to eliminate the effect on the birth rate of certain differences in structure of the population (most commonly the age and sex structure). The **child-woman ratio**[8], most commonly the number of children aged 0 to 4 per 1,000 women of childbearing age, e.g., 15

to 49, is used as an index of fertility when reliable birth statistics are not available.

4. The denominator of the legitimate and illegitimate birth rate is sometimes the total population.

5. See note 4.

633

The term **fertility rate**[1] is often used when the denominator of the birth rate fraction is restricted to a group of individuals of the same sex in the reproductive ages (620-1). This denominator is commonly the mid-year population in the stated period, but it may also be the number of years lived by the group during the period, or the mean size of the group. Unless otherwise indicated, these rates are **female fertility rates**[2], and the rates are calculated for groups of women; the number of years lived by a given number of women in an interval is called the number of **woman years**[3]. **Male fertility rates**[4] are computed sometimes in an analogous manner. Fertility rates are generally expressed as births per thousand (implied: individuals of the same category — sex, age, marital status, etc. — cf. 133-4*). **Marital fertility rates**[5] or **legitimate fertility rates**[5] relate the total number of legitimate births (610-3) to the number of currently married women; **non-marital fertility rates**[6] or **illegitimate fertility rates**[6] relate the total number of illegitimate births (610-4) to the number of single, widowed and divorced women. **Overall fertility rates**[7] make no distinction according to the legitimacy (610-1) of the births or the marital status of the parents. The **general fertility rate**[8] relates the total number of births to all women of reproductive age regardless of marital status. Rates based on a narrower age range (usually one-year or five-year age groups) are called **age-specific fertility rates**[9] or **age-specific birth rates**[9].

1. In many expressions used in this and following paragraphs, **birth rate** is used synonymously with fertility rate.

5. **Marital fertility** or **legitimate fertility**: the fertility of married persons (see 635-1).

6. **Non-marital fertility** or **illegitimate fertility**: the fertility of unmarried persons.

634

Order-specific fertility rates[1] relate births of a certain order to a number of women, to a number of marriages or to a number of births of the preceding order. **Parity-specific fertility rates**[2] or **parity-specific birth rates**[2] not only

restrict the numerator to births of a given order, but also restrict the denominator to the women of the *parity* (611-6) *at risk* (134-2), e.g., second order births to one-parity women. Such rates are usually age-specific or duration-specific. In **parity-specific birth probabilities**[3], the numerator consists of the number of births of order x + 1 occurring during a period, and the denominator consists of the number of women of parity x at the beginning of the same period.

635

When studying **marital fertility**[1] it is possible to arrange the data by *marriage cohorts* (116-2) of the mothers, and **marriage duration-specific fertility rates**[2] are often computed in preference to **age-specific marital fertility rates**[3].

636

The term **cohort fertility**[1] refers to the reproductive performance of particular birth or marriage cohorts (116-2). When the age-specific or marriage duration-specific fertility rates are summed from the cohort's beginning of exposure to risk until some later date, we speak of **cumulative fertility**[2]: **age-specific cumulative fertility**[3⋆] or **marriage duration-specific cumulative fertility**[3⋆] when then ending date is that of a womans birthday or marriage (501-4), **completed fertility**[4] or **lifetime fertility**[4] is the cumulative fertility until the date when all members of the cohort have reached the end of the reproductive period. The sum of the products of the fertility rates of the cohort by the probability of survival of the women to successive ages could be called the **cumulative net fertility**[5], **age-specific net cumulative fertility**[6⋆] or **marriage duration-specific net cumulative fertility**[6⋆] and **net complete fertility**[7⋆] or **net lifetime fertility**[7⋆] of the cohort.

4. Before the end of the reproductive period, the terms incomplete fertility or fertility to date are employed to show that the cohort's cumulative fertility may be expected to increase.

637

Censuses and surveys may provide information on fertility when they include questions on the number of children born to enumerated women or couples, either during the **current marriage**[1], or overall. The **mean number of children ever born per woman**[2] or **average parity**[2] can be computed. The number of children per couple is sometimes called **average family size**[3]. It is al-

so possible to calculate the **mean number of births per marriage**[4]. Special attention is paid to **marriages of completed fertility**[5], those in which the wife had reached the end of the reproductive years before the marriage was dissolved. The **final parity**[6] or **completed parity**[6], i.e., the mean number of children per woman past the childbearing age, is not very different from *completed fertility* (636-4). The tabulation of final parity or completed fertility by number of children serves to compute series of **parity progression ratios**[7]; these are fractions whose denominator is the number of women with n children, and whose numerator is the number of women with $n + 1$ children. Special studies yield information on **family formation**[8] and the **family life cycle**[8]. Among those, **frequency of premarital conceptions**[9⋆], *birth intervals* (612-1) and the **age at the birth of the last child**[10] for women of completed fertility are of particular interest.

638

Fertility histories[1] or **reproductive histories**[1] are accounts obtained for individual women of the important events in their reproductive lives, such as marriages, pregnancies, births, infant deaths, etc., and their dates. Fertility histories are often obtained retrospectively from surveys. **Family forms**[1] are used in *historical demography* (102-1), where they are established for a married couple and its children by **family reconstitution**[2] on the basis of *vital records* (211-3). A woman's **pregnancy history**[3] or **pregnancy record**[3] contains detailed information about her pregnancies including the date when each began and ended, and the outcome of the pregnancy. Such detailed records on the timing of fertility have been used for various purposes. For example, they can provide information on **natural fertility**[4], i.e., fertility in the absence of *family limitation* (624-4). They are also used to estimate **fecundability**[5], the probability of conceiving per *menstrual cycle* (622-2). A distinction is made between **natural fecundability**[6], in the absence of contraception, and **residual fecundability**[7] in the opposite instance. The term **effective fecundability**[8] designates a fecundability that is reckoned in terms of conceptions that result in live births only. The **conception rate**[9] during the period of *exposure to risk* often estimated using the **Pearl index**[10⋆] (613-1) is used to measure the effectiveness of contraception during periods of contraceptive use.

1. Birth histories are usually limited to live births.

6. When used alone, the word fecundability stands for natural fecundability.

639

A summary index of **period fertility**[1], i.e., the fertility of a particular year or period, computed by the summation of the series of age-specific fertility rates constituting the **fertility schedule**[2] and representing a **synthetic measure of fertility**[3], is the **total fertility rate**[4] or **total fertility**[4]. Other summary period indices can be obtained, such as the **total legitimate fertility rate**[5], the summation of marriage duration-specific fertility rates, and the **order-specific total fertility rate**[6], the summation of age-specific fertility rates order by order. The **ratio of births to marriages**[7] is computed by relating the number of births of a given year, either to the marriages of the year, or to a weighted average of the marriages of the current and of the preceding years.

2. Also, **fertility distribution** or **fertility function**.

4. This is not a rate in the meaning of (133-4). Total fertility for a given year represents the number of children that would be bom per 1,000 women if they experienced no mortality and were subject to the age-specific fertility rates observed for that year. The **period gross reproduction rate** (see 711-4) which is derived by multiplying the total fertility rate by the proportion of female births, has often been used in the past, but the total fertility rate is preferred at present as the summary index of period fertility.

5. Or **total marital fertility**. The term is also used to describe the sum of the age-specific marital fertility rates above age 20.

640

Where *induced abortion* (604-2) has been legalized, it is possible to compile statistics on *legal abortions* (604-4). The **abortion rate**[1] is a measure of the frequency of abortion in a population during a given period, usually a year. Abortions may be related to the total population or to the number of women in the reproductive ages and may be specific for age, parity or any other characteristic. The **abortion ratio**[2] is a measure of the frequency of abortions in relation to the number of *live births* (601-4) during the same period. The **life-time abortion rate**[3] is the sum of **age-specific abortion rates**[4★] and is a synthetic measure of abortion per woman or per 1000 women. These rates are the ratio of the number of abortions reported at each age to years lived by all women of the same age. If women can be classified according to their marital status, **abortion rates by age and marital status**[5★] can be obtained. It is often also relevant to divide the number of abortions by the number of conceptions and so to calculate the **probability that a pregnancy results in an abortion by age and marital status**[6★].

Chapter 7
Population growth and replacement

701

The interaction of fertility, mortality and migration leads to a consideration of **population growth**[1]. A **zero population growth**[10⋆] refers to a population of invariable size. It is convenient to regard **population decline**[2] as **negative growth**[3]. A distinction may be drawn between a **closed population**[4] in which there is no migration either inwards or outwards and whose growth depends entirely on the difference between births and deaths, and an **open population**[5] in which there may be migration. The growth of an open population consists of the **balance of migration**[6] or **net migration**[6] and **natural increase**[7], which is the **excess of births over deaths**[8] or **deficit of births over deaths**[9⋆] sometimes called the **balance of births and deaths**[8]. Any change in one variable affects the overall growth and structure of a population; in this context **growth effects**[11⋆] and **structural effects**[12⋆] are determined.

702

The ratio of total growth in a given period to the mean population of that period is called the **growth rate**[1]. Occasionally this rate is computed with the population at the beginning of the period rather than with the mean population as a denominator. When population increase over a period of more than one calendar year is studied, the **mean annual rate of growth**[2] may be computed. In computing this rate it is sometimes assumed that the population is subjected to **exponential growth**[3] during the period, and time is treated as a continuous variable. The size of an **exponential population**[4] would grow as an exponential function of time. The **exponential growth rate**[5] is equal to the **instantaneous rate of growth**[5]. The ratio of natural increase (701-7) to the average population during a period is called the **crude rate of natural**

increase[6] and is equal to the difference between the crude birth rate and the crude death rate. The **vital index**[7] is the ratio of the number of births to the number of deaths during a period; this measure is no longer much used.

3. When time is treated as a discrete variable, reference is made to **geometric growth**.
4. This is occasionally called a **Malthusian population**, but the term is ambiguous in view of its sociological connotations (see 906-1).

703

It can be shown that when a *closed population* (701-4) is subjected to constant *age-specific fertility* and *mortality rates* (631-8; 412-1) for a sufficiently long period of time, its annual rate of increase will tend to become constant. This constant rate of increase is called the **intrinsic rate of natural increase**[1], and a population which has reached this stage is called a **stable population**[2]. The proportion of persons in different age groups in such a population will be constant, i.e., the population will have a **stable age distribution**[3]. This stable age distribution is independent of the **initial age distribution**[4] and depends only on the fertility and mortality rates that are kept constant. Human populations never reach exact stability in practice, as fertility and mortality rates constantly change, but the computation of a stable population as a model and of its intrinsic rates may provide an index of the **growth potential**[5] of a set of age-specific fertility rates applied to a non stabilized age structure. Related to the growth potential, the moment of inertia of a population or **demographic momentum**[11⋆] should be mentioned: it refers to the dynamics hidden in the age structure due to a delayed growth response caused by the biological fact that from the time of birth of a *cohort* (116-2) to the beginning of their period of *fertility* (620-1) a certain amount of time passes. A population may for this reason still grow, even though the birth rate drops long ago. The reverse case is also possible. The momentum is particularly altered in case of discontinuity in the evolution of births (during wars for example) and abrupt reversals of trends. A stable population in which the intrinsic rate of natural increase is zero is called a **stationary population**[6]. In such a population the numbers in a given age group are equal to the integral of the *survivorship function* (431-3) of the life tables taken between the upper and lower age limits of the group, multiplied by a factor of proportionality common to all age groups. A **quasi-stable population**[7] is a formerly stable population with constant fertility and gradually changing mortality; characteristics of this type of population are similar to those of **semi-stable populations**[8⋆] which are closed population with a constant age structure. A **logistic population**[9] is a population growing in accordance with the **logistic law**[10] of growth, i.e., a population in which the growth rate decreases as a linear function of the population already alive and which will tend asymptotically to an upper limit.

1. The intrinsic rate, also called by its inventor Lotka, the **true rate of natural increase**, is equal to the difference between the **intrinsic birth rate** (or **stable birth rate**) and the **intrinsic death rate** (or **stable death rate**).

2. **Stable**, adj. - **stability**, n. - **stabilize**, v.
Stable population analysis uses the properties of stable population models to estimate various characteristics of real populations.

6. **Stationary**, adj. - **stationarity**, n.

*
**

710

The study of **reproduction**[1] (see § *116*) or **population replacement**[1] is concerned with the natural process through which a population replaces its numbers. The theory behind treats population as a **renewable resource**[2] in the mathematical sense of the term. A distinction is drawn between **gross reproduction**[3] or **gross replacement**[3], where no account is taken of mortality before the end of the reproductive period (620-1), and **net reproduction**[4] or **net replacement**[4], in which this mortality is taken into account.

1. Also **reproductivity**. For another sense of reproduction see 601-2.

711

In this study of replacement a number of indices, **replacement rates**[1] or **reproduction rates**[1] are used. Reproduction rates are generally **female reproduction rates**[2] or **maternal reproduction rates**[2]. The female **net reproduction rate**[3] is defined as the average number of live daughters that would be born to a hypothetical female *birth cohort* (116-2) which would be subjected to a set of current *age-specific fertility* (631-8) and *mortality rates* (401-2). A female **gross reproduction rate**[4] is computed similarly on the assumption that mortality before the end of the reproductive age is zero. **Male reproduction rates**[5] or **paternal reproduction rates**[5] can be computed analogously using male births and a male birth cohort, and certain types of **joint reproduction rates**[6] which take both sexes into account have been proposed. Where the experience of an actual cohort is used in the construction of reproduction rates, **cohort reproduction rates**[7] or **generation reproduction rates**[7] are obtained. The mortality and the fertility rates used in the construction of these rates will refer to different periods of time. Where statistics of fertility by age are not available, the so-called **replacement index**[8] may be used. This ratio

relates the quotient of the population of children of a given age (as a rule those 0-4 years) to the number of women of childbearing age in the actual population, to the corresponding quotient in the *stationary population* (703-6).

712

Other replacement indices are also computed. For instance, the net reproduction rate is sometimes split into a **legitimate component**[1] and an **illegitimate component**[2]. Again, a **nuptial reproduction rate**[3] has been computed, showing the number of legitimate daughters that will be born to a newly-born female if current rates of mortality, fertility, nuptiality and dissolution of marriage remain unchanged. Generally such rates are for females, but it would be possible to compute analogous rates for males.

713

The *net reproduction rate* (711-3) and the *intrinsic rate of natural increase* (703-1) are closely related to one another. The net reproduction rate measures the increase in the *stable population* (703-2) implied by the given age-specific fertility and mortality rates over a period equivalent to the **mean length of a generation**[1] or the **mean interval between successive generations**[1]. This length of a female generation is equal to the **mean age of mothers**[2] giving birth to live daughters, with current age-specific fertility and mortality rates. Period reproduction rates are current indices (cf. *152*) which relate to **hypothetical cohorts**[3] or **synthetic cohorts**[3].

2. The **mean age of fertility**, i.e., the mean age of the fertility schedule is only approximately equal to the mean length of a generation. The mean length of a male generation similarly is equal to the **mean age of fathers** at the birth of their children.

*
**

720

Population projections[1] are calculations which show the future development of a population when certain assumptions are made about the future course of population change, usually with respect to fertility, mortality and migration. They are in general purely formal calculations, developing the implications of the assumptions that are made. A **population forecast**[2] is a projection in which the assumptions are considered to yield a realistic picture of the

probable future development of a population. Although the **projection period**[3] is variable, **short-term forecasts**[4] are the rule, as the margin of error to which forecasts are subject increases considerably as the length of the forecast's period increases. The most frequently used method of projection is the **component method**[5] or **cohort-component method**[5] which takes the population distributed by age and sex at a **base date**[6] and carries it forward in time, cohort by cohort, on the basis of separate allowances for fertility, mortality and migration. When matrix algebra is used for component projections, the method is sometimes called **matrix method of projection**[7].

1. Projections are also made in terms of educational, economic and social characteristics. **Backward projections** which might be more accurately called **retrojections**, use similar methods to trace the past evolution of the population.

721

Estimates of the population[1] by size and composition at various dates in the past and present may be made by various methods, including many of the methods used for *population projections* (720-1). **Demographic estimates**[2] include estimates of the population and of such characteristics as *fertility* (601-1), *mortality* (401-1), etc. The **annual extrapolation of population**[5*] from the last census is carried out on the basis of the last census and vital statistics in subsequent years. **Intercensal estimates**[3] relate to dates intermediate to two or more *censuses* (202-1), and take the results of these censuses into account. The **error of closure**[4] is the difference between the size of a population enumerated at a new census and the population estimated for that census date on the basis of a previous census, the excess of births over deaths, and *net migration* (805-2) during the intercensal period. This difference represents the balance of errors in the data on births, deaths, net migration, and the coverage of the two censuses.

3. **Postcensal estimates** take the results of a previous census into account, but not those of the next census.

*
**

730

A **demographic model**[1] consists of a theoretical construct representing the evolution of a population (of individuals, couples, families, households, etc.) and its structure on the basis of its initial state and the effect of various de-

mographic variables (such as fertility, fecundability, mortality, etc.). In a **static model**[2], these variables remain constant; in a **dynamic model**[3], they are allowed to change over time. A further distinction is made between **deterministic models**[4] which assign functional relations between definite values of the variables, as if the studied population were infinitely large, and **stochastic models**[5] or **probabilistic models**[5] which consider the probability of various events occurring to individuals over the duration of the process under study. The model may be set out in mathematical formulas or take the form of a **simulation**[6] where specific values of the variables are included in a system of relations. **Macrosimulations**[7] may for example involve population projections made by the *component method* (720-5). In **microsimulations**[8], events are made to occur randomly to individuals or groups over time according to sets of probabilities assigned to the variables in the model.

1. The word is also used as an adjective in such expressions as **model tables**.

Chapter 8
Spatial mobility

801

The study of **spatial mobility**[1] or **geographic mobility**[1] is concerned with the quantitative aspects of **moves**[2] made by individuals in geographic space. The distinguishing characteristic of **migration**[3] is that it involves a change in *usual place of residence* (310-6*) and implies movement across an administrative boundary. The administrative unit left by the migrant is the **place of origin**[4] or **place of departure**[4]; the unit to which the migrant goes is the **place of destination**[5] or **place of arrival**[5]. The concept of migration is often not applied to moves made by persons without a fixed place of residence, for example, *nomads* are excluded from the count of migrants in many countries. In practice it is sometimes difficult to distinguish between migration, which implies a relatively permanent change of residence, and **temporary moves**[6], except on the basis of criteria of **length of absence**[7] from the place of origin or **duration of stay**[8] at the place of destination. In general, geographic mobility does not include short-term trips which involve no change of usual residence, even though such moves may deserve study because of their economic and social importance. **Commuting**[9] involves the daily or weekly journey from place of residence to place of work or schooling; **seasonal moves**[10] have a yearly periodicity. **Transits**[11], which are moves across a territory to reach a destination, do not involve migration with respect to the territory crossed. **Tourist traffic**[12] or **vacationing**[12] also are not included in geographic mobility.

1. *Spatial mobility* is distinguished from *social mobility* (920-4) and *occupational mobility* (921-3).

3. **Migration**, n. - **migrate**, v. - **migrant**, n.: one who migrates, also used as adj. - **migratory**, adj.: pertaining to migration. The term *migration* refers to a process and cannot serve in English (in contrast to French) to describe a particular *move*; it is rarely used in the plural. Some

authors view all *residential mobility* (803-6) as migration. For most, however, migratory moves involve the crossing of a boundary, and the administrative unit selected is called the **migration defining area**.

5. The terms **country of arrival** and **country of reception** are appropriate when *international migration* is the subject of interest.

9. **Commute**, v. - **commuter**, n.: one who regularly travels from his place of residence to his place of work. The expression **journey to work** is also used to describe this type of movement.

10. **Seasonal movement** is more accurate than the frequently used term **seasonal migration** since these moves rarely involve a change of usual residence.

802

When migration is observed over time, it is convenient to compare the **place of residence at a fixed past date**[1] or the **place of last previous residence**[2] with the **place of current residence**[3]. An individual whose administrative unit of residence differs at the beginning and end of a certain interval is identified as a **migrant**[4]. Migrants may be classified as **emigrants**[5] or **out-migrants**[5] with respect to their place of origin and as **immigrants**[6] or **in-migrants**[6] with respect to their place of current residence. When a census or survey has included a question on **previous place of residence**[2], the information generated concerns in fact the **latest migration**[7] or **latest change of residence**[7], whatever its date. A migrant is any individual who has had at least one prior residence in a different administrative unit from his or her current residence; such an individual can be considered to have **migrated into**[8] the current residence, and **migrated out**[9] of the previous one. A **lifetime migrant**[11] is a person whose **place of birth**[10] was in a different administrative unit from his or her current residence. In specific cases, migrants can be qualified as **emigrants for political, religious or ethical reasons**[12⋆], or **immigrants for political, religious or ethical reasons**[13⋆].

4. Strictly speaking, under this concept a migrant must have been born before the beginning of the **migration defining interval** and must survive until the end. This definition is sometimes extended to include children born during the interval who are allocated to the place of residence of their mother at the beginning of the interval. The number of recorded migrants is not necessarily equal to the number of moves which occurred during the interval for these individuals, as any one may have moved several times in the interval, or even have returned to his previous place of residence by the time of the census or survey.

10. Usually the place of birth is defined as the place of usual residence of the mother at the time of the birth even though custom or the location of medical facilities may have resulted in the birth occurring elsewhere.

803

The population of a *sovereign country* (305-3) may be involved in **internal migration**[1] when both *place of departure* (801-4) and *place of destination* (801-5) are within the country, or in **international migration**[2] which occurs across national boundaries. The term **external migration**[3] is sometimes encountered in the latter sense. International migration is called **immigration**[4] or **emigration**[5] according to whether the country in question is the country of destination or the country of origin. When the country is divided into sub-areas, movement within the boundaries of each sub-area are **local moves**[6] and constitute **residential mobility**[6], while movement between sub-areas is called **in-migration**[7] or **out-migration**[8] depending on whether the sub-area considered is the place of destination or the place of origin for the migrants. A **migration stream**[9] is a group of migrants having a common origin and destination. The larger stream between two sub-areas is called the **dominant stream**[10] and the smaller the **counterstream**[11].

