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METHODOLOGY AND EVALUATION OF POPULATION REGISTERS AND SIMILAR SYSTEMS

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METHODOLOGY AND EVALUATION OF POPULATION REGISTERS AND SIMILAR SYSTEMS

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METHODOLOGY AND EVALUATION OF POPULATION REGISTERS AND SIMILAR SYSTEMS

PREFACE

This technical study is a comparative review of information available on continuous population registers and similar systems operating in different countries of the world as of the end of 1967. It is designed to provide some indication of the possibilities of utilizing such registers for obtaining statistical information on individuals, households, families, and other units of analysis for potential use in demographic, biologic, medical, sociological and genetic studies.

A. Background

The study had its origin in a request made by the Statistical Commission at its ninth session in 1956 "that a study and evaluation of continuous population registers be undertaken with a view to an examination of their usefulness as a statistical mechanism both in statistically developed countries and in those less advanced." 1/ Support for this recommendation was given by the Population Commission, at its tenth session in 1959. 2/ Accordingly, the Statistical Commission was informed at its eleventh session in 1960, that the Secretariat had undertaken such a study and it recommended that the study be completed. 3/

The results of a preliminary examination of the population registers of seven countries, based on information then available, were presented to the Seminar on the Use of Vital and Health Statistics for Genetic and Radiation Studies 4/ in June 1960 as Part II of Working Paper No. 18 entitled "Vital and Population Registration - a Review of Methods and Procedures". The consensus of the participants in the Seminar, strongly supported by the Secretary-General's Scientific Committee on the Effects of Atomic Radiation, 5/ was that certain

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1/ Official Records of the Economic and Social Council, Twenty-second Session, Supplement No. 7 (United Nations document E/CN.3/225), paragraph 115.

2/ Official Records of the Economic and Social Council, Twenty-seventh Session, Supplement No. 3 (United Nations document E/CN.9/156), paragraph 46.

3/ Official Records of the Economic and Social Council, Thirtieth Session, Supplement No. 12 (United Nations document E/CN.3/282), paragraphs 137 and 138.

4/ The Use of Vital and Health Statistics for Genetic and Radiation Studies: Proceedings of the Seminar sponsored by the United Nations and the World Health Organization (United Nations publication, Sales No.: 61.XVII.8), pp. 27-39.

5/ Annual Progress Report of the Scientific Committee on the Effects of Atomic Radiation for 1960 (United Nations document A/4528), paragraph 13, annex II.

simple alterations to existing procedures in the collection of vital statistics information might result in progress towards meeting the needs of biologists for data necessary to studies of genetics and of the effects of radiation on human population. Among the measures considered useful was the reconstruction of segments of biological families through record linkage so as to permit longitudinal studies over a number of generations. 6/

The population register study was subsequently extended to some fifty-six countries and a provisional version of the present document was presented to the Statistical Commission at its twelfth session in 1962. 7/ However, since information had not at that time been received from all countries and some of the available sources were incomplete and out of date, the Statistical Commission requested the Secretary-General "... to circulate the document... for review of the statements made and for revision of and possible additions to the study; to make any necessary changes based on the results of such reviews and the comments of the Commission; and to issue the final document as a technical study...". 8/

In accordance with this resolution the document E/CN.3/293 was submitted for review to some 125 countries in 1963. However, response to this request was not universal and although it was possible to revise and amend information for a number of countries, it was obvious that data for many countries were still lacking and that some were still incomplete or erroneous. Revision of the document under these circumstances appeared to be undesirable so this task was deferred pending receipt of information expected in connexion with a survey of vital statistics methods undertaken in 1961 and also the analysis of 1960 population census procedures, undertaken in connexion with the 1970 World Population and Housing Census Programme, adopted by the Economic and Social Council on 16 July 1965. 9/

In addition to these potential sources of information there was developing wide interest and experience in the maintenance of population registers by computer, developments which were not yet reflected in the study. Especially lacking was reference to the possibility of utilizing automated registers to supplement or even replace the population census as a means of gathering certain demographic facts. In view of these developments, it did not seem expedient to finalize the draft study in its original form and further work was, therefore, deferred until resources made it possible to explore these new developments. Appropriate findings in this area have been incorporated into the present manual.

B. Scope and content of study

This study is concerned with registers which either completely or approximately meet the requirements of the definition of a Population Register set forth in page 1 or which could be altered relatively easily so as to fulfil the functions

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6/ Ibid.

7/ Methodology and Evaluation of Continuous Population Registers (United Nations document E/CN.3/293).

8/ Official Records of the Economic and Social Council, Thirty-fourth Session, Supplement No. 13, resolution 6 (XII).

9/ Official Records of the Economic and Social Council, Thirty-ninth Session, Supplement No. 1, resolution 1054 (XXXIX) B, p. 2.

defined there. This has enabled the broadest possible coverage to be obtained in the interests of presenting comprehensive information on these registers which were generally thought to be less widespread than they now appear to be.

The study is divided into seven chapters supplemented with five tables. Chapter I (the Introduction) sets forth the definition of a Population Register used in the study, together with a suggested terminology, a brief history of register systems and the national and international activities concerning them. Chapter II (Reported Uses of Population Registers) contains a review of the uses of the countries' registers in existence at the end of 1967 and distinguishes thirty-five which are used for statistical as well as administrative purposes. Chapter III (General Features of Population Registers) explores the general structure of registers including their contents. Chapter IV (Accuracy of Population Registers) considers the relative accuracy of register information. Chapter V (Costs of Population Registers) presents available information on the costs of maintaining these registers. Chapter VI (Population Registers as a Means of Producing Statistics) points out the basic characteristics of population registers, the advantages of using electronic computers and the population register experience of some countries in the production of statistical data. Chapter VII sets forth the "Conclusions".

A subject-matter index is appended for convenience. A bibliography is not given because few if any of the published work reflect the current situation.

CHAPTER I

INTRODUCTION

A. Definition of a population register

For purposes of this study, a Population Register is defined as an individualized data system, that is, a mechanism of continuous recording, and/or of co-ordinated linkage, of selected information pertaining to each member of the resident population of a country in such a way to provide the possibility of determining up-to-date information concerning the size and characteristics of that population at selected time intervals. It is understood that the organization as well as the operation of the mechanism should have a legal basis.

Population registers are built up from a base consisting of an inventory of the inhabitants of an area, augmented continuously by current information on the fact of birth, death, adoption, legitimation, marriage, divorce, change of occupation, change of name and change of residence. They are thus the result of record linkage in which notification of certain events, recorded originally in separate files, is automatically and continuously made to a central file on a current basis throughout the lifetime of the individual.

It may be noted that record linkage on an ad hoc rather than continuous basis is used to merge information from two or more independent files of data pertaining to the same individuals in order to extend and enhance the potential for specific types of analysis and research or to improve accuracy. The files resulting from these ad hoc linkages are not covered in this study.

Although there is no internationally agreed terminology in the field of population registration, for the purposes of this study, each distinct collection of records is referred to as a file. An example would be a current residence file, defined as one containing records for persons resident within the jurisdiction of the particular register, or an archive file, composed of the records of persons no longer within the jurisdiction of the register because they have died or migrated from the area.

To assist in locating the records for a particular person or household in a register, indexes are provided. Indexes may be of several types including (1) an alphabetical listing, by name, of each person included on a register, the records of which are arranged in other than alphabetical order, (2) a street address or geographic index to facilitate entering the register, and (3) a serial index of unique numbers by which each person may be identified. The entire system of files and indexes within one country is called a population register.

B. Brief history of population registers

1. National activity

Population Registers are not a recent development. The earliest record of a register of households and persons comes from the Han Dynasty in China during the second century B.C. Household registration in Japan began in the seventh century, A.D., during the Taika restoration. The earliest population registers in Europe

were the parish registers of Sweden and Finland, which originated during the seventeenth century. A system of registers was introduced in Hungary in the eighteenth century. By the beginning of the twentieth century, some form of population registration was in operation in Belgium, Chile, China, Czechoslovakia, Finland, Germany, Hungary, Italy, Japan, Korea, Liechtenstein, Luxembourg, the Netherlands, the Ryukyu Islands, Spain, Sweden and Switzerland. At the end of 1967, population registers were known to be in operation in at least the sixty-five countries, 1/ shown in table 1 where the year when the population register system was established in either its original form, as it is now constituted or both is given.

1/ Attempts were made between 1951 and 1958 to establish a register in India and from 1939 to 1952 in United Kingdom but neither was operating at the end of 1967. In addition, it is officially reported that registers of population do not exist in Cameroon, Ethiopia, Morocco, Nigeria, Reunion, Senegal and Uganda in Africa; Canada, Guadeloupe, Honduras, Jamaica, Martinique, Panama, Canal Zone, United States of America, in America, North; Ecuador and French Guinea in America, South; Ceylon, Indonesia, Malaysia (Sarawak) and Philippines in Asia; Austria, Greece and Romania in Europe; American Samoa, Australia, Bonin Islands and New Zealand in Oceania.

Table 1

Countries with population registers or similar systems
by year of establishment: 31 December 1967

[Three dots (...) indicates that information is not available]

Country number	Continent and country	Year of establishment: Original register	Year of establishment: Register as now constituted
	AFRICA		
1.	Burundi	...	...
2.	Congo, Democratic Rep. of	...	1933
3.	Rwanda	...	...
4.	Somalia 1/	1953	...
5.	South Africa:		
	Register of Bantu Population	1952	1952
	Register of Coloured, Asiatic and White Population	1951	1951
6.	Togo 2/	1959	1959
7.	United Arab Republic	...	...
8.	Zambia	1965	...
	AMERICA, NORTH		
9.	Costa Rica 3/	...	1947
10.	Cuba	1964	1964
11.	El Salvador	...	...
12.	Greenland	1964	1964
13.	Mexico	1947 4/	1947 4/
14.	Netherlands Antilles	1931	1931
	AMERICA, SOUTH		
15.	Argentina 3/	...	1950
16.	Chile 3/	1885	1942
17.	Colombia 3/	1952	...
18.	Surinam	...	...

1/ Somalia's Population Register is kept only in the administrative circonscriptions of the country which were previously under Italian colonial authority.

2/ As of 1961, registers had been established in seven communes (Lomé, Anecho, Paline, Tsevia, Atakfamé, Sokodé and Bassari), which comprised 10 per cent of the total population of the country.

3/ Register established basically for electoral identification purposes.

4/ Although authorized, the Population Register has not been organized.

Table 1 (continued)

Country number	Continent and country	Year of establishment: Original register	Year of establishment: Register as now constituted
	ASIA		
19.	Afghanistan	1952	1952
20.	Brunei	...	...
21.	Burma	1958	1958
22.	China (mainland)	2nd century BC	...
23.	China (Taiwan)	2nd century BC	1946
24.	Cyprus	1956	1956
25.	Hong Kong 5/	1949	1949
26.	Iran	1918	1918
27.	Iraq	...	...
28.	Israel	1949	1965
29.	Japan:		
	Koseki register	7th century AD	1898
	Resident register	1954	1954
30.	Korea, Republic of:		
	Hojeok register	...	1960
	Resident register	1962	1962
31.	Lebanon	1932	1932
32.	Palestine:		
	Gaza Strip	1967	1967
33.	Ryukyu Islands:		
	Koseki register	1872	1957
	Resident register	(6/)	1960
34.	Singapore	1948	1948
35.	Syria	1922	1958
36.	Thailand	...	1951
37.	Turkey	1902	1902
38.	Viet-Nam, Republic of	(7/)	(7/)
	EUROPE		
39.	Albania	1923	...
40.	Andorra	...	...
41.	Belgium	1857	1857
42.	Bulgaria	1906	1906

5/ The Register of Persons is purely a control measure.

6/ The register was established during the Japanese administration of the islands.

7/ Registration for security purposes was initiated by local authorities about 1947.

Table 1 (continued)

Country number	Continent and country	Year of establishment: Original register	Year of establishment: Register as now constituted
	EUROPE (continued)		
43.	Czechoslovakia	19th century 8/	1857
44.	Denmark	1924 9/	1924 9/
45.	Faeroe Islands	1964	1964
46.	Finland	17th century 10/	(11/)
47.	France 12/	1942	1942
48.	Germany, Federal Republic of	19th century	1938
49.	Gibraltar	1943	1943
50.	Hungary	18th century	1955
51.	Iceland	1953	1953
52.	Italy	1864	1958
53.	Liechtenstein	19th century 13/	1947 13/
54.	Luxembourg	19th century 14/	1953 14/
55.	Netherlands	1850	1940
56.	Norway	(15/)	1946 15/

8/ First half of the century.