1. The definitions of migration in this paragraph can be extended to the migrants involved. The distinction between internal and international migration is not always precise when territories within a country are more or less autonomous.

2. Simple commuting across a national border receives the name of **border traffic**, and should not be mistaken for international migration.

4. **Immigration**, n. - **immigrate**, v. - **immigrant**, n. and adj.

5. **Emigration**, n. - **emigrate**, v. - **emigrant**, n. and adj.

804

When an individual migrates several times during a certain period, his or her moves may be distinguished according to the **order of migration**[1]. The **duration of residence**[2] or **duration of stay**[2] refers either to the interval between the arrival in a place and the subsequent departure for another destination or to the interval since the most recent move. **Return migration**[3] involves movement back either to the initial area, or to any previous place of residence. **Repeat migration**[4] or **chronic migration**[4] refers to a tendency to migrate several times over a relatively short time interval. **Rural-urban migration**[5] sometimes takes the form of **serial migration**[6], **stage migration**[6] or **step migration**[6], as migrants tend to move to large cities as a final place

of destination by a series of shorter, intermediate migrations to cities or areas of successively larger size. The **serial migrations**[7★] between a series of cities of different sizes is sometimes used when net migration of each city is positive and results from an excess of immigration from the rural sector and smaller cities over emigration to the larger cities.

3. Individuals involved in return migration are called **return migrants**.

4. When repeat migration involves moving to new areas, some authors talk of **secondary migration** and of **secondary migrants**, in contrast to **primary migration** which involves first order or **primary migrants**. This is a source of confusion, since these terms usually take the meaning of 806-4.

805

The contribution of *migration* (801-3) to overall *population growth* or **population growth due to migration**[1★] (701-1) is due to **net migration**[2], i.e., the difference between the number of **arrivals**[3] and the number of **departures**[4]. Net migration can have a negative or a positive sign; **net immigration**[5] or **net in-migration**[5] is used when arrivals exceed departures, and **net emigration**[6] or **net out-migration**[6] when the opposite is true. The sum of arrivals and departures in a country can be used to measure the **volume of migration**[7]. A similar concept, applied to sub-areas of a country, is the migration **turnover**[8]. The **net stream**[9] or **net interchange**[9] of migration between two areas is defined as the difference between the *stream* (803-9) and the *counterstream* (803-11), whereas the **gross interchange**[10] is the sum of stream and counterstream.

2. This may also be called the **balance of migration** or the **migration balance**. Terms such as "net migrant" should be avoided, and phrases such as the **net number of migrants** should be preferred.

806

Spontaneous migration[1], **voluntary migration**[1] or **free migration**[1] is the result of the initiative and free choice of the migrants. In the absence of concerted action, the movement is referred to as **individual migration**[2]. When entire families are moving together, the term **family migration**[3] is sometimes encountered. **Secondary migration**[4] or **ancillary migration**[4] is induced by the movement of others, as when children follow the head of the family. An example of such migration is **family reunification**[9★], which pertains to the migration of family members, including children, of the family head. The movement of workers or of members of the labor force in response to employment

opportunities is referred to as **labor migration**[5]. Moves occurring as a result of marriage and when individuals retire from the labor force are sometimes referred to respectively as **marriage migration**[6] or **retirement migration**[7]. **Chain migration**[8*] or **linked migration**[8*] refers to a pattern of migration to specific places of destination, where a prospective migrant has a *relative* (114-3*) or friend who has established a residence and is willing to provide information and support.

4. Although the terms are sometimes used in a different sense (cf. 804-4*), a **primary migrant** is the person who makes the actual migration decision while a **secondary migrant** is an individual such as a young child whose migration is the result of another person's decision.

807

Where groups of individuals or families decide to migrate together **collective migration**[1] or **group migration**[1] will result. **Mass migration**[2] involves a very large number of migrants. The term **exodus**[3] may be used for a sudden mass migration caused by some emergency or catastrophe.

808

Voluntary migration (806-1) contrasts with **forced migration**[1], in which individuals are compelled by public authorities to move. **Repatriation**[2] applies to forced return of individuals to their country of origin. Another example of forced migration is the **expulsion**[3] from their places of abode either of individuals or of whole groups of people. The term **evacuation**[4] is generally reserved for the movement of whole populations in order to safeguard them from some catastrophe, such as earthquakes, floods, operations of war or the like. A **refugee**[5] has usually migrated on his own volition, though there may have been strong pressure on him to migrate because his continued stay in his country of origin may have exposed him to danger of persecution. A **displaced person**[6] is a person who has been moved by a public authority from his place of origin. This move may have taken place as a result of large-scale **displacement of population**[7] or **population transfer**[7], or **population exchange**[8].

2. **Repatriation**, n. - **repatriate, v**.

3. **Expulsion**, n. - **expel**, v - **expellee**, n., one who has been expelled. The term **deportation** is used for expulsion of an individual person from his country of residence because his continued residence is considered undesirable by the authorities. **Deportation**, n. - **deport**, v. - **deportee**, n.

4. **Evacuation**, n. **evacuate**, v, - **evacuee**, n., a person who has been evacuated.

809

The process by which immigrants adjust themselves to conditions in the area of destination falls into several categories: *naturalization* (331-1), the acquisition of legal citizenship; **absorption**[1] the entry into productive economic activity; **assimilation**[3], integration into the social structure on terms of equality; and **acculturation**[2] the adoption of the customs and values of the population in the place of destination.

810

When immigrants from a particular territory do not assimilate in their new country but retain the customs of their *place of origin* (801-3), they are called a **colony**[1]. When the receiving country is already inhabited, this raises problems of **coexistence**[2] between different populations. These may be solved by the **fusion**[3] of the populations, i.e. by the disappearance of recognizable differences, or by the **integration**[4] of one of the populations into the other. **Segregation**[5] exists in a territory where two or more populations live but remain separated by barriers imposed by custom or by the force of law.

1. **Colony**, n. **colonize**, v., to found a colony, also used in the sense of settling a new territory - **colonist**, n., member of a colony.
2. **Coexistence**, n.-**coexist**, v.
5. **Segregation**, n. - **segregate**, v.
   In extreme cases, the conflict may result in **genocide**, i.e. an attempt by one population to exterminate the other. **Exterminate**, v. - **extermination**, n.

811

Migration policy[1] is one aspect of *population policy* (105-2). Most countries through their **immigration laws**[2], restrict the admittance of foreign nationals. These laws frequently provide for **selective immigration**[3] of persons with certain specified characteristics. Some countries have established **quota systems**[4] whereby the number of immigrants is fixed in relation to the **national origin**[5]. Measures designed to influence the **redistribution of population**[6] within a country through *internal migration* (803-1) are usually more indirect in character.

*
**

812

Migration statistics[1] are compiled to reveal the volume of migration, the direction of migratory movement and the characteristics of migrants. The accuracy with which each of these kinds of facts is ascertained depends upon the method of compilation, as most migration statistics consists of approximations and estimates rather than precise measurements. **Direct measurement of migration**[2] requires a system of recording movements as they occur. The most complete migration statistics are developed from population registers in which all changes of residence are recorded. They allow measurement of internal and of international migration, but are more satisfactory for the former than for the latter. In countries where these population registers do not exist, a certain number of administrative record systems which do not cover the entire population can be used for particular purposes. Thus, **voter registration records**[3], **social security records**[4] **tax-payers records**[5] or **dwelling records**[6] may yield information on internal migration. In the case of overseas migration, statistics may be based on **passenger lists**[7] or **manifests**[7] of ships and aircraft. Counts of persons crossing a political frontier yield only very crude data; most of all in areas with much *frontier traffic* (803-2*) special steps must be taken to distinguish migrants from **travellers**[8], who do not change their place of residence, and persons in *transit* 801-11). The number of **visas**[9] or **entry permits**[9] granted and the number of **residence permits**[10] or **labor permits**[11] issued may also be used as an indication of the migration of foreign nationals.

8. **Traveller**, n. - **travel**, v. - **travel**, n.: the process of travelling.

9. In certain countries residents who wish to travel abroad are required to obtain **exit permits** or **exit visas**, records of which may serve as a source of information on migratory movements.

813

Information collected in censuses and surveys allows the development of **statistics on migrants**[1]. Depending on the questions asked, these usually include **statistics on in-migrants**[2], **statistics on out-migrants**[2] and **place-of-birth statistics**[3]. This approach has limits for the study of international migration; emigrants cannot be studied, whereas immigrants are known, whatever their country of origin.

814

Where it is not possible to determine migration directly, indirect estimates of net migration may be obtained by the **residual method**[1] or **method of residues**[1] in which the change in population between two dates is compared with the change due to natural growth; the difference between the two figures is attributed to migration. The **vital statistics method**[2] consists of computing the difference between total population change, as assessed from two censuses, and *natural increase* (701-7) during the intercensal period. The **survival ratio method**[3] is commonly used to estimate net migration by age; it does not require actual death statistics. *Survival ratios* may be derived either from life tables or from the comparison of successive censuses, and they are applied to a sub-population in one census to give expected numbers by age at the time of the other census. A comparison between the observed and the expected population may be used to estimate the balance of migration by age for the sub-population. When **place-of-birth statistics**[4*] (813-3) by age and current residence are available in two consecutive censuses, it is possible to make indirect estimates of migration streams.

2. The equation showing that the difference between total population change and natural increase is equal to migration has sometimes received the name of **balancing equation**. In order to use it for the estimation of net migration, one must assume that *omissions* (230-3) and *multiple countings* (230-5) are equal for both censuses.

3. The major variants of this procedure are called the **life table survival ratio method** and the **national census survival ratio method**. In the **forward survival ratio method**, the population at the beginning of an intercensal period serves to estimate the expected population at the end of the period, and the procedure is reversed in the **reverse survival ratio method**; the **average survival ratio method** combines these two approaches.

815

The generic term **migration rate**[1] refers to any rate which measures the relative frequency of migration within a population. Unless indicated otherwise these rates should be taken as **annual migration rates**[2]. They may be obtained as the ratio of the average annual number of movements during a certain period, to the average population of the period. An **annual rate of net migration**[3] and an **annual rate of total migration**[4] are calculated in a similar fashion by using the appropriate information on net and total migration. An **index of migration effectiveness**[5] or **effectiveness index**[5] is calculated as the ratio of net migration to total in- and out-migration. The range of the

index is from zero, when arrivals and departures are equal in number, to one, when migration is entirely one way.

2. Other denominators may serve to compute the rate, such as the population at the beginning or the end of the period, or the number of person-years lived by the population of the area.

5. Also: **Index of migration efficiency** or **efficiency index**.

816

Proportions of migrants[1] can be obtained by relating the number of migrants during a period to the population to which or from which they are migrating. When the **proportion of out-migrants**[2] is obtained by dividing the number who reported moving out of the area by the population residing in the area at the beginning of the period and alive at the end, this index measures the probability of moving for the population at risk, and among other uses, it can be used in the preparation of population projections where migration is accounted for separately. But other populations are often used in practice as denominators to compute proportions of migrants. Similarly, the **proportion of in-migrants**[3] is sometimes obtained by dividing the number of in-migrants in an area during a period, by the population of the area at the end of the period; but the denominator could also be the population at the beginning of the period, or the average of the beginning and end populations. The **proportion of lifetime in-migrants**[4] can be derived from information on the place of birth, dividing the number of persons born out of the area by the enumerated population of the area. The **proportion of lifetime out-migrants**[5] can be obtained by dividing the number of persons in a country living outside of their area of origin, either by the total number of persons born in that area, or by those among them who still live there. When such characteristics of the migrants as *age* (322-1), *occupation* (352-2) or *level of education* (342-1) are known, **indices of migration differentials**[6] are used to contrast the migrants and the rest of the population of destination. The index is equal to the quantity 1 minus the ratio of the proportion of migrants in the population having the characteristic studied to the proportion of migrants in the whole population. The index of migration differentials is equal to zero when the population with the given characteristic has the same migration behavior as the rest of the population. The term **selectivity of migration**[7] indicates that the comparison is between the in-migrants and the population from which they were drawn, at the area of origin (801-4). When comparing the characteristics of the in-migrants to those of the population at the place of arrival (801-5) the term **differential migration**[8*] or **migration difference**[8*] is sometimes used.

7. For example, the selectivity of migration from Mexico was decreasing because differences in characteristics between migrants and

nonmigrants fade over time; also the origins of Mexican immigrants was increasingly diverse because of the spread of Mexican **migration networks** in the USA.

817

Longitudinal migration analysis[1] requires information on the successive moves of an individual over time, information which is normally available only from *population registers* (213-1) or *retrospective surveys* (203-8). Several refined measures of migration are available from this type of data, such as a **first migration probability**[2], defined as the probability that a group of **non-migrants**[3] aged x will be involved in migration for the first time before reaching age x + n . These probabilities can be used to calculate a **non-migrant table**[4]. The latter, when combined with a *life table* (432-3) will lead to a double decrement **survivorship schedule of non-migrants**[5]. Similarly, **migration probabilities by order of move**[6] can be computed, as well as the proportion of migrants of a given order who have not gone on to make a subsequent move within a certain migration defining interval. The **all orders migration rate**[7] is the ratio of moves of all orders in a year to the average population size of the *cohort* (117-2) over the year. The cumulation of these rates for a cohort up to a given date provides an estimate of the **mean number of moves**[8] in the absence of mortality. A survivorship schedule can be combined with an age-specific **all orders migration table**[9] to estimate the average number of remaining moves for an individual of a given age, given the prevailing mortality.

818

In studying migrants between two areas during a period, one commonly used measure is the **index of migration intensity**[1], obtained by dividing the number of migrants from area A to area B by the product of the number of inhabitants in B at the end of the period, and the number of inhabitants of A at the beginning of the period who are still alive at the end. This index, divided by the ratio of the total number of migrants to the square of the population of the country, yields a **migration preference index**[2]. When the numerator is restricted to the net stream of migration, the resulting measure is called an **index of net velocity**[3]. The **effectiveness of migration streams**[4] is measured by relating the absolute value of the net migration stream to the *gross interchange* (805-10).

1. This index can be interpreted as the probability that two individuals alive at the end of the period selected randomly, one among those residing in area A at the beginning of the period, and the other among

those residing in B at the end of the period, will be identical. The availability of data may impose various other denominators.

819

Migration models[1] fall in two broad categories. The first relates *migration streams* (803-9) between two areas to social, economic or demographic variables. These variables are often classified as **push factors**[2] when they characterize **repulsion**[2] from the area of origin, as **pull factors**[3] resulting in **attraction**[3] to the area of destination, and as **intervening obstacles**[4] between the two areas. The simplest of these models are **gravity models**[5]: the streams between the two areas are directly proportional to the size of their population, and inversely proportional to the **distance**[6] between them, raised to a certain power. Other models consider that the streams are proportional to the opportunities in the area of destination, and inversely proportional to **intervening opportunities**[7] between origin and destination. Models in the second broad category are *stochastic models* (730-5) and refer to individuals rather than to populations; they link the probability of migrating to a certain number of personal characteristics such as age or the previous history of migration.

5. Or **Pareto-type models**.

6. Distance can be measured in diverse ways: a straight line, the route, the number of intervening areas, etc.

Chapter 9
Economic and social aspects of demography

901

A part of *population theory* (105-1) is concerned with the social and economic determinants and consequences of population trends. The theoretical treatment of population was largely centered in the past on the relation between total population and **resources**[1], i.e., the means available to maintain the population, or **production**[2], the creation of goods and services. More recently, the emphasis has shifted to the interrelations between *population growth* (701-1) and its components, and *economic growth* (903-1), particularly with respect to **consumption**[3], **saving**[4], **investment**[5] and **labor market**[6⋆].

902

Consideration of the relations between population size and resources leads to the concepts of **overpopulation**[1] and **underpopulation**[2]. These terms are defined only at a given fixed **level of development**[3]. When neither a larger nor a smaller population would yield advantages, there is said to be an **optimum population**[4], sometimes briefly called an **optimum**[4]. The advantages yielded may be economic in character and in that case it is an **economic optimum**[5]. The discussion of economic optima generally proceeds in terms of economic welfare but, as this is difficult to ascertain empirically, the **level of living**[6] or **standard of living**[6] is sometimes substituted. This is approximated by the **real national income per capita**[7] i.e., the total amount of goods and services produced in a particular period (or its equivalent in money income adjusted for variation in purchasing power) divided by the total population during the period.

1. **Overpopulation**, n. - **overpopulated**, adj.

2. **Underpopulation**, n. - **underpopulated**, adj.

5. Some writers have used the concept of a **power optimum** and a **social optimum** as well as of an **economic optimum**.

6. The expression "standard of living" is restricted by some economists to mean an accepted goal or recognized set of needs, as constrasted with the level of living actually attained. Others use these terms interchangeably.

7. Other measures such as the **gross national product per capita**, are also used. "**Per capita**", although grammatically incorrect, is used in place of the expression "**per head**".

903

Economists have emphasized the dynamic relations between **economic growth**[1] or **economic development**[1] and rates of population growth and changes in population structure; they are less interested today in the static concept of an optimum size, than in the dynamic concept of the **optimum rate of growth**[2] of population, i.e., the rate of growth which will be consistent with the maximum rate of increase of the level of living. These relations are of particular concern in countries with a low level of living, which have come to be called **less developed countries**[3] or **developing countries**[3].

3. Also: **underdeveloped countries** or **low-income countries**. They are commonly contrasted with the **developed countries**, or **more developed countries**.

904

The **maximum population**[1] of a territory, sometimes called its **carrying capacity**[1], is generally understood in an absolute sense to mean the largest number of persons that could be sustained under specified conditions; but is sometimes used to denote the largest number that could be supported at an assumed standard of living. Conversely, the **minimum population**[2] is generally taken to be the smallest number of persons in an area which is consistent with **group survival**[3].

905

The term **population pressure**[1] is linked to concepts relating the size of the population and the *resources* (901-1) available. To say that this pressure is strong or weak in a certain area is to suggest that the population of the area is

near or far from the maximum consistent with the resources which are available. According to **Malthusian population theory**[2], so called after its originator, Thomas Malthus, there will inevitably be pressure of population on the **means of subsistence**[3]. Any change in the volume of available means of subsistence would generate *population growth* (701-1) until **population equilibrium**[4] would again be attained when the level of living had reached a **subsistence level**[5], i.e., a level just sufficient to maintain life. The equilibrium would be maintained by the elimination of any **surplus population**[10★] either through **positive checks**[6], sometimes known as **Malthusian checks**[6] (famine, pestilence and war), or through the **preventive check**[7] of **moral restraint**[8] consisting of **postponement of marriage**[9], coupled with abstinence from sexual relations before marriage.

6. and 7. The terms **positive check** and **preventive check** in English are generally used only with reference to the doctrines of Malthus.

906

Although the term **Malthusianism**[1] originally refers to the theories of Malthus, it is often used today to denote the doctrine that a check in the rate of population growth is desirable. **Neo-Malthusianism**[2], whilst accepting the desirability of checking population growth, advocates that such restriction should be achieved through the use of *birth control methods* (627-3).

1. **Malthusianism**, n. - **Malthusian**, adj.: conforming to the doctrines of Malthus. The terms are sometimes used mistakenly to refer to the advocacy of family planning programs to solve economic problems.

907

The process of transition from a situation in which both fertility and mortality were relatively high to one in which they are relatively low which has been observed in many countries, is called the **demographic transition**[1] or **population transition**[1]. In the process of moving from a **pre-transitional stage**[2] to a **post-transitional stage**[3], there is typically a lag between the declines of mortality and fertility, so that a stage of **transitional growth**[4] of population results. Economists have studied changes in **productivity**[5], i.e., production per member of the labor force, or per head of the population, associated with this transitional period.

1. Sometimes called the **vital revolution**. A further distinction is made between the **fertility transition** and the **mortality transition**. The **theory of the demographic transition** associates historical changes

in vital rates with socio-economic transformations attending the process of industrialization and urbanization.

*
**

910

In **eugenics**[1], a discipline which seeks to improve the quality of the population, attention is directed primarily to the role of **heredity**[2], the transmission of **hereditary characteristics**[3], such as the color of the eyes, from generation to generation. **Acquired characteristics**[4] are not so transmitted. A **lethal characteristic**[5] generally brings about the early death of the foetus.

1. **Eugenics**, n. - **eugenic**, adj. - **eugenist**, n.: a specialist in eugenics.
2. **Heredity**, n. - **hereditary**, adj.

911

The transmission of hereditary characteristics operates through **genes**[1] which are transmitted to children by their parents. **Genetics**[2] is the science concerned with the transmission and effects of hereditary factors. The genes are carried by **chromosomes**[3] which are long filaments of DNA (deoxyribonucleic acid) located in the cell's nucleus. The position of a gene on a chromosome is called its **locus**[4]. Genes occupying the same locus affect the same characteristic, although they do so in various ways which correspond to various **alleles**[5] of the gene in this locus. The new cell formed by the union of two sexual cells or **gametes**[6] during the process of *conception* (602-1) is called a **zygote**[7].

1. All of the genes carried by an individual are collectively called his or her **genetic endowment**.
2. **Genetics**, n. - **genetic**, adj. - **geneticist**, n.: a specialist in genetics.

912

The set of two genes of an individual at the same locus is called a **genotype**[1]; the genotype is said to be **homozygous**[2] if the alleles are identical at a given locus; it is said to be **heterozygous**[3] in the opposite case. The **phenotype**[4] consists in the observable characteristics as determined by the genotype and the environment. If an heterozygous individual (AA') cannot be distinguished

from an homozygous individual (AA), the allele A is said to be **dominant**[5] over allele A', and A' is said to be **recessive**[6]. Genes are subject to sudden and apparently random changes, called **mutations**[7]. **Panmixia**[8] or **random mating**[8] insures uniform distribution of genes within populations.

7. **Mutation**, n. - **mutant**, adj. or n.

913

A distinction is frequently made in eugenic policy between **positive eugenics**[1], aimed at increasing the number of persons believed to have desirable characteristics, and **negative eugenics**[2] aimed at restricting the reproduction of persons expected to transmit undesirable characteristics or **hereditary defects**[3]. Much attention has been given to the discussion of **eugenic sterilization**[4], i.e., the sterilization of persons likely to transmit undesirable characteristics to their descendants. Objections to this measure have been raised on moral grounds and also because of its relatively low efficiency in reducing the frequency of *recessive genes* (912-6). Among the measures proposed, **pre-marital examination**[5] may be mentioned; this is designed to give couples intending to marry information about the probable quality of their offspring, so that prospective partners to **dysgenic marriages**[6], i.e., those likely to produce defectives, may be warned.

914

The probability that an individual of reproductive age will have a given number of offspring who also attain reproductive age may depend on his *genotype* (912-1). This differential reproduction is called **selection**[1]. The **selective value**[2] or **fitness value**[2] of a genotype is the relative number of children of individuals with the genotype who survive to reproductive age. The **mean selective value**[3] or **fitness**[3] of a population is equal to the average of the selective values for the genotypes of its members. The **genetic load**[4] of the population is the relative decline in the mean value of fitness resulting from the presence of different genotypes with varying fitness values. Random fluctuation of the frequency with which a specific gene is found in different generations of a population is called the **genetic drift**[5]. The **gene structure**[6] of a population refers to the distribution of the frequencies of different *alleles* (911-5) on a given *locus* (911-4) within the members of the population. The **genotypic structure**[7] of a population refers to the distribution of different genotypes on the same locus.

915

In the case of an inbred individual, i.e., an individual whose parents have a common ancestor, two genes are said to be **identical genes**[1] by descent, if both were carried by the same ancestor and are on the same locus. The probability that an individual chosen at random in a population carries two genes identical by descent is the **coefficient of inbreeding**[2] of the population. The **coefficient of kinship**[3] of a population is the probability that two individuals chosen at random in that population carry genes identical by descent on the same locus.

*
**

920

In many studies, the population is divided into a number of **social status groups**[1] or into **socioeconomic groups**[1] according to occupation, income, education or similar indices of economic status. The term **social class**[2] has a sociological connotation which is only approximated by the type of grouping generally used in demographic work. The division of society into a number of such groups is called **social stratification**[3]. Movement between different social status groups is called **social mobility**[4]; a distinction is made between **upward mobility**[5] and **downward mobility**[6] in the social hierarchy. The mobility of children with respect to their parents' social class is called **intergenerational social mobility**[7].

3. A **caste** is a closed social group in which social status and position in the social hierarchy are ascribed.

7. Social mobility by an individual in his or her own lifetime is called **intra-generational social mobility**.

921

Labor mobility[1] is the general term that covers not only an individual's **changes of occupation**[2] under the name of **occupational mobility**[3] but also **job mobility**[4], or changes of employer, and **industrial mobility**[5], or changes of industry.

922

Interest in the problems of *aged persons* (324-8) and *aging* (326-3) has given rise to a special branch of studies called **gerontology**[1] including the special branch of medicine called **geriatrics**[2].

1. **Gerontology**, n. - **gerontological**, adj. - **gerontologist**, n.: a specialist in gerontology.
2. **Geriatrics**, n, - **geriatric**, adj. - **geriatrician**, n.: a specialist in geriatrics.

*
**

930

A *population policy* (105-2) is a series of measures taken by public authorities to influence the trend of population change, or principles offered as a basis for such measures. A distinction is made between **populationist**[1] policies designed to increase the population, to accelerate its rate of growth or to check actual or incipient population decline or **depopulation**[2], and **population control**[3] policies for the purpose of checking population growth or reducing the rate of population increase. Among the former, **pronatalist**[4] policies, which attempt to increase the *birth rate* (332-1), are particularly important. In contrast to pronatalist policies, there are **antinatalist**[5] policies, which are designed to reduce the frequency of births. Population policy may also include a component of **population redistribution**[6] policy designed to influence the territorial distribution of population, as well as a component of **migration policy**[7⋆]. **Health policy**[8⋆], which aims to reduce *morbidity* (420-1) and *mortality* (401-1), is an other component of *population policy*.

3. Also called **Malthusian policies**. See 906-1.

931

In many countries **allowances**[1], **benefits**[1] or **grants**[2] are given to the parents of children. In general an allowance is a sum of money which is paid periodically, whereas a grant is paid on a single occasion only. **Family allowance**[3] or **children's allowance**[3] denotes a sum of money paid regularly to parents with a specified number of children. In many fiscal systems, **tax rebates**[4] are granted in respect of dependent children. Other monetary benefits paid in some countries include **maternity grants**[5] or **birth grants**[5] which are paid upon

the birth of a child, **pre-natal allowances**[6] paid to expectant mothers during pregnancy, and on occasion **marriage loans**[7] granted to newly-married couples in order to assist them in setting up a household.

932

Many other public measures, such as housing programs or measures in the field of **public health**[1], may have an impact on demographic phenomena. The provision of services for pregnant women such as **pre-natal clinics**[2] and for *parturient* (603-4*) women may help in reducing *late foetal, infant and maternal mortality* (cf. 410, 411, 413, and 424-5). Services which are primarily designed to help the mother are called **maternity services**[3]; those meant to assist the child are **infant welfare services**[4] or **child welfare services**[4].

933

Population programs[1] designed to reduce fertility in developing countries have included **family-planning education**[2] and **family-planning services**[3], either alone or in association with **health programs**[4] and **social welfare programs**[5], particularly **maternal and child health programs**[6] designed to reduce mortality. Some countries have attempted to resort to **incentives**[7] and **disincentives**[8] of various kinds to elicit the motivation to use family limitation; **social pressures**[9] and legal **sanctions**[10] against disapproved fertility behavior are also encountered.The English term "**Population Education**[11*]" is used untranslated in some countries, especially Germany. In this specific context, it refers to the dissemination of information (in schools and other contexts) about the impact of individual reproductive behavior on broader society.

Index

A

abode
  person of no fixed — 310-8
aboriginal 332-2
aborigines *332-2**
abort *603-5**
abortifacient *603-5**
abortion 603-5
  criminal — 604-5
  illegal — 604-5
  induced — 604-2
  intentional — 604-2
  legal — 604-4
  probability that a pregnancy results in an — by age and marital status ⋆ .. 640-6
  spontaneous — 604-1
  therapeutic — 604-3
abortion by cutterage 604-6
abortion by dilatation and curettage .. *604-6**
abortion by dilatation and evacuation 604-7
abortion by medical induction
  procedure 604-9
abortion by saline injection *604-9**
abortion by vacuum aspiration 604-7
abortion rate 640-1
  age-specific — ⋆ 640-4
  life-time — 640-3
abortion rate by age and marital
  status ⋆ 640-5
abortion ratio 640-2
abortionist *603-5**
abortions by suction *604-7**
abridged life table 435-2
absence *205-7**
  length of — 801-7
absent *205-7**
absentee 205-7
  temporary — 310-4
absolute frequency 144-2
absolute number 131-3
absorption 809-1
abstain *627-4**
abstinence 627-4
  periodic — 628-4
acceptance rate 626-4
acceptor
  proportion of new acceptors 626-4
accession to the labor force 361-2
  age at — 362-2
  first — *362-1**
  mean age at — 362-4
  rate of — 361-5
accession to the labour force
  probability of — 361-6
accident 422-3
accidental *422-3**
account
  worker on own — 353-4
acculturation 809-2
accuracy 230-1
accurate *230-1**
acknowledge 610-7
acquired characteristic 910-4
active
  economically — population 350-1
activity
  branch of economic — 357-1
  economic — 350-3
  gainful — 350-3
activity ratio 350-6
actual population 310-2
acute disease 423-9
adjusted infant mortality rate 412-5
adjusted mortality rate 403-1
adjusted rate 136-7
administrative area 302-2
administrative district 302-2
administrative unit 302-2
adolescence 324-1
adolescent 324-2
adolescent sterility 622-8
adolescent sub-fecundity 622-8
adult 324-5
adult age 324-4
adult mortality 414-4
adulterous relation *610-6**
afterbirth *603-4**
age 322-1
  abortion rate by — and marital
  status ⋆ 640-5

adult — 324-4
combined — 520-12
exact — 322-7
fecund ages *620-1**
individual year of — 325-1
mean — 326-1
mental — 327-4
mortality of old — 414-5
old — 324-6
physiological — 327-3
probability that a pregnancy results in an abortion by — and marital status ★ . 640-6
reported — 322-6
reproductive ages *620-1**
retirement — ★ 324-7
school — 346-6
school- — child 323-8
school- — population 346-7
stated — 322-6
age at accession to the labor force . . . 362-2
mean — 362-4
age at death
modal 434-2
normal 434-2
age at first marriage
mean — 521-5
median — 521-6
modal — 521-7
age at last birthday 322-3
age at leaving school 342-6
age at marriage 520-8
average — 520-10
mean — 520-10
minimum — 504-1
singulate mean — 521-8
age at next birthday 322-5
age at separation from the labor force 362-3
mean — 362-5
age at the birth of the last child 637-10
age dependency ratio *358-9**
age difference between spouses 520-11
age distribution 325-6
initial — 703-4
stable — 703-3
age group 325-2
broad — 325-4
five-year — 325-3
quinquennial — 325-3
age group-specific rate ★ 135-2
age heaping 152-3
age misreporting 152-5
age of fathers
mean — *713-2**
age of fertility
mean — *713-2**
age of mothers
mean — 713-2
age one
probability of dying before — 412-5
age preference
index of — 152-4
age reached during the year 322-4
age reporting bias 152-5
age structure 325-6
age-group specific rate ★ 135-2
age-specific
sex- — death rate 401-6
age-specific abortion rate ★ 640-4
age-specific birth rate 633-9
age-specific cumulative fertility ★ 636-3
age-specific death rate 401-7
age-specific divorce rate 523-4
age-specific fertility rate 633-9
age-specific fertility rates *133-6**
age-specific marital fertility rate 635-3
age-specific marriage rate 520-9
age-specific mortality 414-1
age-specific net cumulative fertility ★ .636-6
age-specific rate 135-1
age, median 326-2
aged
middle- — generation ★ 116-7
aged, the 324-8
ageing *326-3**
agglomeration *306-1**
— 307-1
aggregate
population — 306-1
aggregation 306-1
aging 326-3
— 326-7
individual — 327-1
agnostic 341-6
agricultural laborer 356-4
day — *356-4**
fulltime — *356-4**
seasonal — *356-4**
agricultural population 359-2
density of — per unit of cultivable area 313-3
non- — 359-3
agricultural worker 357-3
non- — 357-4
agriculture
population dependent on — 359-2
ailments *420-2**
alien 330-2
resident — 331-7
visiting — 331-8
alien visitor 331-8
all orders migration rate 817-7
all orders migration table 817-9
allel 911-5
allowance 931-1
children's — 931-3
family — 931-3
pre-natal — 931-6
amenorrhea
post-partum — 620-9
pregnancy — 620-8
amenorrhoea 620-7
amniotic fluid exchange *604-9**
analysis 132-1
cohort — 103-4
cross-sectional — 103-5
data — 222-3
demographic — 103-1
generational — 103-4
longitudinal — *103-4**
longitudinal migration — 817-1
panel — *103-4**

period — 103-5
stable population — *703-2**
statistical — ⋆ 130-10
analyst
system — 225-9
analytical *132-1**
analyze *132-1**
ancestor 114-2
ancestral *114-2**
ancillary migration 806-4
animarum
status — 214-6
annual basis
converted to an — 137-4
annual death probability 431-2
annual extrapolation of population ⋆ 721-5
annual migration rate 815-2
annual rate 137-2
average — 137-3
mean — 137-3
annual rate of growth
mean — 702-2
annual rate of net migration 815-3
annual rate of total migration 815-4
annulment of marriage 513-1
anonymous statement ⋆ 215-9
anovulatory cycle 622-6
antinatalist 930-5
appliance method 628-1
non- — 628-2
apprentice 354-8
area 301-2
administrative — 302-2
census — 210-2
cultivable — 313-5
cultivated — 313-4
density of agricultural population per unit of cultivable — 313-3
density of population per unit of cultivable — 313-2
metropolitan — 307-4
migration defining — *801-3**
natural — 302-7
rural — 311-1
standard metropolitan statistical — *307-4**
statistical — *307-4**
sub- — 302-1
surface — 120-3
urban — 311-2
area sampling 162-7
arithmetic average 140-2
arithmetic mean 140-2
armed forces
member of the — 357-6
arrival 805-3
country of — *801-5**
place of — 801-5
artificial fertilization *602-2**
artificial insemination *602-2**
aspiration
abortion by vacuum — 604-7
assimilation 809-3
assistance
person receiving public — 358-7
associated cause of death 421-9
at term
birth — 605-3
atheist 341-6
attainment
grade — 342-5
attainment statistics
educational — 342-4
attempted suicide 422-5
attendance
pupil in — 346-3
attendance ratio 346-4
attitude
survey of knowledge — and practice *626-8**
attraction 819-3
attribute 131-6
attrition 432-6
attrition probability 135-5
autochthonous 332-2
average 140-1
arithmetic — 140-2
geometric — 140-3
moving — 151-5
weighted — 140-4
average age at marriage 520-10
average annual rate 137-3
average deviation 141-7
average duration per case 425-4
average family size 637-3
average parity 637-2
average population 135-6
— 401-5
average survival ratio method *814-3**
averted birth 626-7

B

baby
premature — 605-4
bachelor 515-3
back
call — 203-10
backward projection *720-1**
balance of births and deaths 701-8
balance of migration 701-6
— *805-2**
balancing equation *814-2**
bank
data — 227-2
banns
publication of — 505-1
baptism 214-2
baptism slip 215-2
baptized infant
privately — ⋆ 214-4
bar chart 155-9
barrier method *628-1**

basal body temperature method 628-6
base 132-8
  data — management system 227-2
base date 720-6
baseline event 135-4
basic data 131-1
basic document 221-2
basis
  converted to an annual — 137-4
bastard *610-6**
batch processing 227-7
behavior
  reproductive — 624-1
belt
  metropolitan — 307-5
benefit 931-1
betrothal *505-1**
betrothed *505-1**
bias
  age reporting — 152-5
  interviewer — 164-9
bilingual 340-5
bilingualism *340-5**
bill of mortality *430-1**
biological family 113-1
biometric *104-6**
biometrician *104-6**
biometrics 104-6
biometry 104-6
biostatistical *104-6**
biostatistician *104-6**
biostatistics *104-6**
biovular twins 606-5
birth 601-3
  balance of births and deaths 701-8
  date of — 327-5
  deficit of births over deaths ★ 701-9
  excess of births over deaths 701-8
  expectation of life at — 433-4
  full-term — 605-3
  higher order — *611-1**
  illegitimate — 610-4
  interval between marriage and the N^{th} — 612-7
  interval between successive births . 612-4
  interval betwwen marriage and the first — 612-3
  legitimate — 610-3
  live — 601-4
  multiple — 606-2
  place of — 802-10
  place of — statistics 813-3
  place of — statistics ★ 814-4
  planned — *625-3**
  plural — 606-2
  premature — 605-2
  previous births to the mother 611-3
  ratio of births to marriages 639-7
  single — 606-1
  unintented — *624-5**
  unplanned — *624-5**
  unplanned — *625-3**
  unwanted birth *624-5**
  year of — 325-5
birth at term 605-3
birth averted 626-7
birth control 624-6
birth control method 627-3
birth expectation *625-2**
birth grant 931-5
birth interval 612-2
  closed — *612-4**
  first — *612-3**
  open — 612-5
  second — *612-3**
  straddling interval 612-6
birth interval between marriage and the N^{th} birth 612-7
birth of the last child
  age at — 637-10
birth order 611-1
birth probability
  parity-specific — 634-3
birth rate 632-1
  — *633-1**
  age-specific — 633-9
  age-specific — 633-9
  crude — 632-2
  illegitimate 632-5
  intrinsic — *703-1**
  legitimate 632-4
  parity-specific — 634-2
  stable — *703-1**
  standardized 632-7
  total — 632-3
birth record 211-6
birth registration 211-5
birth spacing *612-1**
birth timing 612-1
birth weight 605-6
birth-rate
  high- — cohort ★ 116-10
  low- — cohort ★ 116-11
birthday
  age at last — 322-3
  age at next — 322-5
births of the present marriage 611-2
births per marriage
  mean number of — 637-4
births per maternity *606-2**
block 210-4
block of flats *120-1**
blood
  mixed — 334-5
blood relative 114-3
blue collar worker *354-2**
boarder 110-7
body temperature method
  basal — 628-6
border traffic *803-2**
born
  foreign- — 332-4
  live-born child 601-5
  mean number of children ever — per woman 637-2
  native- — 332-3
  new — 323-4
born out of wedlock
  child — 610-6
borough *303-1**
boy 321-3
branch of economic activity 357-1

breadwinner 358-3
breast
  child at the — ★ 323-5
breastfeeding 622-4
bridal pregnancy *610-5**
bride *501-7**
bridegroom *501-6**
broad age group 325-4
broken family ★ 115-4
broken marriage 512-7
brother 113-2
  half- — 113-5
Bureau of the Census *204-4**
burial 214-3
burial register *430-1**
burial slip 215-4

C

calculate *132-3**
calculation 132-3
calculator *132-3**
  desk — 220-6
calculus of finite differences 151-6
calendar
  historical — 322-8
calendar-year life table 436-1
calendar-year table 153-2
call back 203-10
candidate to marriage 514-7
canton ★ 303-4
canvasser 626-3
canvasser method 203-11
cap
  cervical — 629-2
capacity
  carrying — 904-1
  population carrying — 313-6
capital 306-5
card 213-3
  punch — 224-3
  punched — *224-3**
card punch *224-4**
card reader 227-5
card sorter 224-6
card verifier 224-5
carrying capacity 904-1
cartography
  computer — 223-3
case
  average duration per 425-4
case fatality rate 425-6
case of disease 420-5
caste *920-3**
category
  social status — 353-6
cause of death 421-3
  associated — 421-9
  contributory — 421-9
  immediate 421-6
  joint causes of death 421-5
  multiple causes of death 421-5
  primary — 421-8
  principal — 421-8
  secondary — 421-9
  single — 421-4
  structure of causes of death ★ 421-12
  underlying — 421-7
cause-specific death rate 421-10
cause-specific death ratio 421-11
cause-specific mortality 421-2
celibacy *515-2**
celibate *515-2**
cell
  sperm — 602-4
censal *202-1**
  inter — period *202-1**
census *202-1**
  general — 202-2
  mail — 203-13
  micro — 202-5
  national census survival ratio method *814-3**
  partial — 202-3
  population — 202-1
census area 210-2
census family 115-1
census operation 210-1
census schedule 206-2
census tract 210-5
center
  learning — ★ 344-7
  population — 312-7
centile 142-4
central city 307-2
central death rate *431-1**
central memory 226-2
central processing unit 226-1
central rate 135-10
certificate *211-4**
  — 342-7
  death — 430-1
  marriage — 505-3
certificate of death
  medical — 430-2
certificate of naturalization 331-3
cervical cap 629-2
chain migration ★ 806-8
chance 134-2
chance fluctuation 150-7
change
  statistics of population — 201-2
change of life *620-6**
change of occupation 921-2
change of residence 213-5
  latest — 802-7
change of track 347-6
characteristic 131-6
  acquired — 910-4
  hereditary — 910-3
  lethal — 910-5
chart
  bar — 155-9

statistical — 155-3
check 213-7
consistency — 221-7
Malthusian — 905-6
positive — 905-6
post-enumeration — ★ 202-8
preventive — 905-7
quality — 230-10
validity — 221-7
child 112-5
— 323-3
age at the birth of the last — 637-10
dependent — 358-4
desired number of children 625-2
female — 321-4
illegitimate — 610-6
intended number of children 625-2
legitimate — 610-2
live-born — 601-5
male — 321-3
number of children surviving *430-1**
pre-school — 323-7
school-age — 323-8
child at the breast ★ 323-5
child born out of wedlock 610-6
child death rate
post-infantile — 414-6
child ever born
mean number of children ever born per woman 637-2
child health program
maternal and — 933-6
child mortality 414-2
child wanted
number of children wanted 624-5
child welfare services 932-4
child-woman ratio 632-8
childbearing 601-2
childbearing period 620-1
childhood 323-2
childless *623-2**
childlessness *623-2**
children ever born per woman
mean number of — 637-2
children's allowance 931-3
chrisom 214-5
chromosome 911-3
chronic disease 423-8
chronic migration 804-4
circle ★ 303-11
marriage — ★ 514-5
citizen 330-1
naturalized — 331-2
citizenship 330-4
city *303-1**
— 306-4
central — 307-2
civil marriage 503-1
civil registration 211-4
civil registration system *211-4**
civil servant *357-5**
civil status 211-2
class *116-2**
— 130-8
— 345-1
— 345-5
occupational — 352-3
social — 920-2
class frequency 144-2
class of worker *353-1**
class-room 345-4
classification 221-4
occupational — 352-1
classification error 230-8
cleaning 221-6
clerical and office worker 354-3
climacteric 620-6
clinic
pre-natal — 932-2
closed birth interval *612-4**
closed ended question 206-8
closed population 701-4
closure
error of — 721-4
cluster 161-9
population — 306-1
cluster sampling 161-8
code *221-1**
— *221-1**
coding 221-1
coding scheme 221-3
coefficient of inbreeding 915-2
coefficient of kinship 915-3
coexist *810-2**
coexistence 810-2
cohabit *503-7**
cohabitation 503-7
cohort 116-2
high-birth-rate — ★ 116-10
hypothetical — 138-7
hypothetical — 713-3
low-birth-rate — ★ 116-11
synthetic — 138-7
synthetic — 713-3
cohort analysis 103-4
cohort fertility 636-1
cohort life table 436-2
cohort measure 138-6
cohort rate 135-9
cohort reproduction rate 711-7
cohort table 153-3
cohort-component method 720-5
coil 629-10
coitus 627-2
coitus interruptus 628-3
collect *130-4**
collected 130-4
collection *130-4**
data — ★ 228-3
collective household 110-5
collective migration 807-1
collective schedule 207-3
college 344-5
technical — ★ 344-9
university — *344-5**
colonist *810-1**
colonize *810-1**
colony 810-1
color 334-1
colored person 334-3
colpotomy *631-4**
combined age 520-12