9/ Registers were established in Copenhagen, Friedrichsberg and Gentofte in 1923.

10/ The earliest established official registers were those of the Evangelic-Lutheran Church. The official registers of the Greek-Orthodox Church date from 1830. "Civil registers" (covering persons not belonging to either of the above-mentioned churches or to any registered congregation) were established in 1917 and registers of the registered congregations (i.e., congregations other than the Evangelic-Lutheran or Greek-Orthodox) in 1922.

11/ Instructions relating to the reformation of the population registers of the Evangelic-Lutheran Church were approved by the Assembly of Bishops in 1961.

12/ This is a "National Birth Registry". Every person born in France is registered and stays registered in his place of birth no matter where his actual place of residence is.

13/ Family registers were introduced in individual communes during the nineteenth century. In 1947, these registers were proclaimed to be civil registers, on the basis of an act of 1946 empowering the Government to prescribe the use of civil registers.

14/ By legislation of 1843 and 1846, communes were authorized to establish and regulate communal registers. In 1953, all communes enacted identical new legislation, approved by the Ministry of the Interior.

15/ By legislation of 1905 and 1915, communes were permitted to establish registers at their own option. Prior to 1946, forty-nine towns and forty-two country districts maintained such systems. Legislation enacted in 1946 established registers throughout the country. The regulations have introduced new technical features.

Table 1 (continued)

Country number	Continent and country	Year of establishment: Original register	Year of establishment: Register as now constituted
	EUROPE (continued)		
57.	Poland	...	...
58.	Portugal 16/	...	...
59.	San Marino	...	1962
60.	Spain	19th century	1952
61.	Sweden:		
	General register	17th century 17/	1947
	Population sample register 18/	1950	1950
62.	Switzerland:		
	Family register	17th century	1876
	Resident register	...	...
63.	Yugoslavia 19/	1953 20/	1961
	OCEANIA		
64.	Niue Island	1916	1916
	UNION OF SOVIET SOCIALIST REPUBLICS		
65.	Union of Soviet Socialist Republics	1917	...

16/ Each registration office has a register for births, deaths, marriages and divorces and every time an event takes place an entry is made on the birth register if it happens that the event concerns somebody whose birth had been registered in the same office. If not, a note is sent to the office where the birth took place and there is made the adequate entry. The registers do not contain information on changes in residence of the person registered.

17/ Legislation establishing registers was enacted in 1636.

18/ The register covers all persons born on the fifteenth day of each month, a total of about 3.3 per cent of the population of the country.

19/ People's Republic of Slovenia only.

20/ Registers were not established in Ljubljana until 1955; in Maribor, Celje and the former district of Koper, registers were established in 1956.

2. International activities

As early as 1872, the International Statistics Congress adopted a resolution recommending the introduction of population registers, to be kept by communal or municipal authorities, or by the police. 2/ The recommendation includes specifications of the information to be shown for each person on the registers.

Since little progress had been made by 1895, the International Statistical Institute set up a committee "to consider the desirability and feasibility of establishing population registers in the various countries". 3/ In 1905, after considering an extensive report on the subject, prepared by Mr. Nicolai, the Assembly of the Institute recommended "that the use of population registers should be generalized". 4/

No further significant international interest was taken in this field until the Statistical Commission of the United Nations requested the present study at its ninth session, in 1956 (see page v). Having reviewed the results, the Commission at its twelfth session concluded that

> "while continuous population registers established for administrative purposes might yield certain statistical data, the difficulties of keeping such registers up-to-date, the costs involved and the potentially unreliable nature of the data outweighed their usefulness as sources of statistical data only. It was felt that, with the exception of information on internal migration, adequate demographic statistics could more efficiently be obtained from other sources and that, in countries where no register was yet established, it was therefore inadvisable to establish such a register solely for the provision of demographic statistics. However, it was believed that, where continuous population registers already existed, countries should examine their potentialities for statistical use." 5/

The basis for these conclusions is set forth in the chapters which follow, and they are elaborated in chapter VI.

2/ Congrès international de statistique, Compte-rendu de la huitième session à St. Petersbourg (1872), 2ème partie, Travaux du Congrès, 1874, pp. 426-427.

3/ Nicolai, Edmond, "Rapport sur les registres de population", Bulletin de l'Institut International de Statistique, Vol. 15, 2ème livraison, 1905, pp. 314-351.

4/ "Registres de population", Bulletin de l'Institut International de Statistique, Vol. 15, 2ème livraison, 1905, pp. 42-43.

5/ Official Records of the Economic and Social Council, Thirty-fourth Session, op. cit., paragraph 64.

CHAPTER II. REPORTED USES OF POPULATION REGISTERS

Population registers may be categorized on a number of different axes, including their structure, their content and the uses made of the information they contain. An examination of the structure of the sixty-five registers in this study shows that few of the systems are unique in any single aspect, such as the form of record used, the degree of centralization, the source of each item of information shown or the method of transfer of information from one register to another, but no two registers are precisely the same in their entire structure. Similarly, although certain items of information appear on the records of all, or at least a great many of the registers, it is difficult to distinguish them according to their content. A study of the uses to which these registers are put reveals, however, that the clearest distinction can perhaps be made on that basis.

Uses may be distinguished as administrative or statistical. Within these two broad classes, ten specific categories of uses appear to be most universal among the registers studied; these are shown in table 2 with an indication of the experience of the countries in respect of each.

A. Administrative uses

The traditional functions of population registers has always been to provide information for the administrative purposes of governments. This is confirmed in table 2 where administrative uses are reported by 59 of the 65 countries and it is highly likely that the remaining 6 should be added to the group since by its very nature a population register must imply an identification function at least. Of the 65 countries studied 16 report registers used exclusively for administrative purposes, while 35 report using them for both administrative and statistical purposes.

Seven countries report that they use the registers for administrative purposes but it is not known whether they use them for statistical purposes as well.

Among the administrative uses of the registers in 59 countries reporting this use, one finds that 53 are used inter alia for identification of persons; 34 for control of electoral rolls and 37 for other administrative purposes which include control of selection for military service, indications of each person's status in respect of various social security benefits and the preparation of tax lists. 1/ In the Union of Soviet Socialist Republics house register information is reported to be utilized for issuing documents needed for the admission of children to nurseries, kindergartens and schools, and the assignments of local residents to health clinics. Registers have also been used for the control of food rationing in times of shortage.

1/ It is interesting to note that Afghanistan, Hong Kong, Iran, Thailand and the Union of Soviet Socialist Republics have stated specifically that register information is never used for purposes of taxation.

TABLE 2. REPORTED USES OF INFORMATION SUPPLIED BY POPULATION REGISTERS OR SIMILAR SYSTEMS: 65 COUNTRIES, 31 DECEMBER 1967

[An "X" indicates that the use of information specified in the caption has been reported; a dash (--) indicates that information is not used for the purpose specified in the caption; three dots (...) indicates that information is not available.]

Country Number	Continent and country	Reported uses of register information									
		Administrative			Statistical						
		Identification	Electoral rolls	Other	Population estimation	Migration statistics		Population census		Sampling frame	Genetic studies
						Internal	International	Planning	Evaluation of results		
	AFRICA										
1.	Burundi	X	...	...	...	...	...	...	...	...	...
2.	Congo, Republic of	X	...	X	...	...	...	...	...	X	...
3.	Rwanda	X	...	...	X	...	...	...	...	...	...
4.	Somalia	X	...	X	...	...	...	...	...	...	...
5.	South Africa:										
	Register of Bantu population.	X	--	--	--	--	--	--	--	--	--
	Register of Coloured, Asiatic and White population	X	--	--	--	--	--	--	--	--	--
6.	Togo	X	--	X	--	--	--	--	--	--	--
7.	United Arab Republic	X	...	...	...	...	...	...	...	...	...
8.	Zambia	X	...	...	...	...	...	...	...	...	...
	AMERICA, NORTH										
9.	Costa Rica	X	X	--	--	--	--	--	--	--	--
10.	Cuba	X	...	X	X	X	X	...	...	...	...
11.	El Salvador	X	X	...	...	...	...	...	...	...	...
12.	Mexico	X	...	...	...	X	...	...	...	...	--
13.	Greenland	...	...	...	...	...	...	...	...	...	...
14.	Netherlands Antilles	X	X	X	X	--	--	X	--	--	--
	AMERICA, SOUTH										
15.	Argentina	...	X	...	--	--	--	--	--	--	--
16.	Chile	X	X	X	--	--	--	--	--	--	--
17.	Colombia	...	X	--	--	--	--	--	--	--	--
18.	Surinam	X	...	...	X	--	X	--	--	--	--
	ASIA										
19.	Afghanistan	--	--	X	--	--	--	--	--	--	--
20.	Brunei	...	...	...	...	...	...	...	...	...	...
21.	Burma	X	...	X	...	...	...	...	...	...	...
22.	China (Mainland)	...	...	...	...	...	...	...	...	...	...
23.	China (Taiwan)	X	X	X	X	X	X	X	X	X	--
24.	Cyprus	X	--	--	--	--	--	--	--	--	--
25.	Hong Kong	X[1]	--	--	--	--	--	--	--	--	--
26.	Iran	X	--	X	--	--	--	--	--	--	--
27.	Iraq	X	...	X	...	...	...	...	...	...	...
28.	Israel	X	X	X	X[2]	X	X[3]	X	X	X	...
29.	Japan:										
	Koseki register	...	X	--	--	--	--	--	--	--	X
	Resident register	X	X	X	X[2]	X	--	--	--	--	--
30.	Korea, Republic of:										
	Hojeok register	X	...	...	...	...	...	...	...	...	...
	Resident register	--	X	--	--	X	X	--	--	--	--
31.	Lebanon	X	...	...	X	...	...	...	...	...	--
32.	Palestine:										
	Gaza Strip	X	--	--	--	--	X	X[4]	--	X	--
33.	Ryukyu Islands:										
	Koseki register	X	--	--	--	--	--	--	--	--	--
	Resident register	X	--	X	--	--	--	--	--	--	--

1/ The Register of Persons is purely a control measure.

2/ For local estimates only.

3/ Through frontier control and use of Population Register.

4/ For census linking.

TABLE 2. REPORTED USES OF INFORMATION SUPPLIED BY POPULATION REGISTERS (continued)

/See note at head of table./

Country Number	Continent and country	Reported uses of register information									
		Administrative			Statistical						
		Identification	Electoral rolls	Other	Population estimation	Migration statistics		Population census		Sampling frame	Genetic studies
						Internal	International	Planning	Evaluation of results		
	ASIA (continued)										
34.	Singapore	X	X	--	--	--	--	--	--	--	--
35.	Syria	X	X	...	X	...	...	...	...	...	...
36.	Thailand	X	X	X	--	--	--	--	--	--	--
37.	Turkey	--	--	X	X 5/	--	--	--	--	--	--
38.	Viet-Nam, Republic of	X	X	--	X	--	--	--	--	--	--
	EUROPE										
39.	Albania	X	X	X	--	--	--	--	--	--	--
40.	Andorra	...	...	...	...	...	...	...	...	...	...
41.	Belgium	X	X	X	X	X	X	X	X	X	--
42.	Bulgaria	X	X	X	X 6/	X	X	X	--	--	X
43.	Czechoslovakia	X	X	X	--	X	--	--	--	--	--
44.	Denmark	X	X	X	X	X	X	X	X	X	--
45.	Faeroe Islands	X	X	--	X	X	X	X	X	--	--
46.	Finland	X	X 7/	X	--	X	--	X 8/	X 8/	--	X
47.	France	X	X	X	--	--	--	--	--	X 9/	--
48.	Germany, Federal Republic of	X	X	X	X 2/	X	X	X 10/	--	--	--
49.	Gibraltar	X	--	X	X	--	--	X	X	--	--
50.	Hungary	X	--	--	X	X 11/	X	--	--	--	--
51.	Iceland	X	X	X	X	--	--	--	--	--	--
52.	Italy	X	X	X	X	X	--	X	X	--	--
53.	Liechtenstein	X	--	--	--	--	--	--	--	--	--
54.	Luxembourg	X	X	X	--	--	--	--	--	--	--
55.	Netherlands	X	X	X	X	X	X	X	X	X	--
56.	Norway	X	X	X	X	X	--	X	X	--	X
57.	Poland	...	...	...	...	...	...	...	...	...	...
58.	Portugal	...	...	...	...	...	...	...	...	...	...
59.	San Marino	X	X	X	X	X	...	...	...	...	--
60.	Spain	...	X	X	--	X	--	--	--	--	--
61.	Sweden:										
	General register	X	X	X	X	X	--	--	X	X	X
	Population sample register	--	--	--	--	--	--	--	--	X 12/	...
62.	Switzerland:										
	Family register	X	--	X	--	--	--	--	--	--	--
	Resident register	X	X	X	X 2/	X	--	X	--	--	--
63.	Yugoslavia (People's Republic of Slovenia)	X	X	X	X 2/	--	--	X	X	--	--
	OCEANIA										
64.	Niue	X	X	X	--	--	--	--	--	--	--
	UNION OF SOVIET SOCIALIST REPUBLICS										
65.	Union of Soviet Socialist Republics	--	--	X	X 13/	--	--	--	--	--	--

2/ For local estimates only.
5/ For internal use only.
6/ Register data are the base for population estimates.
7/ Accordingly, yearly listings every 4th January.
8/ The yearly listings mentioned on note 6, are used for these purposes by the sixty districts of the country.
9/ The register has also been used as a source of information about samples of persons selected from other universes.
10/ In some larger towns, census enumerators have been supplied with lists of inhabitants compiled from the register.
11/ Register information on internal migration is used in the preparation of population estimates.
12/ The register is a sample in itself, comprising records for all persons born on the 15th day of each month, a total of about 3.3 per cent of the population of the country.
13/ Register data are used together with data from other sources.