common law marriage 503-3
communicable disease 423-4
communicant
  list of communicants 214-7
community
  satellite — *307-3**
commute *801-9**
commuter *801-9**
commuting 801-9
companion *503-3**
companionate marriage 503-4
comparative density index 313-1
comparative mortality figure *403-5**
comparative mortality index 403-5
complete *230-2**
complete coverage 202-4
complete fertility
  net ⋆ 636-7
complete life table 435-1
complete year 322-2
completed fertility 636-4
  marriage of — 637-5
completed parity 637-6
completeness 230-2
completion 206-4
complex household 111-5
component
  illegitimate — 712-2
  legitimate — 712-1
component method 720-5
  cohort- — 720-5
composite family *113-7**
composite household 111-5
composition 144-4
compulsory 205-1
compulsory education 346-5
computation 132-3
compute *132-3**
computer *132-3**
  — 225-2
computer cartography 223-3
computer graphing 223-3
computer specialist 225-6
conceive *602-1**
  inability to — 621-3
  permanent inability to — ⋆ 621-6
  temporary inability — ⋆ 621-4
concept
  gainful worker — *350-1**
  labor force — *350-1**
conception 602-1
  exposure to the risk of — 613-1
  frequency of premarital conceptions ⋆ 637-9
  pre-marital — 610-5
  pre-nuptial — 610-5
  product of — 602-6
conception delay 613-3
conception rate 638-9
concubinage *503-3**
condition
  marital — 515-1
conditions
  current demographic — ⋆ 102-8
condom 629-1
confidence interval 164-5
confinement 603-4
  premature — 605-2
confinement order 611-4
confirmation list 214-8
congenital malformation 424-2
conglomeration 306-1
conjecture 154-4
conjugal family unit *111-6**
conjugal life 510-1
conjugal status 515-1
conjugal union 503-8
consanguineous marriage 504-2
consanguinity
  degree of — 504-3
conscription list
  military — 214-11
consensual union 503-4
consistency check 221-7
console 227-8
consummated 505-5
consummation of marriage 505-5
consumption 901-3
contact
  no — 205-7
contagious disease *423-4**
contingency table 131-7
continuation rate 626-5
continuity *143-1**
continuous 143-1
  dis — 143-2
continuous registration 213-2
contraception 627-1
  hormonal — 630-2
contraception by steroids 630-3
contraceptive *627-1**
  — *628-1**
  oral — 630-1
contraceptive device *628-1**
contraceptive effectiveness 625-4
contraceptive failure 625-3
contraceptive failure rate 625-7
contraceptive jelly 629-5
contraceptive method 627-3
contraceptor *627-1**
contributory cause of death 421-9
control
  birth — 624-6
  job — language *227-1**
  population — 930-3
control method
  birth — 627-3
conurbation 307-4
conventional duration of pregnancy . . *603-2**
converted to an annual basis 137-4
copper T 629-10
corrected rate 136-6
  — 136-7
cottage worker 354-1
count 203-2
  double — *230-5**
  head — *202-1**
  population — *202-1**
counterstream 803-11
counting
  multiple — 230-5
country 305-1

developed countries ... *903-3**
developing countries ... 903-3
less developed countries ... 903-3
low-income countries ... *903-3**
more developed countries ... *903-3**
underdeveloped countries ... *903-3**
country of arrival ... *801-5**
country of reception ... *801-5**
county ... 303-5
— ... 303-9
county seat ... 306-6
county town ... 306-6
couple ... 503-8
married — ... 501-8
newly married — ... 505-4
coverage
complete — ... 202-4
craftsman ... *354-2**
criminal abortion ... 604-5
crofter ... *356-3**
cropper
share- — ... 356-3
cross-sectional analysis ... 103-5
cross-tabulation ... 131-7
crossing ... *334-4**
crowding
degree of — ... 120-4
crowed
over — dwelling ... 120-5
crude birth rate ... 632-2
crude data ... 131-1
crude death rate ... 401-4
crude divorce rate ... 523-2
crude fertility ★ ... 601-7
crude marriage rate ... 520-2
crude rate ... 136-8
crude rate of natural increase ... 702-6
cultivable area ... 313-5
density of agricultural population per unit of — ... 313-3
density of population per unit of — ... 313-2
cultivated area ... 313-4
cumulated first marriage frequencies ... *520-9**
cumulated marriage frequencies ... *520-9**
cumulated proportion divorced ... *523-6**
cumulative fertility ... 636-2
age-specific — ★ ... 636-3
age-specific net — ★ ... 636-6
marriage duration-specific — ★ ... 636-3
marriage duration-specific net — ★ ... 636-6
cumulative net fertility ... 636-5
curettage
abortion by — ... 604-6
abortion by dilatation and — ... *604-6**
current demographic conditions ★ ... 102-8
current demographic situation ★ ... 102-8
current marriage ... 637-1
current population statistics ... 201-1
current residence
place of — ... 802-3
current school statistics ... 346-1
current users
proportion of ... 626-8
curve fitting ... 151-3
custom
marriage — ... 502-2
customary marriage ... 503-3
cycle ... *150-4**
— ... 343-8
anovulatory ... 622-6
family life — ... 637-8
menstrual — ... 622-2
cyclical ... *150-4**
cyclical fluctuation ... 150-4

D

data
basic — ... 131-1
crude — ... 131-1
numerical — ... 130-2
primary — ... 131-1
raw — ... 131-1
data analysis ... 222-3
data bank ... 227-2
data base management system ... 227-2
data collection ★ ... 228-3
data entry ... 228-1
data processing ... 130-9
electronic — ... 225-1
date
base — ... 720-6
place of residence at a fixed — ... 802-1
date of birth ... 327-5
daughter ... 112-7
day agricultural laborer ... *356-4**
de facto population ... 310-2
de facto separation ... 512-3
de jure population ... 310-1
dead ... *401-3**
death ... 401-3
associated cause of — ... 421-9
balance of births and deaths ... 701-8
cause of — ... 421-3
contributory cause of — ... 421-9
deficit of births over deaths ★ ... 701-9
distribution of life table deaths ★ ... 433-2
excess of births over deaths ... 701-8
expected deaths ... 403-8
foetal — ... 411-2
immediate cause of — ... 421-6
intra-uterine ... 411-2
joint causes of — ... 421-5
late foetal ... 411-5
medical certificate of — ... 430-2
multiple causes of — ... 421-5
observed deaths ... 403-7
perinatal — ... *411-6**
point of — ... 437-3
primary cause of — ... 421-8
principal cause of — ... 421-8

secondary cause of — 421-9
single cause of — 421-4
structure of causes of — ★ 421-12
underlying cause of — 421-7
war — *422-7**
death certificate 430-1
death function 433-1
death or injury due to operations of war 422-7
death probability 431-1
annual — 431-2
quinquennial — 431-3
death rate 401-2
age-specific — 401-7
cause-specific — 421-10
central — *431-1**
crude — 401-4
foeto-infant — ★ 413-7
indirectly standardized — *403-5**
instantaneous 431-4
intrinsic — *703-1**
life table 433-5
maternal — 424-6
post-infantile child — 414-6
sex-age-specific — 401-6
stable — *703-1**
death rate of the stationary population 433-5
death ratio
cause-specific — 421-11
death record 211-10
death registration 211-9
death under one year of age 412-1
debility 605-9
deceased *401-3**
decile 142-3
declared
un — 230-11
decline
population — 701-2
decree of divorce 511-2
decree of nullity 513-1
decrement
double — table 153-4
increment- — method ★ 153-6
multiple — table 153-4
defect
heredity — 913-3
deficit of births over deaths ★ 701-9
defined
poorly — 230-11
defining area
migration — *801-3**
defining interval
migration — *802-4**
degree 342-7
university — 343-11
degree of consanguinity 504-3
degree of crowding 120-4
degree of relationship 114-4
delay
conception — 613-3
delivery *603-4**
full term — 605-1
multiple — 606-2
premature — 605-2
single — 606-1
demographer *101-1**
demographic *101-1**
current — conditions ★ 102-8
current — situation ★ 102-8
demographic analysis 103-1
demographic effectiveness *625-4**
demographic estimate 721-2
demographic model 730-1
demographic momentum ★ 703-11
demographic phenomenon 103-2
demographic statistics 102-4
— 130-1
demographic studies 102-7
demographic transition 907-1
theory of — *907-1**
demography 101-1
descriptive — 102-3
economic — 104-1
formal — 102-9
historical — 102-1
mathematical — 102-6
paleo- — 102-2
pure — 102-5
social — 104-2
theoretical — 102-5
denomination 341-3
dense *312-1**
densely inhabited district *307-4**
density *312-1**
maximum potential — 313-6
optimum — 313-7
population — 312-1
density index 312-2
comparative — 313-1
density of population 312-1
density of population per unit of cultivable area 313-2
density of the agricultural population per unit of cultivable area 313-3
departement ★ 303-3
department
statistical — 204-4
departure 805-4
place of — 801-4
dependancy *358-1**
dependant *358-1**
dependency *358-1**
age — ratio *358-9**
economic — ratio 358-9
dependent 350-5
— 358-1
dependent child 358-4
dependent on
population — 359-1
population — agriculture 359-2
depopulation 930-2
deport *808-3**
deportation *808-3**
— *808-3**
deportee *808-3**
descendant *114-1**
descent 114-1
descriptive demography 102-3
descriptive statistics 223-2
desertion 512-4
desired family size *625-2**

desired number of children 625-2
desk calculator 220-6
destination
  place of — 801-5
deterministic model 730-4
developed countries *903-3**
  less 903-3
  more — *903-3**
developing countries 903-3
development
  economic — 903-1
  level of — 902-3
deviation 141-2
  — 150-3
  average — 141-7
  mean — 141-7
  quartile — 141-6
  standard — 141-9
device
  contraceptive — *628-1**
  input-output — 226-6
  intra-uterine — 629-10
  mass storage — 226-3
diagram 155-4
  Lexis — 437-1
diagrammatic representation 155-1
dialect 340-2
dialectal *340-2**
diaphragm 629-3
die *401-3**
  probability of dying 431-1
  probability of dying before age one 412-5
difference 141-2
  age — between spouses 520-11
  calculus of finite differences 151-6
  migration — ★ 816-8
  mortality — 402-1
  significant — 164-6
differential
  index of migration differentials 816-6
differential fertility 601-8
differential migration ★ 816-8
differential mortality 402-1
digit preference 152-2
dilatation
  abortion by — and curettage *604-6**
  abortion by — and evacuation 604-7
diploma 342-7
direct interview 203-11
direct measurement of migration 812-2
direct method of standardization 403-3
  in- — 403-4
disability 426-2
  permanent — 426-3
  probability of — 426-5
  risk of — 426-5
disability rate 425-5
disability table 426-6
discontinuity *143-2**
discontinuous 143-2
discrete 143-3
disease 420-2
  acute — 423-9
  case of — 420-5
  chronic — 423-8
  communicable — 423-4
  endemic — 423-1
  epidemic — 423-5
  incidence of — 420-3
  infectious — 423-4
  notifiable — 423-7
  occupational — 402-6
  prevalence of — 420-4
disincentive 933-8
disk 226-5
dispersed settlement 312-6
dispersion 141-1
  measure of — 141-3
displaced person 808-6
displacement of population 808-7
dissolution of marriage 510-3
dissolution probability
  marriage — 524-1
dissolved marriage 513-3
distance 819-6
distribution 144-1
  age — 325-6
  fertility — *639-2**
  frequency — 144-1
  geographical — 301-3
  initial age — 703-4
  sex — 320-1
  spatial — 301-3
  stable age — 703-3
distribution of life table deaths ★ 433-2
distribution of the population
  geographical — 301-1
  spatial — 301-1
distributor 626-3
district 303-6
  — ★ 303-7
  — 306-7
  administrative — 302-2
  densely inhabited — *307-4**
  enumeration — 210-3
disturbing phenomenon ★ 103-3
division
  legal — 302-2
  political — 302-2
divorce 511-1
divorcé (fr) 511-5
divorce
  decree of — 511-2
  mean interval between — and remarriage 524-5
  number of divorces per new marriage 523-6
divorce rate 523-1
  age-specific — 523-4
  crude — 523-2
  duration-specific — 523-5
divorce rate for married persons 523-3
divorced
  cumulated proportion — *523-6**
divorced person 511-4
divorcée (fr) 511-6
dizygotic twins 606-5
document
  basic — 221-2
domicile *310-6**
dominant 912-5
dominant stream 803-10

double count *230-5**
double decrement table 153-4
double logarithmic graph 155-6
douche 629-8
downward mobility 920-6
drawn systematically 161-7
drift
  genetic — 914-5
dropout rate 347-2
  — 626-6
dual nationality 331-6
duration of marriage 524-2
duration of pregnancy 603-3
  conventional — *603-2**
  true — *603-2**
duration of residence 804-2
duration of stay 801-8
  — 804-2
duration of working life
  mean — 362-9
duration per case
  average — 425-4
duration-specific cumulative fertility
  marriage — ⋆ 636-3
duration-specific divorce rate 523-5
duration-specific fertility rate
  marriage — 635-2
duration-specific net cumulative fertility
  marriage — ⋆ 636-6
duration-specific rate 135-3
dwelling 120-1
  furnished — *121-2**
  insufficiently occupied — 120-6
  overcrowded — 120-5
  unfurnished — *121-2**
  unoccupied — 120-7
dwelling record 812-6
dwelling unit 120-1
dynamic model 730-3
dynamics
  population — 201-7
dysgenic marriage 913-6

E

Early foetal mortality 411-3
early infancy *410-3**
early neo-natal mortality 410-4
early neo-natal mortality rate 412-4
earner 358-3
  principal — 111-3
  wage — *354-2**
ecological *104-5**
ecologist *104-5**
ecology *104-5**
  human — 104-5
economic activity 350-3
  branch of — 357-1
economic demography 104-1
economic dependency ratio 358-9
economic development 903-1
economic growth 903-1
economic optimum 902-5
economic region 302-6
economically active population 350-1
economically inactive population 350-2
edit 130-5
  — *220-8**
editing *130-5**
  — 220-8
education
  compulsory — 346-5
  family-planning — 933-2
  higher — 343-9
  level of — 343-5
  mean length of — 347-5
  population — ⋆ 933-11
  pre-school — 343-4
  primary — 343-6
  private — 343-3
  public — 343-2
  secondary — 343-7
  technical — 343-12
  vocational — 343-12
education statistics *342-2**
educational attainment statistics 342-4
educational institute ⋆ 344-11
educational institution 344-1
educational status 342-1
educational system 343-1
effect
  growth — ⋆ 701-11
  structural — ⋆ 701-12
effective fecundability 638-8
effective fertility 601-6
effectiveness
  contraceptive — 625-4
  demographic — *625-4**
  index of migration — 815-5
  physiological — 625-5
  theoretical — 625-5
  use — 625-6
effectiveness index 815-5
effectiveness of migration streams 818-4
efficacy *625-4**
efficiency
  index of migration — *815-5**
efficiency index *815-5**
egg *602-3**
elderly, the 324-8
electronic data processing 225-1
electronic equipment 224-1
electronic processing 220-5
  data — 225-1
element 160-3
elementary family *113-1**
elementary school 344-3
embryo 602-7
embryology *602-7**
embryonic *602-7**
emigrant 802-5

— *803-5**
emigrant for political religious or ethical reasons ★ 802-12
emigrate *803-5**
emigration 803-5
net — 805-6
employed 351-2
un — *351-3**
employed population 351-5
employee 353-3
government — 357-5
employer 353-2
employment *351-2**
— *351-2**
hidden un — ★ 351-10
partial — 351-6
state in — *353-1**
un — *351-3**
under — 351-6
employment to population ratio ★ ... 351-8
emplyed
un — 351-3
end of union 510-2
endemic disease 423-1
endogamous *506-1**
endogamy 506-1
endogenous infant mortality *424-1**
endogenous mortality 424-1
endowment
genetic — *911-1**
engaged *505-1**
engagement *505-1**
enrolled pupil 346-2
enrollment
level of *342-4**
enrollment ratio *346-4**
entry
data — 228-1
entry into the labor force *362-1**
re- — *362-1**
entry permit 812-9
enumerate *203-1**
enumeration 203-1
post- — check ★ 202-8
post- — survey 202-9
post- — test 230-9
self- — 203-12
under — *230-3**
enumeration district 210-3
enumerator 204-2
enumerator's schedule 207-3
epidemic 423-2
epidemic disease 423-5
epidemiological *423-6**
epidemiological statistics 423-6
epidemiologist *423-6**
epidemiology ★ 104-8
— *423-6**
equation
balancing — *814-2**
equilibrium
population — 905-4
equipment
electronic — 224-1
error
classification — 230-8
observation — 164-8
response — 164-8
sampling — 164-3
standard — 164-4
error of closure 721-4
establishment 357-2
estimate 154-1
— 154-3
demographic — 721-2
intercensal — 721-3
postcensal — *721-3**
estimate of the population 721-1
estimation 154-2
over- — 230-6
statistical — 164-2
estimation of mortality
indirect — *430-1**
ethical reason
emigrant for political religious or ethical reasons ★ 802-12
immigrant for political religious or ethical reasons ★ 802-13
ethnic group 333-2
ethnic minority 333-4
ethnic nationality 330-5
eugenic *910-1**
eugenic sterilization 913-4
eugenics 910-1
negative — 913-2
positive — 913-1
eugenist *910-1**
eurasian *334-5**
evacuate *808-4**
evacuation 808-4
abortion by dilatation and — 604-7
evacuee *808-4**
event
baseline — 135-4
mean number of events 138-4
nonrenewable — 201-4
renewable — 201-5
vital — 201-3
vital — 211-1
event-origin 135-4
ever born
mean number of children — per woman 637-2
ever-married person 515-8
ever-married survivor 522-6
exact age 322-7
examination
pre-marital — 913-5
excess male mortality *402-2**
excess mortality 402-2
excess mortality index ★ 402-3
excess of births over deaths 701-8
exchange
amniotic fluid — *604-9**
population — 808-8
executive *355-1**
executive staff 355-2
exit permit *812-9**
exit visa *812-9**
exodus 807-3
exogamous *506-3**
exogamy 506-3

exogenous infant mortality *424-1**
exogenous mortality 424-3
expectancy
  life — 433-3
expectation
  birth — *625-2**
expectation of life 433-3
expectation of life at birth 433-4
expectation of unmarried life 522-8
expectation of working life 362-6
  gross — 362-7
  net — 362-8
expected deaths 403-8
expel *808-3**
expellee *808-3**
exponential growth 702-3
exponential growth rate 702-5
exponential population 702-4
exposed to risk 134-3
exposure to the risk of conception . . . 613-1
expulsion 808-3
extended family 113-7
  horizontally — ★ 113-9
  vertically — ★ 113-8
exterminate *810-5**
extermination *810-5**
external migration 803-3
extinct generation
  method of extinct generations 437-4
extra-marital relation *610-6**
extract 206-7
  — *220-1**
extracting *220-1**
extraction 220-1
  menstrual — *604-7**
extrapolate *151-8**
extrapolated *151-8**
extrapolation 151-8
extrapolation of population
  annual — ★ 721-5
exurbia *307-3**

F

facility 226-8
factor
  pull — 819-3
  push — 819-2
  separation — 412-6
  weighting — 140-5
failure
  contraceptive — 625-3
failure rate
  contraceptive — 625-7
false stillbirth *411-5**
family 112-1
  — 115-1
  biological — 113-1
  broken — ★ 115-4
  census — 115-1
  composite — *113-7**
  conjugal — unit *111-6**
  elementary — *113-1**
  extended — 113-7
  horizontally extended — ★ 113-9
  joint — *113-7**
  nuclear — 113-1
  primary — ★ 111-9
  primary — unit *115-1**
  residual — ("Restfamilie") ★ 115-5
  secondary — ★ 111-10
  simple — *113-1**
  single parent — ★ 115-4
  statistical — 115-1
  stem — ★ 113-10
  sub- — *115-1**
  traditional — ★ 115-3
  vertically extended — ★ 113-8
Family allowance 931-3
family form 638-1
family formation 637-8
family helper 353-5
family household *110-4**
  — ★ 115-6
family life cycle 637-8
family limitation 624-4
family migration 806-3
family nucleus 115-2
family planning 624-4
family planning method
  natural — *628-4**
family planning program 626-1
family planning status *624-4**
family reconstitution 638-2
family reunification ★ 806-9
family size
  average — 637-3
  desired — *625-2**
  ideal — *625-2**
  intended — *625-2**
family worker 353-5
family-planning education 933-2
family-planning services 933-3
farm manager *356-2**
farm operator 356-1
farm population 359-2
  non- — 359-3
farm worker *354-2**
farm-owner 356-2
farmer 356-1
  tenant — 356-3
fatality rate
  case — 425-6
father 112-3
  god — 215-6
  mean age of fathers *713-2**
fecund *621-1**
  sub-fecund *621-1**
fecund ages *620-1**
fecundability 638-5
  effective — 638-8
  natural — 638-6

residual — 638-7
fecundity 621-1
adolescent sub-fecundity 622-8
infecundity 621-2
sub-fecundity *621-1**
sub-fecundity 622-7
federal state 305-4
federation 305-4
female 321-2
female child 321-4
female fertility rate 633-2
female generation 116-5
female nuptiality 520-4
female reproduction rate 711-2
fertility 601-1
— 623-1
age-specific cumulative — ★ 636-3
age-specific net cumulative — ★ . . . 636-6
cohort — 636-1
completed — 636-4
crude — ★ 601-7
cumulative — 636-2
cumulative net — 636-5
differential — 601-8
effective — 601-6
illegitimate — *633-6**
infertility 623-2
legitimate — *633-5**
lifetime — 636-4
marital — *633-5**
marital — 635-1
marriage duration-specific cumulative — ★ 636-3
marriage duration-specific net cumulative — ★ 636-6
marriage of completed — 637-5
mean age of — *713-2**
natural — 638-4
net complete — ★ 636-7
net lifetime — ★ 636-7
non-marital *633-6**
period — 639-1
synthetic measure of — 639-3
total — 639-4
total marital — *639-5**
fertility distribution *639-2**
fertility function *639-2**
fertility history 638-1
fertility rate 633-1
age-specific *133-6**
age-specific marital — 635-3
female 633-2
general — 633-8
illegitimate — 633-6
legitimate — 633-5
male — 633-4
marriage duration-specific — 635-2
order-specific — 634-1
order-specific total — 639-6
overall 633-7
parity-specific — 634-2
total — 639-4
total legitimate — 639-5
fertility regulation 624-6
fertility schedule 639-2
fertility transition *907-1**
fertilization 602-2
artificial — *602-2**
fertilize *602-2**
fetal *411-1**
— *602-7**
fetus 602-7
field inquiry 203-5
field survey 203-5
field worker 204-2
fieldworker 626-3
figure 155-2
comparative mortality — *403-5**
file *213-3**
filial *112-6**
— *112-7**
filial relation 114-5
final 136-2
final parity 637-6
final rate 136-4
finite differences
calculus of — 151-6
firm 357-2
first accession to the labor force *362-1**
first birth
interval between marriage and the — 612-3
first birth interval *612-3**
first floor *120-1**
first job
person who is looking for her/his — ★ 351-11
first marriage 514-8
mean age at — 521-5
median age at — 521-6
modal age at — 521-7
number of first marriages 522-2
first marriage frequency *520-9**
*cumulated first marriage frequencies 520-9**
first marriage probability 521-3
first marriage rate 520-6
first migration probability 817-2
first pregnancy interval 613-3
first-time job seeker ★ 351-11
fitness 914-3
fitness value 914-2
fitting
curve 151-3
five-year age group 325-3
fixed date
place of residence at a — 802-1
flat *120-1**
block of flats *120-1**
floor *120-1**
first — *120-1**
ground — *120-1**
fluctuation 150-3
chance — 150-7
cyclical — 150-4
irregular — 150-6
period — 150-4
random — 150-7
seasonal — 150-5
fluid exchange
amniotic — *604-9**
foam tablet 629-7
foetal *411-1**

— *602-7**
foetal death 411-2
late — 411-5
foetal mortality 411-1
early — 411-3
intermediate — 411-4
late — 411-5
foetal mortality rate 413-3
late 413-1
foetal mortality ratio 413-4
late 413-2
foeto-infant death rate ★ 413-7
foeto-infant mortality ★ 411-7
foetus 602-7
follow-up 205-4
force
accession to the labor — 361-2
age at accession to the labor — 362-2
age at separation from the labor — . 362-3
entry into the labor — *362-1**
first accession to the labor — *362-1**
labor — *350-1**
labor — concept *350-1**
labor — participation ratio 350-6
mean age at accession to the labor — 362-4
mean age at separation from the labor — 362-5
probability of accession to the labor — 361-6
probability of separation from the labor — 361-8
rate of accession to the labor — 361-5
rate of separation from the labor — 361-7
re-entry into the labor — *362-1**
separation from the labor — 361-3
force of mortality 431-4
forced migration 808-1
forecast
population — 720-2
short-term — 720-4
forecast table ★ 153-5
foreign-born 332-4
foreigner 330-2
foreman 355-3
form 206-1
— 215-1
— 345-5
family — 638-1
transcription — 215-11
formal demography 102-9
formation
family — 637-8
forward survival ratio method *814-3**
fraction
sampling — 161-5
frame
sampling — 161-3
free migration 806-1
free union 503-5
freethinker 341-6
frequency
absolute — 144-2
class — 144-2
cumulated frist marriage frequencies *520-9**
cumulated marriage frequencies ... *520-9**
first marriage — *520-9**
marriage — *520-9**
relative — 133-5
relative — 144-3
ultimate — 138-3
frequency distribution 144-1
frequency of premarital conceptions ★ 637-9
frequency of remarriage
relative — 524-3
frequency polygon 155-7
frequency table *131-7**
fringe
rural-urban — *307-3**
urban — *307-3**
full term delivery 605-1
full-term birth 605-3
fulltime agricultural laborer *356-4**
function
death — 433-1
fertility — *639-2**
life table — 432-2
survivorship — 432-3
furnished dwelling *121-2**
fusion 810-3

G

gainful activity 350-3
gainful worker *350-1**
gainful worker concept *350-1**
gainfully occupied population *350-1**
gamete 911-6
gene 911-1
identical genes 915-1
gene structure 914-6
genealogy 215-12
general census 202-2
general life table 435-4
general rate 134-7
general rate fertility 633-8
generation 116-1
— 116-3
female — 116-5
male — 116-4
maternal — 116-5
mean interval between successive generations 713-1
mean length of a — 713-1
method of extinct generations 437-4
middle-aged — ★ 116-7
older — ★ 116-8
paternal — 116-4
second — ★ 116-9
young and rising — ★ 116-6
generation in the prime of life ★ 116-7

generation life table 436-2
generation rate 135-9
generation reproduction rate 711-7
generation table 153-3
generational analysis 103-4
genetic *911-2**
genetic drift 914-5
genetic endowment *911-1**
genetic load 914-4
genetic relative 114-3
geneticist *911-2**
genetics 911-2
  human — *104-4**
  population — 104-4
genocide *810-5**
genotype 912-1
genotypic structure 914-7
geographical distribution 301-3
geographical distribution of the population 301-1
geographical mobility 801-1
geography
  human — ★ 104-7
geometric average 140-3
geometric growth *702-3**
geometric mean 140-3
geriatric *922-2**
geriatrician *922-2**
geriatrics 922-2
gerontological *922-1**
gerontologist *922-1**
gerontology 922-1
gestation 602-5
  period of — 603-3
girl 321-4
godfather 215-6
godmother 215-7
governing
  non-self- — territory 305-8
  self- — territory 305-7
government employee 357-5
grade 345-5
grade attainment 342-5
graduate *151-1**
  — *345-6**
  post- — student *345-6**
  under — *345-6**
graduate student *345-6**
graduated *151-1**
graduation 151-1
  graphic — 151-2
grant 931-2
  birth — 931-5
  maternity — 931-5
graph 155-2
  double logarithmic — 155-6
  logarithmic — 155-5
  semi-logarithmic — 155-5
  true logarithmic — 155-6
graphic graduation 151-2
graphic representation 155-1
graphing
  computer — 223-3
gravity model 819-5
groom *501-6**
gross expectation of working life 362-7
gross interchange 805-10
gross national product per capita *902-7**
gross nuptiality table 522-1
gross replacement 710-3
gross reproduction 710-3
gross reproduction rate 711-4
  period — *639-4**
ground floor *120-1**
group 130-7
  age — 325-2
  broad age — 325-4
  ethnic — 333-2
  five-year age — 325-3
  kinship — 114-3
  occupational — 352-3
  quinquennial age — 325-3
  social status — 920-1
  socioeconomic — 920-1
  tribal — *333-2**
group migration 807-1
group of persons among whom mate selection takes place ★ 514-5
group quarters *120-1**
  other resident of — *310-7**
group survival 904-3
grouped settlement 312-5
growth
  economic — 903-1
  exponential — 702-3
  geometric — *702-3**
  instantaneous rate of — 702-5
  mean annual rate of — 702-2
  negative — 701-3
  optimum rate of — 903-2
  population — 201-9
  population — 701-1
  transitional — 907-4
  zero population — ★ 701-10
growth due to migration
  population — ★ 805-1
growth effet ★ 701-11
growth potential 703-5
growth rate 702-1
  exponential — 702-5

H

half-brother 113-5
half-sister 113-6
hamlet 306-2
handicap 360-2
  mental — 360-4
  physical — 360-3
handicapped 360-1
hardware 225-3
head 110-2
  life table for selected heads 435-3

head count ... *202-1**
head of the household ... 111-2
heading ... 221-5
headship ... *111-2**
headship ratio ... *111-2**
health
  ill- — ... 420-2
  public — ... 932-1
health policy ★ ... 930-8
health program ... 933-4
health statistics ... 421-1
heaping ... 152-2
  age — ... 152-3
hearth ... 110-3
hearth tax list ... 214-9
helper
  family — ... 353-5
hereditary ... *910-2**
hereditary characteristic ... 910-3
hereditary defect ... 913-3
heredity ... 910-2
heterogamous ... *506-6**
heterogamy ... 506-6
heterogeneity ... *134-5**
heterogeneous ... 134-5
heterozygous ... 912-3
hidden unemployment ★ ... 351-10
high-birth-rate cohort ★ ... 116-10
higher education ... 343-9
higher order birth ... *611-1**
histogram ... 155-8
historical calendar ... 322-8
historical demography ... 102-1
history
  fertility — ... 638-1
  pregnancy — ... 638-3
  reproductive — ... 638-1
holder
  scholarship — ... *345-2**
home worker ... 354-1
homemaker ... 350-4
homicide ... 422-6
homogamous ... *506-5**
homogamy ... 506-5
homogeneity ... *134-4**
homogeneous ... 134-4
homozygous ... 912-2
horizontally extended family ★ ... 113-9
hormonal contraception ... 630-2
house
  private — ... *120-1**
  tenement — ... *120-1**
household ... 110-3
  collective — ... 110-5
  complex — ... 111-5
  composite — ... 111-5
  family — ... *110-4**
  family — ★ ... 115-6
  head of the — ... 111-2
  institutional — ... *110-5**
  member of the — ... 111-1
  one- — structure ... *120-1**
  one-person — ... 110-6
  persons not living in households ... *110-5**
  private — ... 110-4
household population ... *110-5**
household schedule ... 207-2
household size ... 111-11
householder ... *111-2**
householder method ... 203-12
housewife ... 350-4
human being ★ ... 321-5
human ecology ... 104-5
human genetics ... *104-4**
human geography ★ ... 104-7
human longevity ... 434-3
husband ... 501-6
hypothetical cohort ... 138-7
  — ... 713-3
hysteroctomy ... 631-6
hysterotomy ... 604-8

I

I.Q. ... 327-6
I.U.D. ... 629-10
ideal family size ... *625-2**
identical genes ... 915-1
identical twins ... 606-4
ill-health ... 420-2
illegal abortion ... 604-5
illegitimacy ratio ... 632-6
illegitimate birth ... 610-4
illegitimate birth rate ... 632-5
illegitimate child ... 610-6
illegitimate component ... 712-2
illegitimate fertility ... *633-6**
illegitimate fertility rate ... 633-6
illiteracy ... *342-3**
illiteracy ratio ... *342-2**
illiterate ... 342-3
illness ... 420-2
  mean number of days of — ... 425-5
immature ... 605-8
immaturity ... 605-7
immediate cause of death ... 421-6
immigrant ... 802-6
  — ... *803-4**
immigrant for political religious or ethical reasons ★ ... 802-13
immigrate ... *803-4**
immigration ... 803-4
  net — ... 805-5
  selective — ... 811-3
immigration law ... 811-2
impairment ... 426-1
in-laws ... *114-8**
in-migrant ... 802-6
  proportion of in-migrants ... 816-3
  proportion of lifetime in-migrants ... 816-4
  statistics on in-migrants ... 813-2
in-migration ... 803-7

net — 805-5
inability to conceive 621-3
permanent — ★ 621-6
temporary — ★ 621-4
inability to procreate ★ 621-10
inactive
economically — population 350-2
inactive person ★ 351-9
inbreeding
coefficient of — 915-2
incapacity 426-2
professional — ★ 426-7
work — ★ 426-8
incentive 933-7
incidence of disease 420-3
incidence rate 425-2
income per capita
real national — 902-7
increase
crude rate of natural — 702-6
intrinsic rate of natural — 703-1
natural — 201-10
natural — 701-7
true rate of natural — *703-1**
increased longevity 327-2
increment-decrement method ★ 153-6
independent means
person of — 358-5
independent worker 353-4
index 132-7
comparative density — 313-1
comparative mortality — 403-5
density — 312-2
effectiveness — 815-5
efficiency — *815-5**
excess mortality — ★ 402-3
migration preference — 818-2
Pearl — ★ 638-10
replacement — 711-8
synthetic — ★ 132-5
synthetic — *133-6**
vital — 702-7
index number 132-7
index of age preference 152-4
index of migration differentials 816-6
index of migration effectiveness 815-5
index of migration efficiency *815-5**
index of migration intensity 818-1
index of net velocity 818-3
indicator 132-9
indices 132-4
indigenous 332-2
indirect estimation of mortality *430-1**
indirect method of standardization 403-4
indirectly standardized death rate *403-5**
indissolubility of marriage 512-1
individual 110-2
individual aging 327-1
individual migration 806-2
individual schedule 207-1
individual table 131-9
individual year of age 325-1
induced abortion 604-2
induction procedure
abortion by medical — 604-9
industrial mobility 921-5
industrial status *353-1**
industry 357-1
position in — *353-1**
infancy *323-6**
early — *410-3**
infant 323-6
privately baptized — ★ 214-4
infant death rate
foeto- — ★ 413-7
infant mortality 410-1
endogenous — *424-1**
exogenous — *424-1**
foeto- — ★ 411-7
infant mortality rate 412-2
adjusted — 412-5
infant welfare services 932-4
infantile *323-6**
infantile child death rate
post- — 414-6
infect *423-4**
infection *423-4**
infectious *423-4**
infectious disease 423-4
infecund *621-2**
infecundity 621-2
infertility 623-2
permanent — 623-4
total — ★ 623-3
voluntary — ★ 623-5
infirm 360-1
infirmity 360-2
— 426-4
mental — 360-4
physical — 360-3
informant 204-1
inhabit *101-5**
inhabitant 101-5
inhabited district
densely — *307-4**
initial age distribution 703-4
injection
abortion by saline — *604-9**
injury 422-1
death or — due to operations of war 422-7
war — *422-7**
inmate
institutional — *310-7**
input 228-1
input-output device 226-6
inquiry 203-4
field — 203-5
postal — 203-7
voluntary — 205-2
insemination
artificial — *602-2**
inspector 204-3
instantaneous death rate 431-4
instantaneous rate 137-5
instantaneous rate of growth 702-5
institute
educational — ★ 344-11
institution
educational — 344-1
institutional household *110-5**
institutional inmate *310-7**
institutional population 310-7

institutional schedule 207-4
instruction 342-8
insufficiently occupied dwelling 120-6
integration 810-4
intelligence quotient 327-6
intended family size *625-2**
intended number of children 625-2
intensity 138-1
  index of migration — 818-1
intent to marry 505-1
intention
  reproductive — *625-2**
intentional abortion 604-2
inter-generational social mobility . . . 920-7
inter-pregnancy interval 613-4
  net — 613-5
  open — 613-6
intercensal estimate 721-3
intercensal period *202-1**
interchange
  gross — 805-10
  net — 805-9
intercourse
  sexual — 627-2
intermediate foetal mortality 411-4
internal migration 803-1
International Labour Office *352-1**
international migration 803-2
International Standard Classification of Occupations *352-1**
interpolate *151-7**
interpolated *151-7**
interpolation 151-7
interquartile range 141-5
  semi- — 141-6
interval
  birth — 612-2
  closed birth — *612-4**
  confidence — 164-5
  first birth — *612-3**
  first pregnancy — 613-3
  inter-pregnancy — 613-4
  migration defining — *802-4**
  net inter-pregnancy — 613-5
  open birth 612-5
  open inter-pregnancy interval 613-6
  pregnancy — 613-2
  second birth — *612-3**
  straddling — 612-6
interval between divorce and remarriage
  mean — 524-5
interval between marriage and the first birth 612-3
interval between successive births 612-4
interval between successive generations
  mean — 713-1
interval between widowhood and remarriage
  mean — 524-4
intervening obstacle 819-4
intervening opportunity 819-7
interview
  direct — 203-11
  personal — 203-6
interviewee *204-1**
interviewer 204-2
interviewer bias 164-9
intra-generational social mobility *920-7**
intra-uterine death 411-2
intra-uterine device 629-10
intra-uterine mortality 411-1
intra-uterine mortality table 413-5
intrinsic birth rate *703-1**
intrinsic death rate *703-1**
intrinsic rate of natural increase 703-1
investment 901-5
irregular fluctuation 150-6
isolate 506-2

J

jelly
  contraceptive — 629-5
job
  first-time — seeker ⋆ 351-11
  person who is looking for her/his first — ⋆ 351-11
job control language *227-1**
job mobility 921-4
joint causes of death 421-5
joint family *113-7**
joint reproduction rate 711-6
journey to work *801-9**
judicial separation 512-5

K

KAP survey *626-8**
keypunch 224-4
kin 114-3
kindergarten 344-2
kinship *114-3**
  coefficent of — 915-3
kinship group 114-3
kitchen *120-2**
knowledge
  survey of — attitude and practice . . . *626-8**
known
  un — 230-11

L

labor *603-4**
labor force *350-1**
accession to the — 361-2
age at accession to the — 362-2
age at separation from the — 362-3
entry into the — *362-1**
first accession to the — *362-1**
mean age at accession to the — 362-4
mean age at separation from the — 362-5
probability of accession to the — .. 361-6
probability of separation from the — 361-8
rate of accession to the — 361-5
rate of separation from the — 361-7
re-entry into the — *362-1**
separation from the — 361-3
labor force concept *350-1**
labor force participation ratio 350-6
labor market ⋆ 901-6
labor migration 806-5
labor mobility 921-1
labor permit 812-11
labor reserve ⋆ 351-10
laborer *354-7**
agricultural — 356-4
day agricultural — *356-4**
fulltime agricultural — *356-4**
migrant — *356-4**
non-farm *354-2**
seasonal agricultural — *356-4**
landlord 121-1
language 340-1
job control — *227-1**
mother — 340-3
programming — 227-1
statistics of — 340-6
usual — 340-4
laparoscopy *631-4**
laparotomy *631-4**
last birthday
age at — 322-3
last child
age at the birth of the — 637-10
last menses *603-2**
last previous residence
place of — 802-2
late foetal death 411-5
late foetal mortality 411-5
late foetal mortality rate 413-1
late foetal mortality ratio 413-2
late neo-natal mortality ⋆ 410-6
latest change of residence 802-7
latest migration 802-7
law
common — marriage 503-3
immigration — 811-2
logistic — 703-10
marriage law 502-1
laws
in- — *114-8**
learning center ⋆ 344-7
least squares
method of — 151-4
leaving school 347-1
age at — 342-6
legal abortion 604-4
legal division 302-2
legal residence *310-6**
legal separation 512-5
legitimacy 610-1
legitimate birth 610-3
illegitimate birth 610-4
legitimate birth rate 632-4
legitimate child 610-2
illegitimate child 610-6
legitimate component 712-1
legitimate fertility *633-5**
legitimate fertility rate 633-5
total — 639-5
legitimated 610-8
legitimation 610-9
legitimized 610-8
length
mean — of education 347-5
length of a generation
mean — 713-1
length of absence 801-7
length of life 434-3
mean — 433-4
median 434-1
probable 434-1
less developed countries 903-3
lethal characteristic 910-5
lethality *425-6**
level ⋆ 343-10
subsistence — 905-5
level of development 902-3
level of education 343-5
level of enrollment *342-4**
level of living 902-6
level of significance 164-7
Lexis diagram 437-1
license
marriage — 505-2
life
change of — *620-6**
conjugal — 510-1
expectation of — 433-3
expectation of — at birth 433-4
expectation of unmarried — 522-8
expectation of working — 362-6
generation in the prime of — ⋆ 116-7
gross expectation of working — 362-7
length of 434-3
married — 510-1
mean duration of working — 362-9
mean length of — 433-4
net expectation of working — 362-8
stage of — 323-1
table of school — 347-4
table of working — 362-1
total number of years lived *433-3**
working — 361-1
life cycle
family — 637-8
life expectancy 433-3
life line 437-2

life span 434-4
life table 432-1
  abridged — 435-2
  calendar-year — 436-1
  cohort — 436-2
  complete — 435-1
  distribution of — deaths ★ 433-2
  general — 435-4
  model — 435-5
  period 436-2
  period — 436-1
life table death rate 433-5
life table for selected heads 435-3
life table function 432-2
life table survival ratio method *814-3**
life-time abortion rate 640-3
life-time migrant 802-11
lifetime fertility 636-4
  net — ★ 636-7
lifetime in-migrant
  proportion of lifetime in-migrants . 816-4
ligation
  tubal — 631-4
limitation
  family — 624-4
line
  life — 437-2
line printer 227-6
lingual
  bi — 340-5
  multi — 340-5
linguistic *340-1**
linguistic minority 333-4
linguistics *340-1**
linked migration ★ 806-8
list 203-3
  confirmation — 214-8
  hearth tax — 214-9
  military conscription — 214-11
  nominal — 207-3
  passenger — 812-7
list of communicants 214-7
listing 223-1
literacy *342-2**
  il — ratio *342-2**
literacy ratio *342-2**
literacy statistics *342-2**
literate 342-2
  il — *342-3**
  semi- — *342-3**
live birth 601-4
live-born *601-4**
live-born child 601-5
living
  level of — 902-6
  persons not — in households *110-5**
  standard of — 902-6
living quarter 120-1
load
  genetic — 914-4
loan
  marriage — 931-7
local move 803-6
locality 306-1
locus 911-4
lodger 110-8
logarithmic graph 155-5
  double — 155-6
  semi- — 155-5
  true — 155-6
logistic law 703-10
logistic population 703-9
longevity
  human 434-3
  increased — 327-2
longitudinal analysis *103-4**
longitudinal migration analysis 817-1
look for
  person who is looking for her/his first
  job ★ 351-11
loop 629-10
loss of nationality 331-5
low-birth-rate cohort ★ 116-11
low-income countries *903-3**
lower service
  simple or — ★ 355-4
lying-in period *424-4**