B. Statistical uses

For the purpose of this study, most interest attaches to the 35 registers which, in addition to furnishing various types of administrative information are also used for statistical purposes. Some six statistical uses have been reported by the countries for whom information is at hand, namely, population estimation; migration statistics; census planning; census evaluation; sampling frame; and genetic studies. These are shown in table 2 and they are discussed briefly below, beginning with estimation of population, the most widespread of the statistical applications reported.

1. Population estimation

There is evidence that register data are now used alone or as a component in the preparation of population estimates in 27 countries of the 65 whose mechanisms are studied. Among these countries, however, there are differences in both the types of estimates prepared and the extent to which register information is used in their preparation.

On the basis of information gathered for this study and from the description of types of national population estimates on file in the Statistical Office, it appears that only 10 of the above 27 countries actually use the registers for the time-adjustment of annual nationwide estimates and they do so by striking the annual "balance" of the population registered. Turkey reports that she has used register data in preparing estimates for internal purposes but has never published the results. Five other countries (Federal Republic of Germany, Israel, Japan, Switzerland and Yugoslavia) use the register data in the production of estimates for local areas only. Hungary has indicated that internal migration data taken from the registers are used in the production of population estimates; and a statement from the Union of Soviet Socialist Republics indicated that register data in rural areas are used as control figures in the preparation of estimates of local population based on civil registration and internal migration data. Belgium, Bulgaria and Italy have stated that the data are used in the preparation of "demographic estimates" but have not specified the kind; however, they do not appear to have used the register for intercensal estimates of population because those on file are said to have been constructed by the conventional balancing-equation method. Norway reported that from the register-situation file kept on tape (which refers to a given date and has one record for each person showing the most up-to-date information about all individuals at that given date) statistics on the population by sex, age and marital status, can be produced at any desired date. Surinam reports that the population register provides figures for the entire country and each administrative district. No detailed information is available on Faeroe Islands, Syria, Rwanda, Cuba and Lebanon.

It would appear, therefore, that, in practice, only 10 of the countries use these registers to estimate national population size currently. A minimum of 5 and a maximum of 8 countries report the use of the registers for compiling estimates of population for local areas.

2. Migration statistics

Twenty-two countries have indicated that their register systems provide data on internal migration. Population registers are the source of international migration statistics for 13 countries.

For the most part, however, statistical information on migration is not extracted directly from the population registers as such, rather it is compiled from the notifications of change of residence; from records used in transferring persons from a register in one locality to that in another locality; or from lists of arrivals and departures kept in the population register offices.

3. Planning population censuses

Population registers are reported to have been used in planning the population census by 16 countries. Registers have yielded estimates of the size of the population in the smallest civil divisions of a country, which is data required for organizing the enumeration. Similarly, household registers can provide estimates of the usual size of household in different areas. Such information can be very useful in planning the size and boundaries of enumeration districts (ED's) and in determining the total number of census schedules to be printed and distributed. Moreover, information on selected characteristics can indicate the need, and provide the basis, for stratification.

4. Evaluating population census results

Population registers can provide one of the independent sources of data with which the results of a population census can be compared, as part of the process of evaluating the accuracy of the latter. 2/ Comparison can be made between aggregates compiled from the two sources, or by one-to-one matching of the corresponding records for individuals. One-to-one matching can also be utilized to correct either the register or the census files, as necessary. The use of register data for this purpose has been reported by 12 countries.

5. Frames for sample surveys

In addition to furnishing absolute data as such, registers from 9 countries have also provided the frame for sample inquiries. The central register of Israel has provided the sampling frame for a number of inquiries, including the quarterly labour-force survey. The sample of individuals selected for interview in the Danish morbidity survey of 1951-54 was drawn from the communal registers. 3/ In France the register has not been used as a frame for sampling but as a source of information about samples of persons selected from other universes. The municipal registers of the Netherlands have served as sampling frames for several surveys, covering such subjects as holiday spending, budgets, and cinema attendance. In Sweden, the unique Population Sample Register is itself a sample of individuals drawn from the general register (see foot-note 12 of table 2). The Sample Population Register functions separately from the general population register and is used solely for statistical purposes. When needed, a smaller sub-sample can be drawn from it but because of its composition it is not readily adaptable to cluster sampling.

2/ See Handbook of Population and Housing Census Methods, part V, Methods of Evaluating Population and Housing Census Results (in preparation).

3/ Hamtoft, Henry, "Sampling for the Danish Morbidity and Hospital Surveys", Statistical Review, No. 4, 1955, pp. 187-197 and Committee on the Danish National Morbidity Survey, The Sickness Survey of Denmark, 1951-1954, text by Marie Lindhart, Copenhagen, 1960, pp. 27-31.

India and England and Wales are not included in table 2 but, in view of the utility of the information, it will be of interest to note that, one of the principal uses of the National Register of Citizens in India which was set up subsequent to the 1951 population census and abandoned in 1957, was to serve as a sampling frame for several socio-economic inquiries, including the National Sample Survey. 4/ Similarly, the register maintained in the United Kingdom between 1939 and 1952 provided the frame from which a random sample of persons was selected for the 1944-50 Survey of Sickness.

6. Genetic studies

The national registers of Bulgaria, Finland, Norway and Sweden and the family register (koseki) of Japan - five countries in all - have been used thus far for the extraction of family histories required for genetic studies.

The matching of data on families from the registers of population with those obtained from the vital statistics system, permits the derivation of data which can be used for genetic studies. All of these have used their population registers not only for administrative but also for statistical purposes and the length of time the registers have been functioning (see table 1) is such that it would be possible to obtain data relating to more than two generations. 5/

For example, it is said of the Japanese register (koseki) that "it is possible to obtain information pertinent to the reproductive fitness of an individual, consanguinity, number of children, sex, ratio of live born children, geographical marriage circle, mortality of siblings and children, and so on". 6/ It is important to understand that, taking advantage of the way in which detailed information for each member of a family is recorded in the "koseki" for generation after generation, data could be assembled on at least five past generations. The peculiar characteristics of this register make it a very valuable source of information for genetic studies.

No information is available on the remaining four countries but the use of an electronic computer in at least three of them (Finland, Norway and Sweden) for the processing of their family-register data, raises the possibility of an interesting use of these for investigations in human genetics.

Mention should be made of the additional possibility of assembling family histories by the linking and merging of records from separate registers of marriages and births, a technique which has been tested in Canada with some success. 7/ This initial effort at linking and merging routine records was dependent for success on the availability of automatic data processing equipment but, as noted by the experimenter, "The technology is now well developed, and the

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4/ India, Department of Economic Affairs, Ministry of Finance, The National Sample Survey, General Report No. 1, Calcutta, December 1952.

5/ "Vital and Population Registration", II Population Registration; The Use of Vital and Health Statistics for Genetic and Radiation Studies, p. 34.

6/ "Use of the family registration in the study of human genetics in Japan" by Okhura Koji; Japanese Journal of Human Genetics, vol. 5, No. 2, p. 63.

7/ Newcombe, Howard B., The Uniqueness of Canadian Vital Statistics for Studies in Human Genetics, Canadian Journal of Genetics and Cytology, vol. I, No. 1, pp. 13-15.

actual merging and linking operation in which current records are used to update the family groupings on an existing master file can be carried out by an electronic computer exceedingly rapidly and economically." 8/

8/ Newcombe, Howard B., "The Study of Mutation and Selection in Human Populations", The Eugenics Review, vol. 57, No. 3, September 1965, pp. 109-125.

CHAPTER III

GENERAL FEATURES OF POPULATION REGISTERS

A description of population registers must take account of certain features which for purposes of this study have been limited to (A) Authority administering; (B) Coverage in terms of both population and territory; (C) Units of registration and type of records; (D) Form of record; (E) Sequence of records; and (F) Content of the Register (topics registered). Information on these aspects are set forth in tables 3-5 below.

A. Authority administering

Table 3 provides the name of the authority responsible for the maintenance of the population registers in the sixty-five countries under review.

Since most if not all the registers are used for administrative purpose, such as identification of individuals, and preparation and control of electoral rolls, it is not strange to find that the authority responsible for the supervision of nineteen of these is a principal agency of the central government, namely, the Ministry of Interior. In other countries centralized supervision is variously in the hands of the Ministry of Justice, the Minister of Finance, the National Office of Civil Registration, the statistical service, the institute of planning and development, etc. Due to special circumstances, some registers are even under the control of the police or the armed forces.

Only eight population registers are not under the supervision of an agency of the central government; these eight are the following: Togo, where each register is under the authority of the mayor of the commune in which it is established; Albania, where each register is under the authority of an arrondissement executive committee; Belgium, where responsibility is vested in each province; the Federal Republic of Germany, where responsibility is exercised by the Ministries of the Interior of each province; Liechtenstein and Luxembourg, where each register is under communal authority; Switzerland, where the Resident Register is under the authority of the individual cantons; and Yugoslavia, where the register is established only in the People's Republic of Slovenia, under the supervision of the Institute for Statistics of that Republic.

1. Inter-agency collaboration

Much of the information collected in the population registers is received from the agency or agencies responsible for vital-events registration and international migration, or from the local registries under their jurisdiction. Hence, a close relationship must exist between the authority in charge of the population registers and other related agencies of government. As will be seen from the examples following, there is often an interlocking administration of two or more of these data collection activities, as well as of the population census. In China (Taiwan), for example, the Ministry of the Interior is responsible for population registration as well as for the periodic population

census. In Israel, the Ministry of the Interior is responsible for the registration of the population, vital events and migrants, while the Central Bureau of Statistics has responsibility for population and vital statistics. The Central Institute of Statistics of Italy is responsible for both the population register and vital statistics.

While there is no administrative relationship between the Central Government Inspection of Population Registers of the Netherlands and the Central Bureau of Statistics, there is close co-operation between the two agencies. In Norway, the Central Office for Population Registration functions within the Demographic Department of the Central Bureau of Statistics. The Population and Elections Bureau of the Netherlands Antilles is in charge of vital-events registration, the issuance of passports and the issuance of identity cards, in addition to the registration of the population. The Swedish population register is administered by the Division of Civil Registration of the Central Bureau of Statistics, while the Population Division of the Bureau is responsible for vital statistics, for the population sample register and for the population census. The Directorate General of Population Affairs of Turkey administers the population census as well as the register system. In the rural areas of the Union of Soviet Socialist Republics, responsibility for the conduct of both civil registers is rested in the executive committees of the local Soviets of Working People's Deputies.

B. Coverage

1. National, local and mixed registers

Whether they are administered by a central national authority (as is the case in fifty-five registers), or whether they are the responsibility of an agency at a sub-national level (as is true for eight countries referred to on page 15), these population registers are supposed to collect information on the resident population of the entire country or of a specified part of it. In other words, these registers apply to a specified geographic area and to specified population resident in that area.

A register of national level signifies one which covers all the territory of a country, even though there may be limitations on the population being registered.

The term local level register applies only to one covering an area less than national in scope (such as a state, a department, a province, a metropolitan area).

Thus the entire territory of a country could be covered by a network of local level files (as is the case in China (Taiwan), Japan, Korea and Thailand, among others) or by a national register such as that in Sweden. Partial registers are those that do not cover the whole country, such as those in Yugoslavia and Togo.

Consequently a national level register always implies complete territorial coverage, while local level registers can be either total or partial, territorial coverage. Applying these distinctions to the sixty-five countries shown in table 3, one finds the following:

(a) Twelve solely national level registers all supervised by a central authority.

(b) Twenty-eight solely local level registers, nineteen of which are supervised by a central authority while eight are under the jurisdiction of the local authorities only; there is no information about the remaining country.

(c) Twelve registers which operate at the national and the local level and are supervised by a central authority.

(d) Eleven registers of unknown level, all supervised by a central authority.

Of the twelve registers which function exclusively from the national level, nine comprise all the population of the country while three (Hong Kong, Singapore and Sweden (Population Sample Register)) impose a limitation.

In Hong Kong, registration is not applicable to children under six years of age; in Singapore, those less than twelve years of age are excluded and the Swedish Population Sample Register by definition is based on a 3.3 per cent sample of the population.

Of the twenty-eight registers which function solely at the local level, twenty-one include without restriction all the population in the local areas in contrast to the remaining seven which do not. In Togo, for example, the register functions in seven communes only, and hence fails to cover 90 per cent of the total population. Japan's koseki and Korea's hojeock by their special nature are limited to persons of Japanese and Korean or Ryukuan origin exclusively. Tribal populations are excluded from the Thai register. Turkey does not register persons less than fifteen years of age. Switzerland registers only those of Swiss nationality, thus eliminating some 10 per cent of the population. By limiting its register to the Slovenian Republic, Yugoslavia eliminates about 90 per cent of its population.

The Koseki register of Japan and the Hojeock register of Korea are of such special interest that they warrant special attention. In addition to being limited to native population, they establish a strict differentiation between the traditional place of residence or origin of the family, and the current place of residence of each individual. The legal-traditional concept of family membership results, in the records for each family being maintained at the family's ancestral place of origin. This place need not necessarily be the actual permanent residence of any member of the family, the inclusion of persons on the register being determined solely by affiliation to the ancestral family household. Even though no member of the family actually resides there, this place of origin may also be retained indefinitely if no request for change is made. While such registers are not of much use for current statistics, since they are by their nature not representative of the geographical distribution of the population, they have the advantage of

bringing together in one place information on at least some family members. In a register based on actual or habitual residence of the individual, this information might be dispersed. 1/

The register now in use in China (Taiwan) combines the concepts of place of origin and place of current residence, so that the former more nearly equals the latter.

Of the twelve national/local level registers, nine comprise all the population of the country, but three (Chile, Colombia and Afghanistan) reduce the population registered in the following way: Chile excludes population under eighteen years of age; Colombia excludes persons under twenty-one years of age; and Afghanistan excludes women of all ages.

In the final group of eleven, the functional level of which is unknown, only one (Lebanon) includes all population.

The information given above on the population registers which have been surveyed throws light on the manner in which, both singly and collectively, the three factors, supervisory authority, geographical coverage and registered population, affect registers on the national level alone and registers on both the national and local levels. It should be added that, of the twenty-eight purely local registers, twenty-five (nineteen under central supervision and six under local supervision) have full geographical coverage, and only two (under local supervision) have partial geographical coverage; there is no information for the remaining country.

Consideration of the three factors (supervisory authority, geographical coverage and registered population) leads to the following conclusions concerning the level of operation of the registers studied:

(a) Although central supervision of the registers is a predominant feature, decentralized register operation is not uncommon, especially in the case of local registers;

(b) Another predominant feature is the registering of all population within the registration area, the restrictions in this regard confined to such population groups of minor importance for register purposes as persons under the statutory voting age, groups outside the socio-economic community (tribes), groups subject to special controls (armed forces or police) and, in some cases, aliens;

(c) Total geographical coverage of the national territory is the usual case and is not affected by the operation of purely local registers, since there has always been functional co-ordination between them.

1/ Systems based on actual residence exist in Japan and the Ryukyus, side by side with the Koseki. Reference is made in each system to each person's place of registration in the other system. In the Republic of Korea, there is also a resident register system but it is not known if any cross-reference is made therein to the Hojeok.

2. Specific categories of population included in the registers

In discussing the level of operation of the population registers, reference was made, in conformity with the terminology used, to the population group or population aggregate covered within the geographical area of the register whether at the national or the local level. It was pointed out on that occasion what group or groups, generally minorities, were in some cases excluded from the registers. The purpose of the present section, on the other hand, is to deal with the specific categories of persons that are included among the total population covered by the register at its particular level of operation. These categories are: permanent residents, former residents and temporary residents. According to the information given in table 3, the registers can be classified according to the frequency with which these three categories were included in the registers, first, on a separate or individual basis, and, secondly, in combination.

Frequency of separate or individual inclusion of the categories in the registers:

(a) Permanent residents were included in fifty-nine registers.

(b) Former residents were included in thirty-seven registers. They were not included in seven registers. Information is not available on the fifteen remaining registers.

(c) Temporary residents were included in seventeen registers. They were not included in twenty-four registers. Information is not available on the eighteen remaining registers.

As these results show, all the registers surveyed satisfied the basic operating requirement of registering the resident population. Although the same was not true of former residents, this category was included in a majority of the registers (thirty-seven). This presupposes some kind of co-ordinated registration machinery, since the records of former residents are usually kept separately from the ordinary register. Of the twelve registers for which the relevant information is not available, it is possible that this category of persons is included in some of them. Temporary residents were included in a very small number of registers (seventeen) but were disregarded in a much larger number of them (twenty-four). The reason for the exclusion of this category may be the special purpose of the register - for example, the registers of generations of families (koseki, hojeock) and electoral registers - or the manner in which the registers were compiled. It is possible, here too, that some of the registers for which the information is not available do include this category as well.

Classifying the registers by reference to the inclusion of all three categories gives a clearer idea of the scope of their coverage. It gives the following result:

(a) All three categories are included in twelve registers;

(b) Eighteen registers include only two categories. Of these, seventeen include the categories of permanent resident and former resident. One register (Thailand) includes the categories of permanent resident and temporary resident;

TABLE 3. NATIONAL ADMINISTRATIVE AUTHORITY AND COVERAGE OF POPULATION REGISTERS OR SIMILAR SYSTEMS: 65 COUNTRIES, 31 DECEMBER 1967

[An "X" indicates that the degree of centralization or the coverage of Registers specified in the caption applies; a dash (--) indicates that it does not apply; three dots (...) indicates that information is not available.]

Country number	Continent and country	National administration: Authority in charge of registers	Coverage							
			Administrative levels			Approximate number and category of civil divisions in which Registers are maintained	Population covered		
			National only	Local only	National and local		Permanent residents	Former residents [1]	Temporary residents
	AFRICA								
1.	Burundi	...	...	...	...	...	...	...	...
2.	Congo, Democratic Rep. of	...	...	...	...	...	...	...	...
3.	Rwanda	...	...	...	...	...	...	...	...
4.	Somalia	...	--	X	--	... circonscriptions [2]	...	...	...
5.	South Africa:								
	Register of Bantu population.	Bantu Reference Service [3] (Department of Bantu Administration and Development)	X [4]	--	--	1 national	X	X	X
	Register of Coloured, Asiatic and White population	Registry Office (Department of the Interior)	X	--	--	1 national	X	X	X
6.	Togo	(5)	--	X	--	7 communes	X [6]	--	--
7.	United Arab Republic	Civil Status Department (Ministry of Interior)	...	...	...	...	X	...	...
8.	Zambia	Ministry of Home Affairs	...	...	...	...	...	...	...
	AMERICA, NORTH								
9.	Costa Rica	Departamento Electoral (Ministerio de Gobernacion) [7]	...	...	...	...	X [8]	...	--
10.	Cuba	Ministerio de Comercio Interior	...	...	...	...	X	...	...
11.	El Salvador	Consejo Central de Elecciones	...	...	...	...	X	...	...
12.	Greenland	...	...	...	...	...	...	...	...
13.	Mexico	Secretaria de Gobernacion	X	--	--	1 national	X	...	...
14.	Netherlands Antilles	Population and Elections Bureau	--	X	--	6 component islands [9]	X	X	--
	AMERICA, South								
15.	Argentina	Registro Nacional de Personas (Ministerio del Interior) [7]	...	...	...	...	X	...	...
16.	Chile	Servicio Nacional de Registro Civil e Identificacion (Ministerio de Industria) [7]	--	--	X [10]	1 national 500 "circunscripciones" (communes)	X [11]	--	--
17.	Colombia	Registraduria Nacional del Estado Civil [7]	--	--	X [12]	1 national ... Registration offices	X [13]	--	--
18.	Surinam	General Bureau of Statistics	X	--	--	1 national	X	X	...
	ASIA								
19.	Afghanistan	Department of Statistics (Ministry of the Interior)	--	--	X [14]	1 national ... provinces ... districts ... governorships	X [15]	--	--
20.	Brunei		...	...	...	...	...	...	...
21.	Burma	National Registration and Census Department	...	...	...	...	...	...	...

1/ Persons no longer within the jurisdiction of the register because they have changed residence or died.

2/ Somalia's Population Register is kept only in the administrative circomscriptions of the country which were previously under Italian Colonial authority.

3/ Acting under authority delegated by the Secretary of the Interior.

4/ A duplicate of the registration card of every male is kept in the Office of the Bantu Affairs Commissioner of the person's district of domicile, only to facilitate tracing of identity numbers locally.

5/ There is no national authority. Each register is under the authority of the mayor of the commune in which it is established.

6/ As of 1961, registers had been established in seven communes (Lomé, Anecho, Paline, Tsevia, Atakfamé, Sokodé and Bassari), which comprised 10 per cent of the total population of the country.

7/ Register established basically for electoral identification purposes.

8/ Excluding all persons under 20 years of age, except for those who are emancipado, i.e., legally not considered minors, and are therefore entitled to vote.

9/ Each island has a "Population and Election Bureau" with a population book-keeping covering the whole island and its total population.

10/ Local offices have a duplicate of the Register existing in the National Central Office.

11/ Excluding all persons under 18 years of age.

12/ The national register duplicates the municipal registers.

13/ Excluding all persons under 21 years of age.

14/ All the information for the Registers is kept at local and national level.

15/ Excluding females. However, the female population is being recorded separately on the basis of family declaration by the registered males.