M

machine
  tabulating — 224-2
  unit record — 224-2
macrosimulation 730-7
magnetic tape 226-4
magnitude
  order of — 154-5
mail census 203-13
mailback survey 203-7
maintain 213-4
male 321-1
male child 321-3
male fertility rate 633-4
male generation 116-4
male mortality
  excess — *402-2**
male nuptiality 520-3
male reproduction rate 711-5
malformation
  congenital — 424-2
Malthusian *906-1**
Malthusian check 905-6
Malthusian policy *930-3**
Malthusian population *702-4**
Malthusian population theory 905-2
Malthusianism 906-1
  neo-Malthusianism 906-2
man 321-1
  married — 515-6

management system
  data base — ... 227-2
manager ... *353-2**
  farm — ... *356-2**
managerial staff ... 355-1
manifest ... 812-7
manslaughter ... *422-6**
manual processing ... 220-3
manual worker ... 354-2
  non- — ... 354-3
map ... 155-3
marginal worker ... 351-7
marital
  pre- — conception ... 610-5
marital condition ... 515-1
marital fertility ... *633-5**
  — ... 635-1
  non- — ... *633-6**
  total — ... *639-5**
marital fertility rate ... 633-5
  age-specific — ... 635-3
marital relation
  extra- — ... *610-6**
marital status ... 515-1
  abortion rate by age and — ★ ... 640-5
  probability that a pregnancy results in an abortion by age and — ★ ... 640-6
market
  labor — ★ ... 901-6
  marriage — ... 514-4
marriage ... 501-2
  — ... 501-4
  age at — ... 520-8
  annulment of — ... 513-1
  births of the present — ... 611-2
  broken — ... 512-7
  candidate to — ... 514-7
  civil — ... 503-1
  common law — ... 503-3
  companionate — ... 503-4
  consanguineous — ... 504-2
  consummation of — ... 505-5
  current — ... 637-1
  customary — ... 503-3
  dissolution of — ... 510-3
  dissolved — ... 513-3
  duration of — ... 524-2
  dysgenic — ... 913-6
  first — ... 514-8
  interval between — and the first birth ... 612-3
  interval between — and the N^{th} birth 612-7
  mean age at — ... 520-10
  mean age at — ... 520-10
  mean age at first — ... 521-5
  mean interval between divorce and remarriage ... 524-5
  mean interval between widowhood and remarriage ... 524-4
  mean number of births per — ... 637-4
  median age at first — ... 521-6
  minimum age at — ... 504-1
  mixed — ... 506-4
  modal age at first — ... 521-7
  number of divorces per new ... 523-6
  number of first marriages ... 522-2
  postponement of — ... 905-9
  ratio of births to marriages ... 639-7
  relationship by — ... 114-8
  relative frequence of remarriage ... 524-3
  religious — ... 503-2
  remarriage ... 514-9
  singulate mean age at — ... 521-8
  valid — ... 513-2
marriage certificate ... 505-3
marriage custom ... 502-2
marriage dissolution probability ... 524-1
marriage duration-specific cumulative fertility ★ ... 636-3
marriage duration-specific fertility rates ... 635-2
marriage duration-specific net cumulative fertility ★ ... 636-6
marriage frequency ... *520-9**
  *cumulated first marriage frequencies 520-9**
  *cumulated marriage frequencies ... 520-9**
  first — ... *520-9**
marriage indissolubility ... 512-1
marriage law ... 502-1
marriage license ... 505-2
marriage loan ... 931-7
marriage market ... 514-4
marriage migration ... 806-6
marriage of completed fertility ... 637-5
marriage order ... 514-10
marriage probability
  first — ... 521-3
marriage rate ... 520-1
  age-specific ... 520-9
  crude — ... 520-2
  first — ... 520-6
  remarriage rate ... 520-7
  sex-specific — ... 520-5
marriage record ... 211-8
marriage registration ... 211-7
marriage slip ... 215-3
marriageable ... *501-4**
  — ... 514-1
marriageable circle ★ ... 514-5
marriageable population ... 514-2
  non- — ... 514-3
married ... *501-4**
  divorce rate for — persons ... 523-3
  ever- — person ... 515-8
  ever- — survivor ... 522-6
  expectation of unmarried life ... 522-8
  never-married ... 515-2
  proportion never — ... 521-1
married couple ... 501-8
  newly — ... 505-4
married life ... 510-1
married man ... 515-6
married person ... 515-5
married woman ... 515-7
marry ... *501-4**
  intent to — ... 505-1
masculinity ... 320-3
masculinity proportion ... 320-4
mass migration ... 807-2
mass storage device ... 226-3
match ... 213-6
mate ... *503-3**

mate selection 514-6
  group of persons among whom — takes place ⋆ 514-5
maternal *112-4**
maternal and child health program . . 933-6
maternal death rate 424-6
maternal generation 116-5
maternal mortality 424-5
maternal reproduction rate 711-2
maternity *606-2**
maternity grant 931-5
maternity services 932-3
mathematical demography 102-6
mating
  random — 912-8
matrix method of projection 720-7
maturation *324-4**
mature *324-4**
maturity 324-4
maximum population 904-1
maximum potential density 313-6
mean 140-1
  arithmetic — 140-2
  geometric — 140-3
  weighted — 140-4
mean age 326-1
mean age at accession to the labor force 362-4
mean age at first marriage 521-5
mean age at marriage 520-10
  singulate — 521-8
mean age at separation from the labor force 362-5
mean age of fathers *713-2**
mean age of fertility *713-2**
mean age of mothers 713-2
mean annual rate 137-3
mean annual rate of growth 702-2
mean deviation 141-7
mean duration of working life 362-9
mean interval between divorce and remarriage 524-5
mean interval between successive generations 713-1
mean interval between widowood and remarriage 524-4
mean length of a generation 713-1
mean length of education 347-5
mean length of life 433-4
mean number of births per marriage . 637-4
mean number of children ever born per woman 637-2
mean number of days of illness 425-5
mean number of events 138-4
mean number of moves 817-8
mean population 401-5
mean selective values 914-3
means
  person of independent — 358-5
means of subsistence 905-3
measure
  cohort — 138-6
  period — 138-5
measure of dispersion 141-3
measure of fertility
  synthetic — 639-3
measurement of migration
  direct — 812-2
mechanical processing 220-4
median 140-6
median age at first marriage 521-6
median length of life 434-1
medical certificate of death 430-2
medical induction procedure
  abortion by — 604-9
megalopolis 307-5
member of the armed forces 357-6
member of the household 111-1
memory
  central — 226-2
menarche 620-5
menopausal *620-6**
menopause 620-6
menses 620-4
  last — *603-2**
menstrual *620-3**
menstrual cycle 622-2
menstrual extraction *604-7**
menstrual regulation *604-7**
menstruate *620-3**
menstruation 620-3
mental age 327-4
mental handicap 360-4
mental infirmity 360-4
mestizo *334-5**
method
  appliance — 628-1
  average survival ratio — *814-3**
  barrier *628-1**
  basal body temperature — 628-6
  birth control — 627-3
  canvasser — 203-11
  cohort-component — 720-5
  component — 720-5
  contraceptive — 627-3
  forward survival ratio — *814-3**
  householder — 203-12
  increment-decrement — ⋆ 153-6
  life table survival ratio — *814-3**
  multi-state — ⋆ 153-6
  national census survival ratio — . . . *814-3**
  natural family planning — *628-4**
  non-appliance — 628-2
  residual — 814-1
  reverse survival ratio — *814-3**
  rhythm — 628-4
  survival ratio 814-3
  vital statistics — 814-2
method of extinct generations 437-4
method of least squares 151-4
method of projection
  matrix — 720-7
method of residues 814-1
method of standardization
  direct — 403-3
  indirect — 403-4
metropolis *306-4**
metropolitan *306-4**
metropolitan area 307-4
metropolitan belt 307-5
metropolitan region ⋆ 307-6

metropolitan statistical area
standard — ... *307-4**
micro census ... 202-5
microsimulation ... 730-8
mid-year population ... 135-6
middle service ★ ... 355-5
middle-aged generation ★ ... 116-7
migrant ... *801-3**
— ... 802-4
emigrant ... 802-5
immigrant ... 802-6
in-migrant ... 802-6
life-time — ... 802-11
net number of migrants ... *805-2**
out-migrant ... 802-5
primary — ... *804-4**
primary — ... *806-4**
proportion of migrants ... 816-1
return — ... *804-3**
secondary — ... *804-4**
secondary — ... *806-4**
statistics on migrants ... 813-1
migrant laborer ... *356-4**
migrate ... *801-3**
migrate into ... 802-8
migrate out ... 802-9
migration ... 801-3
ancillary — ... 806-4
annual rate of net — ... 815-3
annual rate of total — ... 815-4
balance of — ... 701-6
chain — ★ ... 806-8
chronic — ... 804-4
collective — ... 807-1
differential — ★ ... 816-8
direct measurement of — ... 812-2
emigration ... 803-5
external — ... 803-3
family — ... 806-3
forced — ... 808-1
free — ... 806-1
group — ... 807-1
immigration ... 803-4
in-migration ... 803-7
individual — ... 806-2
internal — ... 803-1
international — ... 803-2
labor — ... 806-5
latest — ... 802-7
linked — ★ ... 806-8
marriage — ... 806-6
mass — ... 807-2
net — ... 701-6
net — ... 805-2
order of — ... 804-1
out-migration ... 803-8
population growth due to — ★ ... 805-1
primary — ... *804-4**
repeat — ... 804-4
retirement — ... 806-7
return — ... 804-3
rural-urban — ... 804-5
seasonal — ... *801-10**
secondary — ... *804-4**
secondary — ... 806-4
selectivity of — ... 816-7
serial — ... 804-6
serial — ★ ... 804-7
spontaneous — ... 806-1
stage — ... 804-6
step — ... 804-6
volume of — ... 805-7
voluntary — ... 806-1
migration analysis
longitudinal — ... 817-1
migration balance ... *805-2**
migration defining area ... *801-3**
migration defining interval ... *802-4**
migration difference ★ ... 816-8
migration differential
index of migration differentials ... 816-6
migration effectiveness
index of — ... 815-5
migration efficiency
index of — ... *815-5**
migration intensity
index of — ... 818-1
migration model ... 819-1
migration network ... *816-7**
migration policy ... 811-1
— ★ ... 930-7
migration preference index ... 818-2
migration probability
first — ... 817-2
migration probability by order of
move ... 817-6
migration rate ... 815-1
all orders — ... 817-7
annual — ... 815-2
Migration statistics ... 812-1
migration stream ... 803-9
effectiveness of migration streams ... 818-4
migration table
all orders — ... 817-9
migratory ... *801-3**
military conscription list ... 214-11
military personnel ... 357-6
minimum age at marriage ... 504-1
minimum population ... 904-2
minority ... 333-4
ethnic ... 333-4
linguistic — ... 333-4
national — ... 333-4
religious ... 333-4
miscarriage ... *411-3**
— ... 604-1
miscegenation ... 334-4
misreporting ... 230-7
age — ... 152-5
misspecified ... 230-11
mixed blood ... 334-5
mixed marriage ... 506-4
mixed parentage ... 334-5
mobility
downward — ... 920-6
geographical — ... 801-1
industrial — ... 921-5
inter-generational social — ... 920-7
intra-generational social — ... *920-7**
job — ... 921-4
labor — ... 921-1
occupational — ... 921-3

residential — ... 803-6
social — ... 920-4
spatial — ... 801-1
upward — ... 920-5
modal ... *140-8**
modal age at death ... 434-2
modal age at first marriage ... 521-7
modality ... 222-2
mode ... 140-8
timesharing — ... 227-9
model
demographic — ... 730-1
deterministic — ... 730-4
dynamic — ... 730-3
gravity — ... 819-5
migration — ... 819-1
probabilistic — ... 730-5
static — ... 730-2
stochastic — ... 730-5
model life table ... 435-5
model table ... *730-1**
momentum
demographic — ★ ... 703-11
monogamous ... 502-3
monogamy ... *502-3**
monozygotic twins ... 606-4
moral restraint ... 905-8
morbid state ... 420-7
morbidity ... 420-1
morbidity rate ... 425-1
morbidity ratio ... 425-1
morbidity statistics ... 420-6
more developed countries ... *903-3**
mortality ... 401-1
adult — ... 414-4
age-specific — ... 414-1
bill of — ... *430-1**
cause-specific — ... 421-2
child — ... 414-2
comparative — figure ... *403-5**
comparative — index ... 403-5
differential — ... 402-1
early foetal — ... 411-3
early neo-natal — ... 410-4
endogeneous — ... 424-1
endogenous infant — ... *424-1**
excess — ... 402-2
excess — index ★ ... 402-3
excess male — ... *402-2**
exogeneous — ... 424-3
exogenous infant — ... *424-1**
foetal — ... 411-1
foeto-infant — ★ ... 411-7
force of — ... 431-4
indirect estimation of — ... *430-1**
infant — ... 410-1
intermediate foetal — ... 411-4
intra-uterine — ... 411-1
late foetal — ... 411-5
late neo-natal — ★ ... 410-6
maternal — ... 424-5
neo-natal — ... 410-2
occupational — ... 402-4
occupational — ... 402-5
perinatal — ... 411-6
post-neonatal — ... 410-5
puerperal — ... *424-4**
standard — rate ... 403-6
youth — ★ ... 414-3
mortality difference ... 402-1
mortality in utero ... 411-1
mortality of old age ... 414-5
mortality probability
projective — ★ ... 431-5
mortality rate ... 401-2
adjusted — ... 403-1
adjusted infant — ... 412-5
early neo-natal — ... 412-4
foetal — ... 413-3
infant — ... 412-2
late foetal — ... 413-1
neo-natal ... 412-3
perinatal — ... 413-6
standardized — ... 403-1
mortality ratio
late foetal — ... 413-2
perinatal — ... *413-6**
standardized — ... *403-5**
mortality ration
foetal — ... 413-4
mortality surface ... 436-3
mortality table
intra-uterine — ... 413-5
mortality transition ... *907-1**
mother ... 112-4
god — ... 215-7
mean age of mothers ... 713-2
previous births to the — ... 611-3
mother language ... 340-3
mother tongue ... 340-3
motivator ... 626-3
move ... 801-2
local — ... 803-6
mean number of moves ... 817-8
migration probability by order of — 817-6
seasonal — ... 801-10
temporary — ... 801-6
movement
population — ★ ... 201-11
seasonal — ... *801-10**
moving average ... 151-5
mulatto ... *334-5**
multi-national state ... 330-6
multi-stage sampling ... 162-3
multi-state method ★ ... 153-6
multigravida ... 611-8
multilingual ... 340-5
multipara ... 611-12
multiparous ... 611-12
multiple birth ... 606-2
multiple causes of death ... 421-5
multiple counting ... 230-5
multiple decrement table ... 153-4
multiple delivery ... 606-2
multiple-household structure ... *120-1**
multiround survey ... 203-9
municipality ... *303-1**
murder ... *422-6**
mutant ... *912-7**
mutation ... 912-7

N

natal
  early neo- — mortality 410-4
  early neo- — mortality rate 412-4
  late neo- — mortality ★ 410-6
  neo- — mortality 410-2
  neo- — mortality rate 412-3
  neo- — period 410-3
  per — mortality rate 413-6
  peri — death *411-6**
  peri — mortality 411-6
  peri — mortality ratio *413-6**
  post-neo — mortality 410-5
natality 601-1
nation 305-2
national *305-2**
  — 330-1
  multi- — state 330-6
national census survival ratio method . *814-3**
national income per capita
  real — 902-7
national minority 333-4
national origin 811-5
national product per capita
  gross — *902-7**
nationality 330-4
  dual — 331-6
  ethnic — 330-5
  political — 330-4
nationality loss 331-5
native 332-1
native reserve 304-4
native-born 332-3
natural area 302-7
natural family planning method *628-4**
natural fecundability 638-6
natural fertility 638-4
natural increase 201-10
  — 701-7
  crude rate of — 702-6
  intrinsic rate of — 703-1
  true rate of — *703-1**
natural region 302-5
naturalization 331-1
naturalization certificate 331-3
naturalized citizen 331-2
naturalized person 331-2
negative eugenics 913-2
negative growth 701-3
negro *334-5**
neo-Malthusianism 906-2
neo-natal mortality 410-2
  early — 410-4
  late — ★ 410-6
  post- — 410-5
neo-natal mortality rate 412-3
  early — 412-4
neo-natal period 410-3
net complete fertility ★ 636-7
net cumulative fertility
  age-specific — ★ 636-6
  marriage duration-specific — ★ 636-6
net emigration 805-6
net expectation of working life 362-8
net fertility
  cumulative — 636-5
net immigration 805-5
net in-migration 805-5
net inter-pregnancy interval 613-5
net interchange 805-9
net lifetime fertility ★ 636-7
net migration 701-6
  — 805-2
  annual rate of — 815-3
net number of migrants *805-2**
net nuptiality table 522-4
net out-migration 805-6
net replacement 710-4
net reproduction 710-4
net reproduction rate 711-3
net stream 805-9
net velocity
  index of — 818-3
network
  migation — *816-7**
never married
  proportion — 521-1
never-married 515-2
new acceptors
  proportion of — 626-4
new marriage
  number of divorces per — 523-6
newborn 323-4
newly married couple 505-4
next birthday
  age at — 322-5
nidation 602-8
no contact 205-7
no fixed abode
  person of — 310-8
nomad *304-2**
nomadic 304-2
  semi- — 304-3
nominal list 207-3
nominal roll ★ 215-10
non-agricultural population 359-3
non-agricultural worker 357-4
non-appliance method 628-2
non-farm laborer *354-2**
non-farm population 359-3
non-manual worker 354-3
non-marital fertility *633-6**
non-marital fertility rate 633-6
non-marriageable population 514-3
non-migrant 817-3
  survivorship schedule of non-migrants 817-5
non-migrant table 817-4
non-numerical processing 228-5
non-planner 624-3
non-respondent 205-5
non-response 205-3
  — 230-11
non-self-governing territory 305-8
non-viable 603-2
non-white 334-3
nonrenewable event 201-4

nonsusceptible period 622-5
normal age at death 434-2
nosography 420-9
nosology 420-8
not specified 230-11
not stated 230-11
notifiable disease 423-7
nuclear family 113-1
nucleus 111-6
  family — 115-2
  primary — 111-7
  secondary — 111-8
  urban — *307-2**
nulligravida 611-6
nullipara 611-10
nulliparous 611-10
nullity
  decree of — 513-1
number
  absolute — 131-3
  index — 132-7
  round — 152-1
  total — 101-7
number of births per marriage
  mean — 637-4
number of children
  desired — 625-2
  intended — 625-2
number of children ever born per woman
  mean — 637-2
number of children surviving *430-1**
number of children wanted 624-5
number of days of illness
  mean — 425-5
number of divorces per new marriage .523-6
number of events
  mean — 138-4
number of first marriages 522-2
number of migrants
  net — *805-2**
number of moves
  mean — 817-8
number of years lived
  total — *433-3**
number remaining single 522-3
numerical data 130-2
numerical processing 228-4
  non- — 228-5
nuptial
  pre- — conception 610-5
nuptial reproduction rate 712-3
nuptiality 501-1
  female — 520-4
  male — 520-3
nuptiality rate 520-1
nuptiality table 522-1
  gross — 522-1
  net — 522-4
nursery school 344-2

O

observation 130-3
  period of — 137-1
observation error 164-8
observed deaths 403-7
obstacle
  intervening — 819-4
occlusion ★ 631-3
occupation 352-2
  change of — 921-2
occupational class 352-3
occupational classification 352-1
occupational disease 402-6
occupational group 352-3
occupational mobility 921-3
occupational mortality 402-4
  — 402-5
occupied
  insufficiently — dwelling 120-6
occupied population
  gainfully — *350-1**
occurence
  time of — *212-3**
office worker
  clerical and — 354-3
official *357-5**
offspring 114-7
ogive 155-10
old age 324-6
  mortality of — 414-5
old people 324-8
old population 326-5
older generation ★ 116-8
omission 230-3
on line 228-2
one year of age
  death under — 412-1
one-household structure *120-1**
one-parity woman *611-9**
one-person household 110-6
open birth interval 612-5
open ended questions 206-9
open inter-pregnancy interval 613-6
open population 701-5
operating system 226-7
operation
  census — 210-1
  type of — 220-7
operations of war
  death or injury due to — 422-7
operative *354-2**
operator
  farm — 356-1
opportunity
  intervening — 819-7
optimum 902-4
  economic — 902-5
  economic — *902-5**
  social *902-5**
optimum density 313-7
optimum population 902-4

optimum power *902-5**
optimum rate of growth 903-2
oral contracptive 630-1
order 201-6
  all orders migration rate 817-7
  all orders migration table 817-9
  birth — 611-1
  confinement — 611-4
  higher — birth *611-1**
  pregnancy — 611-5
order of magnitude 154-5
order of marriage 514-10
order of migration 804-1
order of move
  migration probability by — 817-6
order statistics 142-1
order-specific fertility rate 634-1
order-specific total fertility rate 639-6
origin
  event- — 135-4
  national — 811-5
  place of — 801-4
orphanhood status *430-1**
other resident of group quarters *310-7**
out-migrant 802-5
  proportion of out-migrants 816-2
  statistics on out-migrants 813-2
out-migration 803-8
  net — 805-6
output 228-6
  input- — device 226-6
over-estimation 230-6
overall fertility rate 633-7
overcrowded *120-5**
overcrowded dwelling 120-5
overcrowding *120-5**
overpopulated *902-1**
overpopulation 902-1
ovulation 622-3
ovum 602-3
own account
  worker on — 353-4
owner 121-1
  farm- — 356-2