TABLE 3. NATIONAL ADMINISTRATIVE AUTHORITY AND COVERAGE OF POPULATION REGISTERS (continued)

/See note at head of table./

Country number	Continent and country	National administration: Authority in charge of registers	Coverage						
			Administrative levels			Approximate number and category of civil divisions in which Registers are maintained	Population covered		
			National only	Local only	National and local		Permanent residents	Former residents 1/	Temporary residents
	ASIA (continued)								
22.	China (Mainland)	...	...	...	...	...	...	...	...
23.	China (Taiwan)	Department of Population Administration (Ministry of the Interior)	--	X	--	365 villages and towns 5 cities 16 prefectures 1 yangminshan Administration	X	X	X
24.	Cyprus	Registration Department (Ministry of the Interior)	...	...	...	...	X	...	...
25.	Hong Kong	Registration of Person's Office 16/	X	--	--	1 national	X	...	X
26.	Iran	Department of Statistics and Civil Registration (Ministry of the Interior)	--	--	X 17/	1 national 132 sharetons	X 18/	X 18/	--
27.	Iraq	Directorate General of Civil Status Registration	--	X	--	... sub-districts (Nahiya)	X	X	...
28.	Israel	Ministry of the Interior	--	--	X 19/	1 national 17 sub-districts	X	X	X
29.	Japan:								
	Koseki Register	Ministry of Justice	--	X	--	... Koseki	(20/)	(20/)	--
	Resident Register	Ministry of Justice	--	X	--	... cities, towns, wards and township	X	X	--
30.	Korea, Republic of:								
	Hojeock Register	Supreme Court	--	X	--	41 district courts 1,533 cities, towns and villages	(20/)	(20/)	--
	Resident Register	Ministry of Home Affairs	--	X	--	...	X	X	...
31.	Lebanon	Service de l'Etat Civil (Ministère de l'Intérieur)	...	...	...	...	X	...	...
32.	Palestine:								
	Gaza Strip	Israel Defense Forces	X	--	--	1 national	X	--	--
33.	Ruykyu Islands:								
	Koseki Register	Legal Affairs Department (Executive Office)	--	--	X 21/	1 national 63 cities, towns, villages	(20/)	(20/)	--
	Resident Register	Legal Affairs Department (Executive Office)	--	X	--	63 cities, towns, villages	X	X	...
34.	Singapore	Registration Office	X	--	--	1 national	X 22/	X 22/	X 23/
35.	Syria	Ministry of the Interior	--	X	--	...	X	X	--
36.	Thailand	Central People's Registration Office (Ministry of the Interior)	--	X	--	71 provinces (Changuad) 24/ 476 districts (Amphur) 26/	X 25/	--	X
37.	Turkey	Directorate General of Population Affairs (Ministry of the Interior)	--	X	--	441 districts	X 27/	...	X 27/
38.	Viet-Nam, Republic of	Ministère de l'Intérieur	--	X	--	... villages ... arrondissements of Saigon	X	X	...
	EUROPE								
39.	Albania	(28/)	--	X	--	218 arrondissements	X	X	--
40.	Andorra	...	...	...	...	...	...	...	...
41.	Belgium	(29/)	--	X	--	2,663 communes	X	...	X

16/ The register of Person's is purely a control measure.
17/ The national register duplicates the shahrestan registers.
18/ Excluding aliens. Each shahrestan register covers only persons born in that shahrestan, regardless of their current residence.
19/ The current register is kept on magnetic tapes centrally. The personal files are kept at the sub-district offices.
20/ Registration is limited to persons of Japanese, Korean or Ryukyuan origin, respectively. Each person is registered at his family's ancestral place of residence, regardless of his usual residence.
21/ The national register duplicates the local registers.
22/ Excluding children under 12 years of age, members of the naval, military and air forces, police officers, persons in possession of a valid identity card issued in West Malaysia and holders of immigration passes.
23/ All persons desiring to remain for more than 30 days.
24/ House registers showing particulars of all residents of each house.
25/ Excluding tribal population.
26/ Registers of persons.
27/ Excluding all persons under 15 years of age.
28/ There is no national authority. Each register is under the authority of an arrondissement Executive Committee.
29/ There is no national authority. Registers are under provincial authority.

TABLE 3. NATIONAL ADMINISTRATIVE AUTHORITY AND COVERAGE OF POPULATION REGISTERS (continued)

/See note at head of table./

Country number	Continent and country	National administration: Authority in charge of registers	Coverage: Administrative levels: National only	Local only	National and local	Approximate number and category of civil divisions in which Registers are maintained	Population covered: Permanent residents	Former 1/ residents	Temporary residents
	EUROPE (continued)								
42.	Bulgaria	Central Bureau of Statistics	--	X	--	2,196 communes and inhabited places	X	...	X
43.	Czechoslovakia	Ministry of the Interior	--	--	X 30/	1 national ... districts 11,000 localities	X	X	--
44.	Denmark	Central Personal Register (Ministry of the Interior)	--	--	X 31/	1 national 1,200 communes	X	X	--
45.	Faeroe Islands	Central Register (Central Service)	--	X	--	...	X	X	--
46.	Finland	Ministry of the Interior 32/	--	X	--	700 register units 33/	X	X	--
47.	France	Institut National de la Statistique et des Etudes Economiques (Ministère d'Economie et des Finances) 34/	--	X	--	18 regional centres	X	--	--
48.	Germany, Federal Republic of	(35/)	--	X	--	25,000 communes	X	X	X
49.	Gibraltar	Police Registration Office	X	--	--	1 national	X 36/	X 36/	--
50.	Hungary	Ministry of the Interior	...	...	...	...	X 37/	...	...
51.	Iceland	National Registry 38/	X	--	--	1 national	X	X	X
52.	Italy	Central Institute of Statistics and Ministry of the Interior	--	--	X 39/	1 national 8,023 communes and subdivisions of communes 41/	X	X	X 40/
53.	Liechtenstein	(42/)	--	X	--	11 communes	X 43/	...	...
54.	Luxembourg	(42/)	--	X	--	126 communes	X	X	...
55.	Netherlands	Central Government Inspection of Population Registers (Ministry of the Interior)	--	--	X 44/	1 national 980 municipalities	X	X	X
56.	Norway	Central Office for Population Registration 45/	--	--	X 46/	1 national 454 communes	X	X	X
57.	Poland	...	...	...	...	...	...	...	...
58.	Portugal	Instituto Nacional de Estatistica 47/	...	...	...	...	...	...	...
59.	San Marino	Office of Civil Status, Registration, Statistics and Elections	X	--	--	1 national	X	X	...
60.	Spain	Instituto Nacional de Estadística	--	X	--	9,250 municipalities	X	X	X
61.	Sweden:								
	General Register	Central Bureau of Statistics (Ministry of Finance) 48/	--	--	X 49/	1 national 24 counties 2,600 parishes	X	X	--
	Population Register	Central Bureau of Statistics (Ministry of Finance) 48/	X	--	--	1 national 50/	(50/)	(50/)	--

30/ Duplicate registers are maintained on the local, district and national levels.

31/ All communes have their own local Registers, independently of the national Central Register.

32/ Only for the "civil" registers (i.e., registers covering persons not belonging to any church congregation). Congregational registers, covering all persons belonging to the congregation, are supervised by the respective congregation in accordance with national stipulations.

33/ The units are usually coextensive with a commune or part of a commune. For units covering more than one commune, the registers are arranged so that communal data are readily available.

34/ This is a "National Birth Registry" only, for administrative and possible statistical uses. Every person born in France is registered and stays registered no matter which is his actual place of residence.

35/ There is no national authority. The national legislation is a frame within the terms of which the provinces (Länder) have adopted separate regulations. Each register is under the authority of the Ministry of the Interior of the province in which it is established.

36/ Excluding service personnel.

37/ Excluding all persons under 16 years of age. Information on internal migration, however, is obtained for children 14-15 years of age and for younger children accompanying an adult in a change of residence.

38/ The National Registry is operated as a department of the Statistical Bureau (Ministry of Finance) but it is an autonomous body with an executive board consisting of representatives of the State Institute for Tuberculosis Control, The Municipal Treasury of Reykjavik, The Ministry of Finance, the Statistical Bureau and the State Insurance Board, and a sixth member appointed by the Ministry of Social Affairs in consultation with the Executive Board of the Federation of Icelandic Communities.

39/ All registers are maintained in communes, except for a small national register of persons with no commune of residence.

40/ Temporary residents present in a commune for at least four months may register at their own offices.

41/ In some communes, branch register offices maintained duplicates of the relevant portions of the communal register.

42/ There is no national authority. Each register is under the authority of the commune in which it is established.

43/ Including persons not permanently resident in the commune but deriving civil rights therefrom.

44/ In addition to the communal registers, there is a central register of all residents of the country who have no fixed residence in any particular commune, a central archive register of persons who have emigrated or are untraceable, a central archive register of all deceased persons and a link register of all emigrants, immigrants and untraceable persons.

45/ The Central Office for Population Registration is a function which may, by law, be conferred on any institution. At present, it is conferred upon the Central Bureau of Statistics and is a department within the Demographic Division.

46/ In addition to the Central Register there are copies of the Register in each municipality.

47/ Each registration office has a register for births, deaths, marriages and divorces and every time an event takes place an entry is made on the birth register if it happens that the event concerns somebody whose birth had been registered in the same office. If not, a note is sent to the office where the birth took place and there is made the adequate entry. The registers do not contain information on changes in residence of the person registered.

48/ The general register is administered by the Division of Civil Registration. The sample register is administered by the Population Division

49/ The population is registered in both the parish and the counties registers. In addition, there is a central register for information on migrants and a central register for missing persons.

50/ The register covers all persons born on the 15th day of each month, a total of about 3.3 per cent of the population of the country.

TABLE 3. NATIONAL ADMINISTRATIVE AUTHORITY AND COVERAGE OF POPULATION REGISTERS (continued)

/See note at head of table./

Country number	Continent and country	National administration: Authority in charge of registers	Coverage				
			Administrative levels				Population covered
			National only	Local only	National and local	Approximate number and category of civil divisions in which Registers are maintained	Permanent residents	Former residents 1/	Temporary residents
	EUROPE (continued)								
62.	Switzerland								
	Family Register	Service Fédéral de l'Etat Civil (Département fédéral de justice et police)	--	X	--	2,200 arrondissements	(51/)	(51/)	--
	Resident Register	(52/)	--	X	--	3,091 communes	X	X	X
63.	Yugoslavia (People's Republic of Slovenia)	(53/)	--	X	--	511 registry districts 54/	X	X	--
	OCEANIA								
64.	Niue Island	Registry Office	X	--	--	1 national	X	X	...
	UNION OF SOVIET SOCIALIST REPUBLICS								
65.	Union of Soviet Socialist Republics	Central Statistical Board (Council of Ministers)	--	X	--	... house administrations or owners of private houses in urban areas 43,700 rural localities	X	...	...

51/ Registration is limited to Swiss nationals. Each person is registered in the canton of which he is a citizen, regardless of his usual residence.

52/ There is no national authority. Each register is under the authority of the canton in which it is established.

53/ There is no national authority. The authority in charge is the Institute for Statistics of the People's Republic of Slovenia.

54/ Some communes also maintain central registers covering more than one registry district.

(c) Two categories, with no information about the existence of a third, are included in twelve registers. Eight of these include the categories of permanent resident and former resident, and four include the categories of permanent resident and temporary resident;

(d) One category, that of permanent resident, is the only one included in six registers;

(e) One category, that of permanent resident, is included in eight registers, with no indication as to whether or not the other two are included.

An analysis of the treatment accorded to these three categories of persons in the fifty-nine registers (page 19) leads to the following conclusions:

(a) Only a small number of registers (twelve) are known to include all three categories of persons, although it is possible that there are more which do so. This is in sharp contrast with the high proportion of registers which include one or two of the categories (fifty-nine and thirty registers, respectively). The fact that the proper functioning of a register comprising the three categories of persons requires systematic and co-ordinated data processing, trained staff and financial resources helps to explain why there are so few registers in this group;

(b) A large number of registers (thirty) includes at least two categories of persons. All of these include permanent residents as the first category, with the second category being, in most cases, former residents (twenty-five registers) or otherwise temporary residents (five registers). As might be expected, the former resident category was the subject of greater attention or interest both as regards keeping the registers up to date and as regards requests for information, which are often closely linked with the interests of the present residents of the registration area. That less attention is paid to temporary residents, who are mainly persons in transit or tourists, may be due to the fact that such persons are always less co-operative about supplying information to the registration offices and to the minor importance of this group in certain countries.

(c) The situation as regards the last group of registers (fourteen) - those which are known to include only the permanent resident category - may be explained by the fact that the operation of many of these registers is still at the stage where they are being adjusted or improved.

C. Unit of registration and type of record

In accordance with the definition of a population register given earlier (page 1), the unit to which the register relates and with which the entire register machinery is concerned is the individual, or human person. The fact, however, that the person is individually identified does not mean that the information concerning him must be individually recorded. Information on this point is given in table 4.

TABLE 4. TYPE, FORM AND SEQUENCE OF RECORDS IN POPULATION REGISTERS OR SIMILAR SYSTEMS: 65 COUNTRIES, 31 DECEMBER 1967

[An "X" indicates that the type, form or sequence of records specified in the caption is used; a dash (--) indicates that it is not used; three dots (...) indicate that information is not available.]

Country number	Continent and country	Type of records			Form of records								Sequence of records		
			Multiple												
		Individual	Family in household	Household	Tape	Punch card	Printed card	Page in bound book	Page in loose-leaf book	Printing Plate	Entry on list	Other	Name (alphabetical)	Address	Other
	AFRICA														
1.	Burundi	X	...	...	...	...	...	...	...	...	...	...	...	...	...
2.	Congo, Republic of	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3.	Rwanda	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4.	Somalia	X	X	...	...	...	...	...	...	...	...	...	X	...	...
5.	South Africa:														
	Registry of Bantu population	X	--	--	--	--	X	--	--	--	--	--	--	--	X[1]
	Registry of Coloured, Asiatic and White population	X	--	--	--	X	X	--	--	--	--	--	X[2]	--	X[2]
6.	Togo	X	--[3]	--	--	--	X	--	--	--	--	--	(4)	(4)	(4)
7.	United Arab Republic	X	X	--	--	...	...	...	...	...	...	...	...	...	...
8.	Zambia	X	--	--	--	...	X	...	...	...	...	...	...	...	...
	AMERICA, NORTH														
9.	Costa Rica	X	--	--	...	...	...	...	...	...	...	...	...	...	...
10.	Cuba	--	--	X	...	...	...	...	...	...	...	...	...	...	...
11.	El Salvador	X	...	...	...	...	...	...	...	...	...	...	...	...	...
12.	Mexico	X	--	--	--	--	X	X	--	---	--	--	X	X	--
13.	Greenland	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14.	Netherlands Antilles	X[5]	X[5]	--	--	--	X[5]	--	--	X[5]	...	...	X[5]	X[5]	--
	AMERICA, SOUTH														
15.	Argentina	X	--	--	...	...	X	...	...	...	...	...	...	...	...
16.	Chile	X	--	--	--	X[6]	X	--	--	--	--	--	X	--	--
17.	Colombia	X	--	--	--	--	X	--	--	--	--	--	X[7]	--	X[7]
18.	Surinam	X	--	--	--	--	X	--	--	--	--	--	...	...	...
	ASIA														
19.	Afghanistan	X	X	--	--	--	--	X	--	--	--	--	--	X	--
20.	Brunei	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21.	Burma	X	--	--	...	...	...	...	...	...	...	...	...	...	...
22.	China (Mainland)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23.	China (Taiwan)	--	--	X	--	--	X[8]	--	--	--	X[8]	--	--	X	--
24.	Cyprus	X	--	--	--	--	--	X	--	--	...	...	X	...	...
25.	Hong Kong	X	--	--	--	--	X	--	--	--	...	...	X	...	...
26.	Iran	X	--	--	--	--	--	X	--	--	--	--	--	--	X[9]
27.	Iraq	X	--	--	--	--	--	--	X	--	--	--	X	--	--
28.	Israel	X	--	--	X	X	--	--	--	--	--	--	X	--	X[10]
29.	Japan:														
	Koseki register	--	X	--	--	--	--	X	--	--	--	--	--	X	--
	Resident register	--	--	X	--	--	X	--	--	--	...	...	--	X	--
30.	Korea Republic of:														
	Hojeok register	--	X	--	--	--	--	X	--	--	--	--	--	X	--
	Resident register	--	--	X	--	--	X	--	--	--	--	--	--	X	--
31.	Lebanon	--	X	--	--	--	X	--	--	--	--	--	...	...	...
32.	Palestine:														
	Gaza Strip	X	X	--	--	X	--	--	--	--	--	--	X	...	X[11]
33.	Ryukyu Islands:														
	Koseki register	--	X	--	--	--	--	X	--	--	--	--	--	X	--
	Resident register	--	--	X	--	--	X	--	--	--	...	...	--	X	--

1/ A set of records showing all regional personal particulars and a set showing only fingerprints, identity number and fingerprint classification are kept in identity-number sequence; a third set, showing fingerprints, name and identity number, is kept according to fingerprint classification.

2/ The printed cards are kept in name (alphabetical) sequence; the punch-cards are in identity-number sequence.

3/ Although there is an individual record for each person, family members living in the same household can be identified by a common reference number.

4/ The sequence varies according to the needs of each commune and may be by sex, by name, by neighbourhood, by age group, etcetera.

5/ A family register of printed cards, kept in name sequence is maintained for each island; in addition, registers of individual printing plates, in address sequence, are maintained for the population of Curaçao and Aruba.

6/ Conversion to a punch-card system was begun in 1964.

7/ Municipal registers are kept variously in name sequence, in "numerical" sequence and in other sequences.

8/ Registers of residents may use printed cards or lists; registers of transients are kept as lists.

9/ By date of birth.

10/ The registers maintained in the sub-districts are kept in name sequence; the central register and the archive registers are kept in identity number sequence.

11/ By identity number.

TABLE 4. TYPE, FORM AND SEQUENCE OF RECORDS IN POPULATION REGISTERS (continued)

/See note at head of table./

Country number	Continent and country	Type of records			Form of records								Sequence of records		
		Individual	Multiple: Family in household	Multiple: Household	Tape	Punch card	Printed card	Page in bound book	Page in loose-leaf book	Printed plate	Entry on list	Other	Name (alphabetical)	Address	Other
	ASIA (continued)														
34.	Singapore	X	--	--	--	--	--	--	--	--	--	X[12]	--	--	X[13]
35.	Syria	--	X	--	--	--	--	--	X	--	--	--	...	...	...
36.	Thailand	X	X	--	--	--	X[14]	--	--	--	--	X[14]	--	X	--
37.	Turkey	--	X	--	--	--	--	X	--	--	--	--	...	...	...
38.	Viet-Nam, Republic of	--	--	X	--	--	X	--	--	--	--	--	--	X	--
	EUROPE														
39.	Albania	--	X	--	--	--	--	X	--	--	--	--	--	X	--
40.	Andorra	...	...	...	...	...	...	...	...	...	...	...	...	...	...
41.	Belgium	--	--	X	--	--	--	X[15]	X[15]	--	--	--	X[15]	X[15]	--
42.	Bulgaria	--	X	--	--	X[16]	X[16]	--	--	--	--	--	--	X	--
43.	Czechoslovakia	X[17]	--	--	(18)	--	X	--	--	--	--	--	X[19]	X[19]	--
44.	Denmark	X[20]	X[20]	--	X	X[21]	X[21]	--	--	--	--	--	X[22]	X[22]	--
45.	Faeroe Islands	X	X	--	--	--	X	--	--	--	X	--	X	--	--
46.	Finland	--	X	--	X	--	--	--	X	--	--	--	X	--	--
47.	France	X	--	--	(23)	--	X	--	--	--	--	--	X	--	--
48.	Germany, Fed. Rep. of	X[24]	X[24]	X[24]	--	--	X[25]	--	--	--	X[25]	--	X[26]	X[26]	--
49.	Gibraltar	X[27]	--	--	--	--	X[28]	X[28]	--	--	--	--	X[28]	--	X[28]
50.	Hungary	X	--	--	...	...	...	...	...	...	...	...	...	...	...
51.	Iceland	X	--	--	--	X	--	--	--	--	--	--	X[29]	X[29]	X[29]
52.	Italy	X	--	X	--	--	X[30]	--	X[30]	--	--	--	X[31]	X[31]	X[31]
53.	Liechtenstein	--	X	--	--	--	X	X	--	--	--	--	...	...	...
54.	Luxembourg	X	X	--	(23)	--	X	--	--	--	--	--	X	--	--
55.	Netherlands	X	X	X	(32)	X[32]	X[32]	--	--	X[32]	--	--	X[32]	X[32]	--

12/ Counterfoils of identity cards.
13/ Serial-number sequence.
14/ The register of individuals utilizes "printed sheet", house registers use printed card.
15/ In large cities, loose-leaf books are used, in which the records are in name sequence and there is a card index arranged by address; smaller communes use bound books in which the records are arranged by address.
16/ The basic records are pages in bound books; in large communes, subsidiary card registers are also maintained.
17/ An individual record is used for each person 15 years of age and over and for children not living with either parent. Children under 15 living with their mother are registered on her record; if not living with their mother but living with their father, they are registered on his record.
18/ A Central National Population Register with an identification number for every person is being set up by means of a computerized system.
19/ The central register is kept in name order; district registers are kept either in name order, for the entire district, or in name order for the inhabitants of each locality; local registers are usually kept in name order but may be arranged first according to urban areas, electoral districts, etcetera; in small communities the sequence may be entirely by address.
20/ A family record is used for husband, wife and children under 16 years of age living at home and for a woman and her illegitimate children living with her; for all other persons, an individual record is used.
21/ In 1963, both punch card and printed cards were used in communes having somewhat more than 75 per cent of the total population of the country. A small number of communes, having altogether not more than 1 per cent of the total population, used loose-leaf books. The remainder of the communes used printed cards exclusively.
22/ In Copenhagen, market towns and wherever else desirable, the records are arranged in address sequence, with an index in name sequence. In other communes and in all archive registers, the records are in name sequence.
23/ A centralized register using a computerized system is projected.
24/ A family record is used for husband, wife and unmarried children living at home; for all other persons, an individual record is used. In addition, in large municipalties, there are registers of houses, with a separate record for each dwelling, showing the occupant and all other persons living therein.
25/ Most of the registers utilize printed cards but very small municipalities are permitted to use lists instead.
26/ The registers of persons are kept in name sequence; the registers of houses are kept in address sequence.
27/ An individual record is used for each person 15 years of age and over; children under 15 are registered on the mother's record.
28/ The registers consist of bound books and registration forms, kept in identification-number sequence. A printed-card index is kept in name sequence.
29/ The principal register is kept in address sequence, with supplementary registers, which function as indexes, kept in name sequence and by date of birth. The archive register is arranged by date of birth.
30/ Each commune may choose between printed cards and loose-leaf books.
31/ The registers of individual records are kept in name sequence, but the records may first be divided by sex. The active household registers are kept by address sequence; the archive household registers are arranged by sequence of serial numbers assigned when the household record is retired.
32/ Registers of individuals are kept on printed cards arranged in name sequence; the record for the head of each family shows the names of all family members. Most municipalities also maintain punch-card or printing-plate registers of individuals, kept in address sequence. Four hundred and fifty municipalities make use of a privately organized computer centre. Building registers, with the records in address sequence, show each family living in the building, each non-family member of a family household, and each person living in a non-family group.

TABLE 4. TYPE, FORM AND SEQUENCE OF RECORDS IN POPULATION REGISTERS (continued)

/See note at head of table./

Country number	Continent and country	Type of records			Form of records								Sequence of records		
		Individual	Multiple: Family in household	Multiple: Household	Tape	Punch card	Printed card	Page in bound book	Page in loose-leaf book	Printed plate	Entry on list	Other	Name (alphabetical)	Address	Other
	EUROPE (continued)														
56.	Norway	X	X[33]	--	X[34]	X[35]	X[35]	--	--	--	--	--	X[36]	X[36]	X[36]
57.	Poland	...	...	...	...	...	...	...	...	...	...	...	...	...	...
58.	Portugal	...	...	...	...	...	...	...	...	...	...	...	...	...	...
59.	San Marino	X	--	X	--	--	X[37]	--	--	X[37]	--	--	X[37]	X[37]	--
60.	Spain	X[38]	X[38]	--	--	--	X[38]	X[38]	--	--	--	--	X[38]	X	--
61.	Sweden:														
	General Register System.	X	X	--	X	--	X[39]	X[39]	--	X	--	--	--	X	X[40]
	Population sample register	X	--	--	X	X	X	--	--	--	...	...	...	...	...
62.	Switzerland:														
	Family register	--	X	--	--	--	X[41]	X[41]	--	--	--	--	X	--	--
	Resident register	--	X	--	--	--	X	--	--	X	--	--	X	X[42]	--
63.	Yugoslavia (People's Rep. of Slovenia)	X	--	X	--	--	X	--	--	--	--	--	X[43]	X[43]	--
	OCEANIA														
64.	Niue	X[44]	--	--	--	--	X	--	--	--	--	--	X[44]	X[44]	--
	UNION OF SOVIET SOCIALIST REPUBLICS														
65.	Union of Soviet Socialist Republics	X[45]	--	X[46]	...	...	...	...	...	...	...	...	...	X[45]	...