P

package
  statistical — 227-4
paleo-demography 102-2
pandemic 423-3
panel analysis *103-4**
Panmixia 912-8
parameter
  population — 164-1
parent 112-2
  single — family ⋆ 115-4
parentage
  mixed — 334-5
parental *112-2**
parenthood *112-2**
  — 114-6
  planned — 625-1
  responsible — 625-1
Pareto-type model *819-5**
parish 303-1
parish register 214-1
parity 611-9
  average — 637-2
  completed — 637-6
  final — 637-6
  one- — woman *611-9**
  zero- — woman *611-9**
parity progression ratio 637-7
parity-specific birth probability 634-3
parity-specific birth rate 634-2
parity-specific fertility rate 634-2
parochial register 214-1
partial census 202-3
partial employment 351-6
participation ratio
  labor force — 350-6
particulars 206-6
parturition *603-4**
passenger list 812-7
paternal *112-3**
paternal generation 116-4
paternal reproduction rate 711-5
Pearl index ⋆ 638-10
pensioner 358-6
people 305-2
  — 333-3
  old — 324-8
per capita *902-7**
  gross national product — *902-7**
  real national income — 902-7
per head *902-7**
percentage 133-3
percentile 142-4
perinatal death *411-6**
perinatal mortality 411-6
perinatal mortality rate 413-6
perinatal mortality ratio *413-6**
period *150-4**
  — 620-4
  childbearing — 620-1
  intercensal — *202-1**
  lying-in — *424-4**
  neo-natal — 410-3
  nonsusceptible — 622-5
  projection — 720-3
  reproductive — 620-1
  safe — 628-5
  sterile — 622-1
period analysis 103-5
period fertility 639-1
period fluctuation 150-4
period gross reproduction rate *639-4**
period life table 436-1
period measure 138-5
period of gestation 603-3
period of observation 137-1
period rate 135-8

period table 153-2
periodic *150-4**
periodic abstinence 628-4
periodicity *150-4**
permanent disability 426-3
permanent inability to conceive ★ . . . 621-6
permanent infertility 623-4
permanent resident 310-3
permanent sterility 621-7
permit
  entry 812-9
  exit — *812-9**
  labor — 812-11
  residence — 812-10
person 110-2
  colored — 334-3
  displaced — 808-6
  divorced — 511-4
  ever-married — 515-8
  group of persons among whom mate selection takes place ★ 514-5
  inactive — ★ 351-9
  married — 515-5
  naturalized — 331-2
  retired — 358-6
  self-supporting — 358-2
  separated — 512-6
  white — 334-2
  widowed — 510-6
  young — 324-3
person not living in households *110-5**
person of independent means 358-5
person of no fixed abode 310-8
person receiving public assistance . . . 358-7
person who is looking for her/his first job ★ 351-11
person-year 135-7
personal interview 203-6
personnel
  military — 357-6
pessary 629-2
phenomenon
  demographic — 103-2
  disturbing — ★ 103-3
phenotype 912-4
physical handicap 360-3
physical infirmity 360-3
physiological age 327-3
physiological effectiveness 625-5
pill 630-4
pilot survey 202-7
place of arrival 801-5
place of birth 802-10
place of current residence 802-3
place of departure 801-4
place of destination 801-5
place of last previous residence 802-2
place of origin 801-4
place of residence 310-6
  previous 802-2
  tabulation by — 212-3
place of residence at a fixed date 802-1
place-of-birth statistics 813-3
  — ★ 814-4
placenta *603-4**
plan
  sampling — 160-5
planing
  natural family — method *628-4**
planned
  unplanned birth *624-5**
planned birth *625-3**
planned parenthood 625-1
planner 624-2
  non-planner 624-3
planning
  family — 624-4
  family — education 933-2
  family — program 626-1
  family — services 933-3
  family — status *624-4**
plotter 228-7
plural birth 606-2
point of death 437-3
poisoning 422-2
policy
  health — ★ 930-8
  migration — 811-1
  migration — ★ 930-7
  population — 105-2
political division 302-2
political nationality 330-4
political reason
  emigrants for political religious or ethical reasons ★ 802-12
  immigrants for political religious or ethical reasons ★ 802-13
polyandrous 502-5
polyandry *502-5**
polygamous 502-4
polygamy *502-4**
polygon
  frequency — 155-7
polygynous 502-6
polygyny *502-6**
poorly defined 230-11
population 101-3
  — 101-4
  actual — 310-2
  agricultural — 359-2
  annual extrapolation of — ★ 721-5
  average — 135-6
  average — 401-5
  closed — 701-4
  current — statistics 201-1
  de facto — 310-2
  de jure — 310-1
  death rate of the stationary — 433-5
  density of — 312-1
  density of — per unit of cultivable area 313-2
  density of agricultural — per unit of cultivable area 313-3
  depopulation 930-2
  displacement of — 808-7
  economically active — 350-1
  economically inactive — 350-2
  employed — 351-5
  employment to — ratio ★ 351-8
  estimate of — 721-1
  exponential — 702-4

farm — ... 359-2
gainfully occupied — ... *350-1**
geographical distribution of the — ... 301-1
household — ... *110-5**
institutional — ... 310-7
logistic — ... 703-9
Malthusian — ... *702-4**
marriageable — ... 514-2
mean — ... 401-5
mid-year — ... 135-6
non-agricultural — ... 359-3
non-farm — ... 359-3
non-marriageable — ... 514-3
old — ... 326-5
open — ... 701-5
overpopulation ... 902-1
quasi-stable — ... 703-7
resident — ... 310-1
rural — ... 311-3
scatter of the — ... 312-3
school-age — ... 346-7
semi-stable — ★ ... 703-8
semi-urban — ... 311-5
spatial distribution of the — ... 301-1
stable — ... 703-2
stable — analysis ... *703-2**
standard — ... 403-2
state of the — ... 201-8
stationary — ... 703-6
surplus — ★ ... 905-10
target — ... 626-2
underpopulation ... 902-2
unoccupied — ... 350-2
urban — ... 311-4
working — ... 350-1
young — ... 326-6
zero — growth ★ ... 701-10
population aggregate ... 306-1
population carrying capacity ... 313-6
population census ... 202-1
population center ... 312-7
population change
statistics of — ... 201-2
population cluster ... 306-1
population control ... 930-3
population count ... *202-1**
population decline ... 701-2
population density ... 312-1
population dependent on ... 359-1
population dependent on agriculture ... 359-2
population dynamics ... 201-7
population education ★ ... 933-11
population equilibrium ... 905-4
population exchange ... 808-8
population forecast ... 720-2
population genetics ... 104-4
population growth ... 201-9
— ... 701-1
population growth due to migration ★ 805-1
population maximum ... 904-1
population minimum ... 904-2
population movement ★ ... 201-11
population optimum ... 902-4
population parameter ... 164-1
population policy ... 105-2
population pressure ... 905-1
population processes ... 201-7
population program ... 933-1
population projection ... 720-1
population pyramid ... 325-7
population quality ... 104-3
population redistribution ... 811-6
— ... 930-6
population register ... 213-1
population replacement ... 710-1
population sciences ★ ... 101-8
population statistics ... 102-4
— ... 130-1
population studies ... 102-10
population theories ... 105-1
population theory
Malthusian — ... 905-2
population transfer ... 808-7
population transition ... 907-1
populationist ... 930-1
position in industry ... *353-1**
positive check ... 905-6
positive eugenics ... 913-1
post-enumeration check ★ ... 202-8
post-enumeration survey ... 202-9
post-enumeration test ... 230-9
post-graduate student ... *345-6**
post-infantile child death rate ... 414-6
post-neonatal mortality ... 410-5
post-partum amenorrhea ... 620-9
post-partum sterility ... *622-5**
post-transitional stage ... 907-3
postal inquiry ... 203-7
postcensal estimate ... *721-3**
postponement of marriage ... 905-9
potential
growth — ... 703-5
potential density
maximum — ... 313-6
potential user ... 626-2
power optimum ... *902-5**
practice
*survey of knowledge attitude and — 626-8**
pre-marital conception ... 610-5
pre-marital examination ... 913-5
pre-natal allowance ... 931-6
pre-natal clinic ... 932-2
pre-nuptial conception ... 610-5
pre-school child ... 323-7
pre-school education ... 343-4
pre-test ... 202-7
pre-transitional stage ... 907-2
preference
digit — ... 152-2
index of age — ... 152-4
preference index
migration — ... 818-2
pregnancy ... 602-5
bridal — ... *610-5**
conventional duration of — ... *603-2**
probability that a — results in an abortion by age and marital status ★ ... 640-6
true duration of — ... *603-2**
pregnancy amenorrhea ... 620-8
pregnancy duration ... 603-3
pregnancy history ... 638-3
pregnancy interval ... 613-2

first — 613-3
inter- — 613-4
net inter- — 613-5
open inter- — 613-6
pregnancy order 611-5
pregnancy record 638-3
pregnancy wastage *411-2**
pregnant *602-5**
premarital conception
frequency of premarital conceptions ★ 637-9
premature baby 605-4
premature birth 605-2
premature confinement 605-2
premature delivery 605-2
prematurity 605-5
preparation
table — 220-9
pressure
population — 905-1
social — 933-9
prevalence of disease 420-4
prevalence rate 425-3
preventive check 905-7
previous births to the mother 611-3
previous place of residence 802-2
primary cause of death 421-8
primary data 131-1
primary education 343-6
primary family ★ 111-9
primary family unit *115-1**
primary migrant *804-4**
— *806-4**
primary migration *804-4**
primary nucleus 111-7
primary school 344-3
primary sector 357-7
primary sterility 621-8
primary unit 162-4
prime of life
generation in the — ★ 116-7
primigravida 611-7
primipara 611-11
primiparous 611-11
principal cause of death 421-8
principal earner 111-3
principal tenant ★ 121-5
printer
line — 227-6
private education 343-3
private house *120-1**
private household 110-4
private worker *357-5**
privately baptized infant ★ 214-4
probabilistic model 730-5
probability 134-1
— 135-5
annual death — 431-2
attrition — 135-5
first marriage — 521-3
first migration — 817-2
marriage dissolution — 524-1
migration — by order of move 817-6
parity-specific birth — 634-3
projective mortality ★ 431-5
quiquennial death — 431-3
probability of accession to the labor force 361-6
probability of death 431-1
probability of disability 426-5
probability of dying 431-1
probability of dying before age one 412-5
probability of separation from the labor force 361-8
probability of single survival 522-7
probability of survival 431-6
probability sample 161-1
probability that a pregnancy results in an abortion by age and marital status ★ 640-6
probable *134-1**
probable length of life 434-1
procedure
abortion by medical induction — 604-9
sampling — 160-1
process *130-9**
— *220-2**
data processing 130-9
processed results 228-6
processes
population — 201-7
processing *130-9**
— 220-2
batch — 227-7
electronic — 220-5
manual — 220-3
mechanical — 220-4
non-numerical — 228-5
numerical — 228-4
processing program 226-10
survey — 227-3
processing unit
central 226-1
procreate
inability to — ★ 621-10
procreation *601-2**
product of conception 602-6
product per capita
gross national — *902-7**
production 901-2
productivity 907-5
professional incapacity ★ 426-7
professional school 344-6
progenitor 114-2
progeny 114-7
program 225-8
family planning — 626-1
health — 933-4
maternal and child health — 933-6
population — 933-1
processing — 226-10
social welfare — 933-5
survey processing — 227-3
user's — 226-9
programmer 225-7
programming language 227-1
progression ratio
parity — 637-7
projection
backward — *720-1**
matrix method of — 720-7
population — 720-1
retroprojection *720-1**

projection period 720-3
projective mortality probability ★ ... 431-5
pronatalist 930-4
proportion 133-2
  masculinity — 320-4
proportion divorced
  cumulated — *523-6**
proportion never married 521-1
proportion of current users 626-8
proportion of in-migrants 816-3
proportion of lifetime in-migrants ... 816-4
proportion of lifetime out-migrants .. 816-5
proportion of migrants 816-1
proportion of new acceptors 626-4
proportion of out-migrants 816-2
proportion of refusals 205-8
proportion remaining single 521-2
proportion repeating a school year ★ . 347-7
proportion single 521-4
proportional *133-2**
prostaglandins *604-9**
province 303-2
  — 303-10
provisional 136-1
provisional rate 136-3
puberty 620-2
public assistance
  person receiving — 358-7
public education 343-2
public health 932-1
public welfare recipient 358-7
publication of banns 505-1
puerperal *603-6**
puerperal mortality *424-4**
puerperium 424-4
  — 603-6
pull factor 819-3
punch
  card — *224-4**
punch card 224-3
punched card *224-3**
pupil 345-2
  enrolled — 346-2
pupil in attendance 346-3
pure demography 102-5
push factor 819-2
pyramid
  population — 325-7

Q

quadruplet *606-3**
quality
  population — 104-3
quality check 230-10
quantile 142-1
quarter 306-7
  living — 120-1
  other resident of group quarters *310-7**
quartile 142-2
quartile deviation 141-6
quasi-stable population 703-7
question
  closed ended — 206-8
  open ended — 206-9
questionnaire 206-3
quinquennial age group 325-3
quinquennial death probability 431-3
quintuplet *606-3**
quota 163-3
quota sampling 163-2
quota system 811-4
quotient *135-5**
  intelligence — 327-6

R

race 333-1
racial *333-1**
racism *333-1**
racist *333-1**
radix 432-5
random *150-7**
  — 161-2
random fluctuation 150-7
random mating 912-8
random sample 161-1
random sampling
  simple — 161-4
  stratified — 162-1
randomize *161-2**
randomness *161-2**
range 141-4
  interquartile — 141-5
  semi-interquartile — 141-6
rate 133-4
  abortion — 640-1
  abortion — by age and marital status ★ 640-5
  acceptance — 626-4
  adjusted — 136-7
  adjusted infant mortality — 412-5
  adjusted mortality — 403-1
  age group-specific — ★ 135-2
  age-specific — 135-1
  age-specific abortion — ★ 640-4
  age-specific birth — 633-9
  age-specific death — 401-7
  age-specific divorce — 523-4
  age-specific fertility — *133-6**
  age-specific fertility — 633-9

age-specific marital fertility — 635-3
age-specific marriage — 520-9
all orders migration — 817-7
annual — 137-2
annual migration — 815-2
average annual — 137-3
birth — 632-1
birth — *633-1**
case fatality — 425-6
cause-specific death — 421-10
central — 135-10
central death — *431-1**
cohort — 135-9
cohort reproduction — 711-7
conception — 638-9
continuation — 626-5
contraceptive failure — 625-7
corrected — 136-6
corrected — 136-7
crude — 136-8
crude birth — 632-2
crude death — 401-4
crude divorce — 523-2
crude marriage — 520-2
death — 401-2
death — of the stationary population 433-5
disability — 425-5
divorce — 523-1
divorce — for married persons 523-3
dropout — 347-2
dropout — 626-6
duration specific divorce — 523-5
early neo-natal mortality — 412-4
exponential growth — 702-5
female fertility — 633-2
female reproduction — 711-2
fertility — 633-1
final — 136-4
first marriage — 520-6
foetal mortality — 413-3
foeto-infant death — ★ 413-7
general — 134-7
general fertility — 633-8
generation — 135-9
generation reproduction — 711-7
gross reproduction — 711-4
growth — 702-1
high-birth- — cohort ★ 116-10
illegitimate birth — 632-5
illegitimate fertility — 633-6
incidence — 425-2
indirectly standardized death — *403-5**
infant mortality — 412-2
instantaneous — 137-5
instantaneous death — 431-4
intrinsic birth — *703-1**
intrinsic death — *703-1**
joint reproduction — 711-6
late foetal mortality — 413-1
legitimate birth — 632-4
legitimate fertility — 633-5
life table death — 433-5
life-time abortion — 640-3
low-birth- — cohort ★ 116-11
male fertility — 633-4
male reproduction — 711-5
marriage — 520-1
marriage duration-specific fertility — 635-2
maternal death — 424-6
maternal reproduction — 711-2
mean annual — 137-3
migration — 815-1
morbidity — 425-1
mortality — 401-2
neo-natal mortality — 412-3
net reproduction — 711-3
nuptial reproduction — 712-3
nuptiality — 520-1
order-specific fertility — 634-1
order-specific total fertility — 639-6
parity-specific birth — 634-2
parity-specific fertility — 634-2
paternal reproduction — 711-5
perinatal mortality 413-6
period — 135-8
period gross reproduction — *639-4**
post-infantile child death — 414-6
prevalence — 425-3
provisional — 136-3
remarriage — 520-7
replacement — 711-1
reproduction — 711-1
retention — 347-3
revised — 136-5
sex-age-specific death — 401-6
specific — 134-6
stable birth — *703-1**
stable death — *703-1**
standard — ★ 136-9
standard mortality — 403-6
standardized — 136-7
standardized birth — 632-7
standardized mortality — 403-1
stillbirth — *413-1**
termination — 626-6
total birth — 632-3
total fertility — 639-4
total legitimate fertility — 639-5
rate of accession to the labor force ...361-5
rate of growth
instantaneous — 702-5
mean annual — 702-2
optimum — 903-2
rate of natural increase
crude — 702-6
true — *703-1**
rate of natutal increase
intrinsic — 703-1
rate of net migration
annual — 815-3
rate of separation from the labor force 361-7
rate of total migration
annual — 815-4
rate,duration-specific — 135-3
raten sex-specific marriage — 520-5
ratio ★ 133-6
abortion — 640-2
activity — 350-6
age dependency — *358-9**
attendance — 346-4
average survival — method *814-3**

cause-specific death — 421-11
child-woman — 632-8
economic dependency — 358-9
employment to population — ★ 351-8
enrollment — *346-4**
foetal mortality 413-4
forward survival — method *814-3**
illegitimacy — 632-6
illiteracy — *342-2**
labor force participation — 350-6
late foetal mortality — 413-2
life table survival — method *814-3**
literacy — *342-2**
morbidity — 425-1
national census survival — method . *814-3**
parity progression — 637-7
perinatal mortality — *413-6**
reverse survival — method *814-3**
sampling — 161-5
sex — 320-5
specific — 133-1
standardized mortality — *403-5**
stillbirth — *413-2**
survival — 431-7
ratio of births to marriages 639-7
raw data 131-1
re-entry into the labor force *362-1**
reader
card — 227-5
real national income per capita 902-7
realization *311-3**
rebate
tax — 931-4
reception
country of — *801-5**
recessive 912-6
recipient
public welfare — 358-7
recognition 610-7
reconstitution
family — 638-2
record
birth — 211-6
death — 211-10
dwelling — 812-6
marriage — 211-8
pregnancy — 638-3
registration — 211-3
social security — 812-4
subject of — 215-5
tax-payer — 812-5
unit — machine 224-2
vital — 211-3
voter registration — 812-3
redistribution
population — 930-6
redistribution of population 811-6
refugee 808-5
refusal *205-6**
refusals
proportion of 205-8
refuse 205-6
region 302-3
— 303-2
economic — 302-6
metropolitan — ★ 307-6
natural — 302-5
register *211-4**
— *211-4**
burial — *430-1**
parish — 214-1
parochial — 214-1
population — 213-1
registrar 211-11
registration *211-4**
birth — 211-5
civil — 211-4
civil — system *211-4**
continuous — 213-2
death — 211-9
marriage — 211-7
time of — *212-3**
under — *230-3**
vital — 211-4
registration record 211-3
voter — 812-3
registration statistics 212-1
regulation
fertility — 624-6
menstrual — *604-7**
rejuvenation 326-4
related *114-3**
relation
adulterous — *610-6**
extra-marital — *610-6**
filial — 114-5
relationship 111-4
— *114-3**
degree of — 114-4
relationship by marriage 114-8
relative *114-3**
blood — 114-3
genetic — 114-3
relative frequency 133-5
— 144-3
relative frequency of remarriage 524-3
relatives *114-3**
religion 341-2
religious marriage 503-2
religious minority 333-4
religious reason
emigrant for political religious or ethical reasons ★ 802-12
immigrant for political religious or ethical reasons ★ 802-13
Religious statistics 341-1
remaining single
number — 522-3
proportion — 521-2
remarriage 514-9
mean interval between divorce and — 524-5
mean interval between widowhood and — 524-4
relative frequency of — 524-3
remarriage rate 520-7
remarried *514-9**
remarry *514-9**
remote terminal 227-10
renewable event 201-5
non — 201-4
renewable resource 710-2

rentier 358-5
repatriate, v *808-2**
repatriation 808-2
repeat
  proportion repeating a school year ★347-7
repeat ligration 804-4
replacement
  gross — 710-3
  net — 710-4
  population — 710-1
replacement index 711-8
replacement rate 711-1
report
  statistical — 212-2
reported age 322-6
reporting bias
  age — 152-5
representation
  diagrammatic — 155-1
  graphic — 155-1
representative sample 163-1
reproduce *601-2**
reproduction 601-2
  — 710-1
  gross — 710-3
  net — 710-4
reproduction rate 711-1
  cohort — 711-7
  female — 711-2
  generation — 711-7
  gross — 711-4
  joint — 711-6
  male 711-5
  maternal — 711-2
  net — 711-3
  nuptial — 712-3
  paternal — 711-5
  period gross — *639-4**
reproductive *601-2**
reproductive ages *620-1**
reproductive behavior 624-1
reproductive history 638-1
reproductive intention *625-2**
reproductive period 620-1
reproductivity *710-1**
repudiate 511-3
repulsion 819-2
reservation 304-4
reserve
  labor — ★ 351-10
  native — 304-4
reside *310-6**
residence *310-6**
  change of — 213-5
  duration of — 804-2
  latest change of — 802-7
  legal — *310-6**
  place of — 310-6
  place of — at a fixed date 802-1
  place of current — 802-3
  place of last previous — 802-2
  previous place of — 802-2
  tabulation by place of — 212-3
  usual — *310-6**
residence permit 812-10
resident
  other — of group quarters *310-7**
  permanent — 310-3
resident alien 331-7
resident population 310-1
residential mobility 803-6
residual family (“Restfamilie”) ★ 115-5
residual fecundability 638-7
residual method 814-1
residue
  method of residues 814-1
resource 901-1
  renewable — 710-2
respondent 204-1
  non- — 205-5
response
  non- — 205-3
  non- — 230-11
response error 164-8
responsible parenthood 625-1
restraint
  moral — 905-8
result 132-6
results
  processed — 228-6
retention rate 347-3
retired person 358-6
retirement 361-4
retirement age ★ 324-7
retirement migration 806-7
retroprojection *720-1**
retrospective survey 203-8
return migrant *804-3**
return migration 804-3
reunification
  family — ★ 806-9
reverse survival ratio method *814-3**
revised rate 136-5
revoke 331-4
revolution
  vital — *907-1**
rhythm method 628-4
rising
  young and — generation ★ 116-6
risk 134-2
  exposed to — 134-3
risk of conception
  exposure to the — 613-1
risk of disability 426-5
rite 341-4
roll
  nominal — ★ 215-10
  taxation — 214-10
room 120-2
  class- — 345-4
roomer 110-8
round number 152-1
rural *311-3**
rural area 311-1
rural population 311-3
rural-urban fringe *307-3**
rural-urban migration 804-5