33/ Family records are kept on local registers only.
34/ Magnetic tape is used for the Central Population Register bearing identity number for each person.
35/ Punched cards and printed cards are used on local register only.
36/ The local registers are kept in address sequence, with an index in name sequence. The Central Population Register is kept both by name and identity number.
37/ Individual records are on printed cards, kept in name sequence. The household records are on printing plates, kept according to frazione or parish and name of the head of the household. A supplementary set of household records is kept in address sequence.
38/ All municipalities maintain bound books of family records. Municipalities of 5,000 or more inhabitants must also maintain a register of printed cards for individuals, which are kept in name sequence; many smaller municipalities also maintain such a register.
39/ Bound books and register cards are used in the parish registers; magnetic tapes (1968) are used in the provincial registers. Lists are made from these tapes.
40/ By birth number.
41/ The basic record may lie either on printed card or a page in a bound book.
42/ In addition to the register card kept in name sequence, there is an index by address.
43/ The registers of individuals are kept in name sequence; household registers are kept by address.
44/ Records of non-Europeans are kept first by village and then in name sequence; records of Europeans are kept in name sequence only
45/ In urban areas only, as inhabitants in the "Building Registers".
46/ In rural areas only.

As will be seen from table 4, the documents serving to identify persons in a population register may be individual or multiple; that is, they may apply to one person only, to all the members of a family living together, or to all the members of a household, whether or not they are related. Accordingly, when such a document contains information relating to one person only it is an individual document, and when the information relates to persons who are members of a group (family or household), it is a multiple document.

In practice, however, an individual document does not always apply exclusively to one person. Thus, in one register (Gibraltar), there is an individual document for each person over the age of fifteen years, but children under that age are registered on the mother's individual card. In another register (Czechoslovakia), children under the age of fifteen are included in the individual card of the father or mother according to which parent they live with. In still another (Federal Republic of Germany), unmarried legitimate children are included in the individual card of the father.

There are also cases where the individual documents serve some of the purposes of the multiple documents. Thus, in one register (Togo), the individual card for each member of the same family contains a family reference number. This makes it possible for each family to be reconstructed. In another register (Afghanistan), which is based on individual entries for each person, the families are identified on the same pages of the book as contain the individual information for the members of the family. In another register (Netherlands), all members of the family are entered on the individual card of the father or the head of the family.

The content of multiple documents is not exactly the same in all cases. there are some registers in which multiple entries apply only to the members of the primary family unit consisting of father, mother and unmarried children living together (Federal Republic of Germany) and in which other members of the family or family household are registered individually. In other registers, multiple documents are used without any restrictions in regard to the inclusion of all the members of the family or household. There is even one instance (Union of Soviet Socialist Republics) where multiple documents tend on occasion to be used for households in rural areas, with individual documents being reserved for persons in urban areas.

Where both individual and multiple documents are used in a population register, there are some cases where the same person is registered on both types of document. In other cases, the two types of document are matched, using either the identification number or the address of the persons concerned in order that the information concerning them can be supplemented or verified.

As the foregoing examples have shown some of the ways in which individual and multiple documents can be used, it will be interesting to see which methods were preferred in the registers surveyed (table 4).

Consideration of the two types of document separately showed that:

(a) Individual documents were used in forty-four registers.

(b) As to the multiple type of document, the concept of the family as part of the household was employed in twenty-six registers. The concept of the household was employed in only thirteen registers.

It can thus be seen that the number of registers in which "individual" type documents are used is almost equal to the number in which "multiple" type documents are used. It is nevertheless significant that, in the case of registers based on multiple documents, information on the family as part of the household is collected for a greater number of registers (twenty-six) than is information on all members of the household (thirteen registers). It should at the same time be noted that the reliability of this finding cannot be guaranteed because of the lack of precision with which the terms family and household were employed in the material on which it is based.

An analysis of the use of the two types of documents in the registers shows that:

Individual type documents were the only ones used in twenty-six registers. Multiple type documents were the only ones used in nineteen registers. Of these, the concept of the family as part of the household was employed in twelve and the concept of the household was employed in seven.

Individual and "multiple" type documents were both used in eighteen registers which can be further subdivided as follows: (i) two registers using an individual document and a "multiple" document based on the two concepts of family and "household"; (ii) twelve registers using an "individual" document and a multiple document based on the concept of the family as part of the household; and (iii) four registers using an individual document and a multiple document based on the household concept. Information is not available for eight registers.

This breakdown of the registers according to the type of document used, either separately or together, indicates that:

(a) Twenty-six registers are based on individual documents exclusively; nineteen are based on multiple documents exclusively; and sixteen on both types of document. There is thus a slight preference for individual documents;

(b) As the information in table 2 shows, the twenty-six registers based on individual documents exclusively are, with one exception (Israel), used solely, or almost solely, for administrative purposes;

(c) As the information in table 2 shows, the registers based on multiple documents, either exclusively (nineteen) or in conjunction with individual documents (eighteen), are those most used for statistical purposes;

(d) The ease with which the documents relating to the various members of a family can be collated will obviously depend on the type of document - individual or multiple - which is used. If, for example, the particulars of all the members of a family living in the same household are contained in the same document, it will not be necessary to look through the registers to collate this information. This same operation would not necessarily be more complicated where individual documents are used, provided that these are so arranged in the registers that they are separately identifiable as relating to members of the same family. If, however, information relating to all the members of a family not living in the same household must be collated, the problem becomes more complex. In this case, the problem of identification can be solved by cross-references or linkage between the documents or registers, even though the sorting of personal documents into family groups is a complicated undertaking.

D. Form of record

As indicated in table 4, the information contained in population registers is entered on documents of various types which require different procedures for their proper utilization. These may be divided into (a) documents which require some kind of electromechanical or electronic processing, and (b) those which do not require such processing.

The processing methods referred to in item (a) of the preceding paragraph include the use of magnetic tapes in conjunction with electronic computers and the use of punched cards in conjunction with conventional electromechanical equipment. To date, the use of magnetic tapes has been introduced in the case of only six countries (Israel, Denmark, Finland, Netherlands, Norway, Sweden) though preparations for their use have already been completed in the case of Czechoslovakia, France and Luxembourg. Punched cards (conventional equipment) are used for nine registers (South Africa (coloured, Asiatic and white population register), Chile, Israel, Palestine (Gaza Strip), Denmark, Iceland, Netherlands, Norway and Sweden (population sample register)). Information is not available for seventeen countries but it is probably safe to say that mechanical processing is not used in these.

Records of the type referred to in item (b) of page 29 consist of printed cards, loose-leaf books, bound books, printed forms and lists. Of these, printed cards are used for thirty-eight registers; bound books are used for fifteen; loose-leaf books are used for five; printed forms for five and lists for three. As to other types of documents, counterfoils containing data from identity documents are used in Singapore, and printed sheets in Thailand.

Of the various types of documents just referred to, printed cards are the most widely used and books are the next most widely used in the population registers surveyed. With regard to the exclusive or combined use of these documents, the exclusive use of printed cards is the most frequent (eighteen registers) followed by the exclusive use of bound or loose-leaf books (ten registers), with the combined use of printed cards and bound or loose-leaf books coming last (seven registers).

There is no doubt that, with the increasing use in recent years of both electromechanical equipment and electronic computers, this second group of documents will be reduced to a basic type - possibly a standard document - on which information collected at first-hand will be recorded. In practice, this will be unavoidable, and most of the types of document described above which are now in use will be superseded.

E. Sequence of records

Each population register may consist of one or more files, as well as supplementary indexes. As shown on table 4, there are a number of different primary sequences in which the records in the files may be kept, e.g., by name (alphabetical order), by address, by identity number, etc. In any register system, all records throughout the system may be kept in the same primary sequence, records in one part of the system (e.g., the national level register) may be kept according to one sequence while those in another part of the system (e.g., local level registers) are filed in a different sequence, or there may

be more than one file within a single register, on any level, with the records in each file arranged in a different sequence. The choice of sequence must be determined by national and/or local needs.

Of the forty-eight register systems for which information on the sequence of the records is shown in table 4, twenty-five have all the records maintained in only one primary sequence, regardless of the number of registers involved. In ten of the twenty-five, the sequence is according to name; in thirteen, it is by address; in one, it is by date of birth and in one it is by serial number.

Nineteen register systems employ two different sequences in registers at different levels; in others two files are maintained at one level, with the records in each file arranged in a different sequence. Of the nineteen, twelve use a name sequence and an address sequence, four use name and identity number, one uses identity number and fingerprint classification, one uses address and birth number, and one uses name and another sequence which has not been specified.

Three systems use three different sequences. Each of these systems employs name and address. In one, the third sequence is by date of birth, in another it is by identity number and in the third, it is by serial number.

Finally there is one system in which each local register may be maintained in whatever sequence is best suited to local needs.

On the whole, the most common arrangement of the records is by name (alphabetical) order and by address. The former is employed in thirty systems and the latter in twenty-nine. An examination of table 4 shows that files of individual records are most frequently arranged in name sequence while files of multiple records are most commonly arranged in address sequence.

Table 4 also shows that four countries have used one or more supplementary indexes, arranged in different sequence from the register files, to aid in locating register records.

It should be remembered, of course, that, within a file, there may be further subdivisions of the records within the primary sequence. For example, when the primary sequence is by address, the records of individuals living at the same address may then be arranged in name order, by sex, etc. Records arranged primarily by date of birth may be further arranged by name. For most systems, however, information on sub-sequences is not available.

F. Content of register

A complete description of the information relevant to content cannot be undertaken in a study of limited size because of the wealth of information which can be deduced from the records themselves or from other explanatory materials. Furthermore, it is difficult to ascertain exactly, from a record or from a list of its contents, all the details of information shown. For example, two items for which there are sometimes no definitely allocated spaces on a register are the date and cause of death. Answers to special queries on this have indicated that the information is usually entered on the record, but perhaps merely on the

last available line or in a general section devoted to date of removal from the household or the register.

From the information available, table 5 has been compiled to show the topics for which answers are recorded in the register records.

It is clear that details of name, sex, date of birth (or age), present address (place of usual residence) and place of birth of each person are included on most of the registers for which information is available. Other topics in descending order of frequency are, marital status (forty-four registers), citizenship (thirty-nine registers), occupation (thirty-eight registers), name of father and mother (thirty registers). Information on date of death is shown in twenty-eight, place of death in eighteen and cause of death in nine. In one of these, the cause of death is not actually stated but provision is made to record the number of the death certificate. In two of these nine, the cause of death of married persons is shown on the records of the surviving spouse.

The date of marriage is shown in fifteen registers and the date of divorce, of annulment or of separation in fourteen. Place of previous residence, name of spouse and religion are shown in twenty-two, and relation to the head of the household in twenty.

In at least four registers, provision is made for the inclusion of different types of medical information, in addition to cause of death. In one of these, the information relates to legal disability; in another, to physical defects or infirmities; in the third, to the occurrence of stillbirth and to the date of vaccination against, or the occurrence of, smallpox; in the fourth, to mental deficiency or insanity, reported by heads of institutions at their option, and in the two remaining, to vaccination against smallpox and diphtheria.

It is not possible to summarize briefly the information which could be used for locating and linking records of related persons or even records for one person which may be kept in different registers. Even within a single register, there are qualifications and exceptions to be noted for each item of information which might be available, and a very detailed exposition would be needed for an adequate understanding of the details each can supply under particular circumstances. In general, much material of this sort can be extracted from the records of a number of the registers. The actual technique for assembling records of individuals or families would have to be determined separately for each country and would generally require individual scanning of a large number of records.