S

safe period 628-5
saline injection
  abortion by — *604-9**
salpingectomy 631-5
sample 160-2
  probability — 161-1
  random — 161-1
  representative 163-1
  sub- — 162-5
  systematic — 161-6
sample survey 202-6
sampling
  area — 162-7
  cluster — 161-8
  multi-stage — 162-3
  simple random — 161-4
  stratified random — 162-1
sampling error 164-3
sampling fraction 161-5
sampling frame 161-3
sampling plan 160-5
sampling procedure 160-1
sampling quota 163-2
sampling ratio 161-5
sampling scheme 160-5
sampling unit 160-4
sanction 933-10
satellite community *307-3**
satus
  widowhood — *430-1**
saving 901-4
scatter 141-1
scatter of the population 312-3
schedule 206-2
  census — 206-2
  collective — 207-3
  enumerator's — 207-3
  fertility — 639-2
  household — 207-2
  individual — 207-1
  institutional — 207-4
  survivorship — of non-migrants . . . 817-5
scheme
  coding — 221-3
  sampling — 160-5
scholar *345-2**
scholarship holder *345-2**
scholarship student *345-2**
school
  age at leaving — 342-6
  current — statistics 346-1
  elementary — 344-3
  nursery — 344-2
  pre- — child 323-7
  pre- — education 343-4
  primary — 344-3
  professional — 344-6
  secondary — 344-4
  technical — ★ 344-8
  year of — completed 342-5
school age 346-6
school leaving 347-1
school life
  table of — 347-4
school year
  proportion repeating a — ★ 347-7
school-age child 323-8
school-age population 346-7
seasonal agricultural laborer *356-4**
seasonal fluctuations 150-5
seasonal migration *801-10**
seasonal move 801-10
seasonal movement *801-10**
seat
  county — 306-6
second birth interval *612-3**
second generation ★ 116-9
secondary cause of death 421-9
secondary education 343-7
secondary family ★ 111-10
secondary migrant *804-4**
  — *806-4**
secondary migration *804-4**
  — 806-4
secondary nucleus 111-8
secondary school 344-4
secondary sector 357-8
secondary sterility 621-9
secondary unit 162-6
sect 341-5
sectional
  cross- — analysis 103-5
sector
  primary — 357-7
  secondary — 357-8
  tertiary — 357-9
  traditional — 357-10
sedentary 304-1
seeker
  first-time job — ★ 351-11
seeking work 351-4
segregate *810-5**
segregation 810-5
selection 914-1
  group of persons among whom mate — takes place ★ 514-5
  mate — 514-6
selective immigration 811-3
selective value 914-2
  mean — 914-3
selectivity of migration 816-7
self-enumeration 203-12
self-governing territory 305-7
  non- — 305-8
self-supporting person 358-2
semi-interquartile range 141-6
semi-literate *342-3**
semi-logarithmic graph 155-5
semi-nomadic 304-3
semi-skilled worker 354-6
semi-stable population ★ 703-8
semi-urban population 311-5
senescence 327-1
senescent *327-1**
senile *424-7**

senility 424-7
senior service ★ 355-7
separated person 512-6
separation 512-2
  de facto — 512-3
  judicial — 512-5
  legal — 512-5
separation factor 412-6
separation from the labor force 361-3
  age at — 362-3
  mean age at — 362-5
  probability of — 361-8
  rate of — 361-7
serial migration 804-6
  — ★ 804-7
series 131-2
  time — 150-1
servant
  civil — *357-5**
service
  child welfare services 932-4
  family-planning services 933-3
  infant welfare services 932-4
  middle — ★ 355-5
  senior — ★ 355-7
  simple or lower — ★ 355-4
  upper — ★ 355-6
service worker *354-2**
services
  maternity — 932-3
set 140-7
settled 304-1
settlement 312-4
  dispersed — 312-6
  grouped — 312-5
sex 320-2
sex distribution 320-1
sex ratio 320-5
sex structure 320-1
sex-age-specific death rate 401-6
sex-specific marriage rate 520-5
sexual intercourse 627-2
share-cropper 356-3
sheath 629-1
short-term forecast 720-4
sib 113-4
sibling 113-4
sickness 420-2
significance
  level of — 164-7
significant difference 164-6
simple family *113-1**
simple or lower service ★ 355-4
simple random sampling 161-4
simulation 730-6
  macrosimulation 730-7
  microsimulation 730-8
single 515-2
  number remaining — 522-3
  proportion — 521-4
  proportion remaining — 521-2
single birth 606-1
single cause of death 421-4
single delivery 606-1
single parent family ★ 115-4
single survival
  probability of — 522-7
single survivor 522-5
singulate mean age at marriage 521-8
sister 113-3
  half- — 113-6
situation
  current demographic — ★ 102-8
size 101-7
  average family — 637-3
  desired family — *625-2**
  household — 111-11
  ideal family — *625-2**
  intened family — *625-2**
skill 354-4
skilled worker 354-5
  semi- — 354-6
  un — 354-7
slip 215-1
  baptism — 215-2
  burial — 215-4
  marriage — 215-3
smallholder *356-3**
smooth *151-1**
smoothed *151-1**
smoothing 151-1
social class 920-2
social demography 104-2
social mobility 920-4
  inter-generational — 920-7
  intra-generational — *920-7**
social optimum *902-5**
social pressure 933-9
social security record 812-4
social status category 353-6
social status group 920-1
social stratification 920-3
social welfare program 933-5
socioeconomic group 920-1
software 225-4
son 112-6
sort *222-1**
sorter
  card — 224-6
sorting 222-1
spacing
  birth — *612-1**
span
  life 434-4
spatial distribution 301-3
spatial distribution of the population . 301-1
spatial mobility 801-1
specialist
  computer — 225-6
specific rate 134-6
specific ratio 133-1
specified
  mis — 230-11
  not — 230-11
sperm cell 602-4
spermatozoon 602-4
spermicide 629-9
spinster 515-4
sponge 629-4
spontaneous abortion 604-1
spontaneous migration 806-1

spouse 501-5
age difference between spouses . . 520-11
square
method of least squares 151-4
squatter 121-4
stability *703-2**
stabilize *703-2**
stable *703-2**
stable age distribution 703-3
stable birth rate *703-1**
stable death rate *703-1**
stable population 703-2
quasi- — 703-7
semi- — ⋆ 703-8
stable population analysis *703-2**
staff
executive — 355-2
managerial — 355-1
stage
post-transitional — 907-3
pre-transitional — 907-2
stage migration 804-6
stage of life 323-1
standard deviation 141-9
standard error 164-4
standard metropolitan statistical area . *307-4**
standard mortality rate 403-6
standard of living 902-6
standard population 403-2
standard rate ⋆ 136-9
standardization *403-1**
direct method of — 403-3
indirect method of — 403-4
standardize *403-1**
standardized *403-1**
standardized death rate
indirectly — *403-5**
standardized mortality rate 403-1
standardized mortality ratio *403-5**
standardized rate 136-7
standardized rate birth 632-7
state 303-2
— 305-3
— 305-5
federal — 305-4
morbid — 420-7
multi- — method ⋆ 153-6
multi-national — 330-6
state in employment *353-1**
state of the population 201-8
stated
not — 230-11
stated age 322-6
stateless 330-3
statement 206-5
anonymous — ⋆ 215-9
static model 730-2
stationarity *703-6**
stationary *703-6**
stationary population *433-3**
— 703-6
death rate of the — 433-5
statistical *130-1**
statistical analysis ⋆ 130-10
statistical area *307-4**
standard metropolitan — *307-4**
statistical chart 155-3
statistical department 204-4
statistical estimation 164-2
statistical family 115-1
statistical package 227-4
statistical report 212-2
statistical table 131-4
statistical unit 110-1
statistician *130-1**
statistics *130-1**
current population — 201-1
current school — 346-1
demographic — 102-4
demographic — 130-1
descriptive 223-2
education — *342-2**
educational attainment — 342-4
epidemiological — 423-6
health — 421-1
literacy — *342-2**
migration — 812-1
morbidity — 420-6
order — 142-1
place-of-birth — 813-3
place-of-birth — ⋆ 814-4
population — 102-4
population — 130-1
registration — 212-1
religious — 341-1
vital — 212-1
vital — method 814-2
statistics of language 340-6
statistics of population change 201-2
statistics on in-migrants 813-2
statistics on migrants 813-1
statistics on out-migrants 813-2
status *353-1**
civil — 211-2
conjugal — 515-1
educational — 342-1
family planning — *624-4**
industrial — *353-1**
marital — 515-1
orphanhood — *430-1**
social — category 353-6
social — group 920-1
work — 353-1
status animarum 214-6
stay
duration of — 801-8
duration of — 804-2
stem family ⋆ 113-10
step migration 804-6
sterile *621-2**
sterile period 622-1
sterility 621-2
adolescent — 622-8
permanent — 621-7
post-partum — *622-5**
primary — 621-8
secondary — 621-9
temporary — 621-5
sterilization 631-1
eugenic — 913-4
steroids
contraception by — 630-3

stillbirth 411-5
  false — *411-5**
stillbirth rate *413-1**
stillbirth ratio *413-2**
stillborn *411-5**
stochastic model 730-5
storage
  mass — device 226-3
straddling interval 612-6
stratification *162-1**
  social — 920-3
stratified random sampling 162-1
stratify *162-1**
stratum 162-2
stream
  counterstream 803-11
  dominant — 803-10
  effectiveness of migration streams . 818-4
  migration — 803-9
  net — 805-9
structural effect ★ 701-12
structure 101-2
  — 144-4
  age — 325-6
  gene — 914-6
  genotypic — 914-7
  one-household — *120-1**
  sex — 320-1
structure of causes of death ★ 421-12
student 345-6
  graduate — *345-6**
  post-graduate — *345-6**
  scholarship — *345-2**
studies
  demographic — 102-7
  population — 102-10
sub-area 302-1
sub-family *115-1**
sub-fecund *621-1**
sub-fecundity *621-1**
  — 622-7
  adolescent — 622-8
sub-population 101-6
sub-sample 162-5
sub-tenant 121-3
subject 330-1
subject of record 215-5
subsistence
  means of — 905-3
subsistence level 905-5
substitution 205-9
suburb 307-3
suburban *307-3**
suburban zone *307-3**
suburbanization *307-3**
successive births
  interval betwwen — 612-4
successive generations
  mean interval between — 713-1
suction
  abortion by — *604-7**
suicide 422-5
  attempted — 422-5
summary table 131-8
supervisor 204-3
  — 355-3
support
  self-supporting person 358-2
suppository 629-6
surface
  mortality — 436-3
surface area 120-3
surplus population ★ 905-10
survey 203-4
  field — 203-5
  KAP — *626-8**
  mailback — 203-7
  multiround — 203-9
  pilot — 202-7
  post-enumeration — 202-9
  retrospective — 203-8
  sample — 202-6
survey of knowledge attitude and practice *626-8**
survey processing program 227-3
survival
  group — 904-3
  probability of — 431-6
  probability of single — 522-7
survival ratio 431-7
  average — method *814-3**
  forward — method *814-3**
  life table — method *814-3**
  national census — method *814-3**
  reverse — method *814-3**
survival ratio method average 814-3
survive
  number of children surviving *430-1**
survivirship schedule of non-migrants 817-5
survivor 432-4
  ever-married — 522-6
  single — 522-5
survivorship function 432-3
synthesis 132-2
synthetic cohort 138-7
  — 713-3
synthetic index ★ 132-5
  — *133-6**
synthetic measure of fertility 639-3
system
  civil registration — *211-4**
  data base management — 227-2
  education — 343-1
  operating — 226-7
  quota — 811-4
system analyst 225-9
systematic sample 161-6
systematically drawn 161-7

T

tabe
  distribution of life — deaths ★ 433-2
table 153-1
  abridged life — 435-2
  all orders migration — 817-9
  calendar-year — 153-2
  calendar-year life — 436-1
  cohort — 153-3
  cohort life — 436-2
  complete life — 435-1
  contingency — 131-7
  disability — 426-6
  double decrement — 153-4
  forecast — ★ 153-5
  frequency — *131-7**
  general life — 435-4
  generation — 153-3
  gross nuptiality — 522-1
  individual — 131-9
  intra-uterine mortality — 413-5
  life — 432-1
  life — death rate 433-5
  life — for selected heads 435-3
  life — function 432-2
  life — survival ratio method *814-3**
  model — *730-1**
  model life — 435-5
  multiple decrement — 153-4
  net nuptiality — 522-4
  non-migrant — 817-4
  nuptiality — 522-1
  period — 153-2
  period life — 436-1
  statistical — 131-4
  summary — 131-8
table of school life 347-4
table of working life 362-1
table preparation 220-9
tablet
  foam — 629-7
tabulate 130-6
tabulating machine 224-2
tabulation *130-6**
  cross- — 131-7
tabulation by place of residence 212-3
tabulator 224-7
tampon 629-4
tape
  magnetic — 226-4
target population 626-2
tax
  hearth — list 214-9
tax rebate 931-4
tax-payer record 812-5
taxation roll 214-10
teacher 345-3
technical
  institut ★ 344-10
technical college ★ 344-9
technical education 343-12
technical institute ★ 344-10
technical school ★ 344-8
teenager *324-3**
temperature method
  basal body — 628-6
tempo 138-2
temporary absentee 310-4
temporary inability to conceive ★ 621-4
temporary move 801-6
temporary sterility 621-5
temporary union 503-6
tenant 121-2
  principal — ★ 121-5
  sub- — 121-3
tenant farmer 356-3
tenement house *120-1**
term
  birth at — 605-3
  full — birth 605-3
  full — delivery 605-1
terminal
  remote — 227-10
termination rate 626-6
territorial *301-2**
territory 301-2
  — 305-6
  non-self-governing — 305-8
  self-governing — 305-7
tertiary sector 357-9
test
  post-enumeration — 230-9
  pre- — 202-7
theoretical demography 102-5
theories
  population — 105-1
theoritical effectiveness 625-5
theory
  Malthusian population — 905-2
theory of the demographic transition . *907-1**
therapeutic abortion 604-3
time of occurrence *212-3**
time of registration *212-3**
time series 150-1
timesharing mode 227-9
timing 138-2
  birth — 612-1
tongue
  mother — 340-3
total birth rate 632-3
total fertility 639-4
total fertility rate 639-4
  order-specific — 639-6
total infertility ★ 623-3
total legitimate fertility rate 639-5
total marital fertility *639-5**
total migration
  annual rate of — 815-4
total number 101-7
total number of years lived *433-3**
Tourist traffic 801-12
town 306-4
  county — 306-6
township 303-1
  — 303-8
track 343-8
  change of — 347-6

tract
census — 210-5
traditional family ★ 115-3
traditional sector 357-10
traffic
border — *803-2**
tourist — 801-12
transcription form 215-11
transfer
population — 808-7
transient 310-5
transit 801-11
transition
demographic — 907-1
fertility — *907-1**
mortality — *907-1**
population — 907-1
theory of demographic — *907-1**
transitional growth 907-4
travel *812-8**
— *812-8**
traveller 812-8
trend 150-2
tribal group *333-2**
tribe *333-2**
triplet *606-3**
true duration of pregnancy *603-2**
true logarithmic graph 155-6
true rate of natural increase *703-1**
tubal ligation 631-4
tubectomy 631-5
turnover 805-8
twin 606-3
biovular — 606-5
dizygotic — 606-5
identical — 606-4
monozygotic 606-4
uniovular 606-4
type of operation 220-7

U

ultimate frequency 138-3
undeclared 230-11
undercount 230-3
underdeveloped countries *903-3**
underemployment 351-6
underenumeration *230-3**
underestimation 230-4
undergraduate *345-6**
underlying cause of death 421-7
underpopulated *902-2**
underpopulation 902-2
underregistration *230-3**
underutilization *351-6**
unemployable 358-8
unemployed 351-3
unemployment *351-3**
hidden — ★ 351-10
unfurnished dwelling *121-2**
unintended birth *624-5**
union 501-3
conjugal — 503-8
consensual — 503-4
end of — 510-2
free — 503-5
temporary 503-6
uniovular twins 606-4
unit
administrative — 302-2
central processing — 226-1
conjugal family — *111-6**
dwelling — 120-1
primary — 162-4
primary family — *115-1**
sampling — 160-4
secondary — 162-6
statistical — 110-1
unit record machine 224-2
universe 101-3
university 344-5
university college *344-5**
university degree 343-11
unknown 230-11
unmarried life
expectation of — 522-8
unoccupied dwelling 120-7
unoccupied population 350-2
unplanned birth *624-5**
— *625-3**
unskilled worker 354-7
unwanted birth *624-5**
update 213-4
upper service ★ 355-6
upward mobility 920-5
urban *306-4**
— *311-4**
rural- — fringe *307-3**
semi- — population 311-5
urban area 311-2
urban fringe *307-3**
urban migration
rural- — 804-5
urban nucleus *307-2**
urban population 311-4
urbanization *311-4**
use effectiveness 625-6
user 225-5
potential — 626-2
proportion of current users 626-8
user's program 226-9
usual language 340-4
usual residence *310-6**
uterine *602-9**
utero
mortality in — 411-1
uterus 602-9
utilization
under — *351-6**

V

vacationing 801-12
vacuum aspiration
  abortion by — 604-7
vagrant 310-8
valid marriage 513-2
validity check 221-7
value
  fitness — 914-2
  mean selective — 914-3
  selective — 914-2
variability 141-1
variable 131-5
variance 141-8
variate 131-5
variation 141-1
  — 150-3
vasectomy 631-2
velocity
  index of net — 818-3
verification *130-5**
verifier
  card — 224-5
verify 130-5
vertically extended family ★ 113-8
viability *603-1**
viable 603-1
  non-viable 603-2
village *303-1**
  — 306-3
violence 422-4
violent *422-4**
visa 812-9
  exit — *812-9**
visiting alien 331-8
visitor 310-5
  alien — 331-8
vital event 201-3
  — 211-1
vital index 702-7
vital record 211-3
vital registration 211-4
vital revolution *907-1**
vital statistics 212-1
vital statistics method 814-2
vocational education 343-12
volume of migration 805-7
voluntary infertility ★ 623-5
voluntary inquiry 205-2
voluntary migration 806-1
voter registration record 812-3

W

wage earner *354-2**
wanted
  number of children — 624-5
  unwanted birth *624-5**
war
  death or injury due to operations of — 422-7
war death *422-7**
war injury *422-7**
ward 306-7
wastage
  pregnancy — *411-2**
wedding 501-4
wedlock
  child born out of — 610-6
weigh *140-5**
weight 140-5
  birth — 605-6
weighted average 140-4
weighted mean 140-4
weighting factor 140-5
welfare
  child — services 932-4
  infant — services 932-4
  social — program 933-5
white
  non- — 334-3
white collar worker *354-2**
white person 334-2
widow 510-5
widowed person 510-6
widower 510-4
widowhood 510-7
  mean interval between — and remarriage 524-4
widowhood status *430-1**
wife 501-7
withdrawal 628-3
witness 215-8
woman 321-2
  child-woman ratio 632-8
  married — 515-7
  mean number of children ever born per — 637-2
  one-parity — *611-9**
  zero-parity — *611-9**
woman years 633-3
womb 602-9
work
  journey to — *801-9**
  seeking — 351-4
work incapacity ★ 426-8
work status 353-1
worker 351-1
  agricultural — 357-3
  blue collar — *354-2**
  class of — *353-1**
  clerical and office — 354-3
  cottage — 354-1
  family — 353-5
  farm — *354-2**
  field — 204-2

gainful — *350-1**
gainful — concept *350-1**
home — 354-1
independent — 353-4
manual — 354-2
marginal — 351-7
non-agricultural — 357-4
non-manual — 354-3
private — *357-5**
semi-skilled — 354-6
service — *354-2**
skilled — 354-5
unskilled — 354-7
white collar — *354-2**
worker on own account 353-4
working life 361-1
expectation of — 362-6
gross expectation of — 362-7
mean duration of — 362-9
net expectation of — 362-8
table of — 362-1
working population 350-1

Y

year
age reached during the — 322-4
calendar- — life table 436-1
calendar- — table 153-2
complete — 322-2
five- — age group 325-3
individual — of age 325-1
mid- — population 135-6
person- — 135-7
proportion repeating a school — ★ . 347-7
woman years 633-3
year lived
total number of years lived *433-3**
year of age
death under one — 412-1
year of birth 325-5
year of school completed 342-5
young and rising generation ★ 116-6
young person 324-3
young population 326-6
younging *326-4**
youth 324-1
youth mortality ★ 414-3

Z

zero population growth ★ 701-10
zero-parity woman *611-9**
zone 302-4
suburban — *307-3**
zygote *602-3**
— 911-7

www.demopaedia.org

Multilingual Demographic Dictionary

Dictionario demográfico multilingüe

Dictionnaire démographique multilingue

Mehrsprachiges Demographisches Wörterbuch

تاغللا ددعتم يفارغميدلا مجعمل

多言語の人口統計学辞書

人口学词典 联合国

Многоязычный демографический словарь

Wielojęzyczny słownik demograficzny

Mnohojazyčný demografický slovník

Monikielinen väestötieteen sanakirja

Flerspråkig demografisk ordbok

Dizionario demografico multilingue

Dicionário Demográfico Multilíngüe

다국어 인구학사전

พจนานุกรมประชากรศาสตร์พหุภาษา

Kamus Demografi Multibahasa