TABLE 5. TOPICS ON WHICH DATA ARE RECORDED IN POPULATION REGISTERS OR SIMILAR SYSTEMS: 65 COUNTRIES, 31 DECEMBER 1967

(An "X" indicates that data on the topic specified in the caption are recorded; three dots (...) indicates that information is not available)

Country number	Continent and country	Topics investigated																													
		Name	Sex	Date of birth	Place of birth	Number of birth certificate	Marital status	Date of marriage	Place of marriage	Name of spouse	Date and type of dissolution of marriage	Place of divorce	Date of death	Place of death	Cause of death	Number of death certificate	Citizenship	National and/or ethnic group	Religion	Ancestral place of origin	Literacy status	Educational attainment	Occupation	Place of work	Place of usual residence	Place of previous residence	Relationship to head of household	Name of head of household	Name of father and mother	Place of residence of parents, spouse or guardian	Other
	AFRICA																														
1.	Burundi	X	X	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2.	Congo, Republic of	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3.	Rwanda	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4.	Somalia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5.	South Africa:																														
	Register of Bantu population	X	X	X	X	...	X	...	...	...	...	...	...	...	...	...	X	X	...	...	...	...	...	...	X	X[1]	...	...	...	X[2]	(3)
	Register of coloured, Asiatic and white population	X	X	X	X	...	X	...	...	...	...	...	...	...	...	...	X[4]	X[5]	...	...	...	...	...	...	X	...	...	...	...	...	(3)
6.	Togo	X	X	X	X	...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	X	...	...	...	X	...	...
7.	United Arab Republic	X	X	X	X	...	X	...	...	...	...	...	...	...	...	...	X	...	X	...	X	X	X	X	X	...	...	...	X	...	(6)
8.	Zambia	X	X	X	X	...	...	...	...	...	...	...	...	...	...	...	X	X	...	...	...	X	...	...	X	...	...	...	...	...	(7)
	AMERICA, NORTH																														
9.	Costa Rica	X	X	X	X	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10.	Cuba	X	X	X	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11.	El Salvador	X	X	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12.	Mexico	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13.	Greenland	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14.	Netherlands Antilles	X	X	X	X	...	X	...	...	...	...	...	X	X	...	...	X	...	X	...	...	...	X	...	X	X	X	...	...	...	(8)
	AMERICA, SOUTH																														
15.	Argentina	X	X	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16.	Chile	X	X	X	X	...	X	...	...	X	...	...	...	...	...	...	X	...	...	...	...	...	X	...	X	...	...	...	X	...	(9)
17.	Colombia	X	X	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...
18.	Surinam	X	X	X	X	...	...	...	...	...	...	...	X	...	...	...	...	X	X	...	...	...	...	...	X	...	...	...	X	...	...
	ASIA																														
19.	Afghanistan	X	X	X	X	...	X	...	...	...	...	...	...	...	...	...	...	...	X	...	X	X	X	...	X	...	...	...	X[10]	...	(11)
20.	Brunei	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21.	Burma	X	X	X	X	...	X	...	...	X	...	...	...	...	...	...	X	X	X	...	...	X	X[12]	...	X	...	...	X[13]	X	X[13]	(14)
22.	China (Mainland)	X	X	...	...	...	...	...	...	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23.	China (Taiwan)	X	X	X	X	...	X	...	...	X	...	...	X	...	...	...	X	...	...	X[15]	...	...	X	...	X	...	...	...	...	...	...
24.	Cyprus	X	X	X	X	...	X	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	X	....	X	...	...	...	X	...	...
25.	Hong Kong	X	X	X	X	...	X	...	...	X	...	X	...	...	...	...	X	...	...	...	...	...	X	...	X	...	...	...	...	...	(16)
26.	Iran	X	X	X	X	...	X	...	...	X	X	X	...	...	...	...	...	...	...	...	...	...	X	...	X	...	...	...	X	X[17]	(18)
27.	Iraq	X	X	X	X	...	X	...	...	...	...	...	...	...	...	...	X	...	X	...	X	X	X	...	X	X	...	X	...	...	(19)
28.	Israel	X	X	X	X	...	X	X[20]	X[20]	...	X[20]	...	X	...	...	...	X	...	X	...	X	...	...	...	X	X[20]	...	...	X	...	(21)

1/ Refer to home district and country of origin.
2/ For female population only.
3/ Bantu register - Males: Identity number - Tribe and Chief - Tax identity number - Last tax receipt - Country of origin. Females: Identity number of husband, parent or guardian. Name of husband, parent or guardian. How married (clinstion rites, native custom or living together). Coloured, white register - Electoral division and polling District (for registered voters). Date of arrival in the country. Identity number.
4/ For alien population only.
5/ For native population only.
6/ Nationality of perents - Military status. Foreign languages spoken. Field of occupation. Type of blood.
7/ Postal address.
8/ Date of registration - ultimate date and place of departure.
9/ Number of children - military status, electoral status, driving licence number.
10/ Name of father only.
11/ Spoken languages - military services.
12/ Includes technical qualifications.
13/ Names and addresses of father and mother, brothers and sisters.
14/ Whether in active service or not - medical category.
15/ "Nativity place" or place of origin which is different from the place of birth.
16/ For non-British subjects - number of children of registered age - date of arrival, travel document, number and place of issue. For British subjects - membership of auxiliary Defence Services - Knowledge of aviation, engineering, nursing and shipping. Particulars of previous service in Armed Forces or Civil Defence Force. Driving licence - languages spoken - other specialist knowledge - reference for duties in emergency.
17/ Address of parents.
18/ Identity number - Parent's occupation - Parent's identification card number stating the place of issuance.
19/ Name of mother, father and grandparents, and if they are living or dead. Language spoken. Visible disabilities. Length of residence in the country (for aliens).
20/ In historic records.
21/ Identity number - Address at the time of the first census and registration. Date of immigration - Language daily used also special additional information on immigrants.

TABLE 5. TOPICS ON WHICH DATA ARE RECORDED IN POPULATION REGISTERS (continued)

[see note at head of table.]

Country number	Continent and country	Topics investigated: Name	Sex	Date of birth	Place of birth	Number of birth certificate	Marital status	Date of marriage	Place of marriage	Name of spouse	Date and type of dissolution of marriage	Place of divorce	Date of death	Place of death	Cause of death	Number of death certificate	Citizenship	National and/or ethnic group	Religion	Ancestral place of origin	Literacy status	Educational attainment	Occupation	Place of work	Place of usual residence	Place of previous residence	Relationship to head of household	Name of head of household	Name of father and mother	Place of residence of parents, spouse or guardian	Other	
	ASIA (continued)																															
29.	Japan:																															
	Koseki register	X	X	X	X	X	X	...	X	X	X	...	X	X	...	...	...	...	...	x[22]	...	...	...	...	X	...	X	X	X	...	(23)
	Resident register	X	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	X	...	...	...	(24)
30.	Korea, Republic of																															
	Hojeok register	X	X	X	...	...	X	...	...	...	...	...	X	...	X	...	...	...	...	x[22]	...	...	X	...	X	x[25]	x[26]	x[27]	...	(28)	
	Resident register	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
31.	Lebanon	X	X	X	...	...	...	...	...	...	...	...	...	...	...	...	X	...	X	...	...	...	...	...	X	...	...	...	...	...	...	
32.	Palestine:																															
	Gaza Strip	X	X	X	X	...	X	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	X	...	...	X	...	...	...	
33.	Ryukyu Islands:																															
	Koseki regiater	X	X	X	X	...	X	X	...	X	X	...	X	X	...	...	...	...	...	x[22]	...	...	...	...	X	X	X	X	X	...	...	
	Resident register	X	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	X	...	...	...	(29)	
34.	Simgapore	X	X	x[30]	X	...	X	...	...	...	...	...	x[31]	...	...	...	X	X	...	...	...	...	X	...	X	...	X	...	...	...	(32)	
35.	Syria	X	X	X	X	...	X	...	...	...	X	X	X	...	...	...	...	...	X	...	X	...	X	...	X	X	...	...	X	...	...	
36.	Thailand	X	X	X	...	...	...	...	...	...	...	...	x[31]	...	...	...	x[33]	X	X	...	...	X	X	...	X	X	X	...	X	...	(34)	
37.	Turkey	X	X	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	X	...	x[35]	...	X	...	...	X	...	x[36]	(37)	
38.	Viet-Nam, Republic of	X	X	X	X	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	X	X	...	X	X	X	...	X	X	(38)	
	EUROPE																															
39.	Albania	X	X	X	X	...	X	...	...	X	...	...	...	...	...	...	X	...	X	...	X	X	x[39]	X	X	...	X	X	X	...	(40)	
40.	Andorra	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
41.	Belgium	X	X	X	X	X	X	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	X	...	X	X	X	...	X	...	(41)	
42.	Bulgaria	X	X	X	X	X	X	...	...	...	X	X	X	...	...	...	...	X	...	...	...	X	X	...	X	X	X	...	...	...	(42)	
43.	Czechoslovakia	X	X	X	X	...	X	(43)/	(43)/	X	(43)/	(43)/	(43)/	(43)/	(43)/	...	X	...	...	...	...	...	X	X	X	X	...	...	X	...	(44)	
44.	Denmark	X	X	X	X	X	X	X	X	X	...	...	X	...	...	...	X	...	X	...	...	...	X	...	X	X	X	X	X	X	(45)	
45.	Faeroe Islands	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
46.	Finland	X	X	X	X	...	X	X	X	X	X	X	X	X	X	...	X	...	X	...	...	...	X	...	X	...	...	...	...	...	(46)	
47.	France	X	X	X	X	...	...	...	...	...	...	...	X	X	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	(47)	
48.	Germany, Fed. Rep. of	X	X	X	X	...	X	...	...	X	...	...	X	X	...	...	X	...	X	...	...	...	x[48]	...	X	...	...	...	...	...	(49)	
49.	Gibraltar	X	X	X	X	...	X	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	X	...	X	...	...	...	x[20]	...	(51)	
50.	Hungary	X	X	X	X	...	X	X	X	x[52]	...	...	...	...	...	...	X	...	...	...	...	...	x[53]	x[54]	X	...	...	...	X	...	(55)	

22/ Place claimed as the family ancestral rest (house Ki).

23/ Permanent legal residence (honseki). Birth dates and places of the family members. Death dates and places of death of the family members. Dates and seasons for which the various members of the family were entered in the Register. Full names of the real parents of the first person in rank in the register are given as are the names of the parents of other members. The family relationship of these individuals to their real parents are described, such as first son or third daughter; relationship for the spouse for a member of the family, such as "wife of the second son...". If a person not biologically related to the family is registered in a Koseki the status of this person is described (first cousin of wife). With respect to a person who is entered from another family, the permanent domicile of his original house (geuseKi) and the full name of the first person of the list in his original family is given.

24/ Resident Register. Date of registration - permanent domicile - changes in residence.

25/ Names of the original place of the clan, of the head, and members of the family.

26/ Also name of the former head of family.

27/ Names of parents of head of family and members of the family and relations.

28/ Hojeok Register. Names and original place of the clan of the head and members of the family. If the head of/or a member of the family is a foster child, names of his parents and foster parents and relations between the two parents. Relation to the former head of the family - relation of a foster child to the family - name and relation to the head of a family from which a child is brought to another family to become a foster child - name, permanent domicile and date of becoming and ending of a guardian, if any. Other information about personal status to be decided by laws concerned. Other events reported for changes in the register are: events on civil status; inheritance of the head of the family; migration; depletion of a family or no successor in a family; partition of a family; restoration of a depleted family.

29/ Resident Register. Date of registration - changes in residence.

30/ Collects information on "age", without specification of "date of birth".

31/ Collects information on "death", without further detail.

32/ Identity card number - language spoken - changes of residence - data related with emigration.

33/ Citizenship of father.

34/ Changes of residence - data on migrations - date of moving from one house to another - date on building or demolishing of houses.

35/ Occupation and title.

36/ Residence of father and mother.

37/ Whether the person is competent to vote, his recruiting office and class. Personal characteristics and distinguishing features of a male - whether the person's parents are living.

38/ Identity number, with date and place of issue - Parents occupation - changes of residence - displacement from region to another, for long periods.

39/ Distinguishing the specialty, the principal occupation and present occupation. Dates beginning principal and present occupation.

40/ Native language - knowledge of foreign languages.

41/ Status (i.e. employer, employees, etc.) - secondary occupation.

42/ Names, places and dates of birth of the other family's members - Settlement and birth: former residence, date of settlement, birth entry (register's number and date) or judiciary decision for adoption entry - change of residence. Information on: personal passport, number, date, etc.; deprived rights; put under guardianship. Relatives of the family's head and his wife, who belong to other family living in the same or other populated place.

43/ With the coming 1970 census, considerations are given to introduction of a Central Register of Population. This Register will include the following additional data: data on wedding(s); data on divorce(s); data on widowhood; data on death (date, place and cause).

44/ Identity number - name of employer; whether has been or not in the army. Names and birth days of children under 15 years living together with their mother (father) - maiden name (married woman) - date and place of birth of spouse - date of arrival in the community - date of deportation from the community - certification by employer of the labour arrangement.

45/ Maiden name (married woman), changes of residence - changes of residence dates.

46/ Population Registers of the Evangelic-Lutheran Church: mother tongue - order of marriage special mention of civil marriage - birth order (children) - names, date of birth, place of birth and register of family members being registered elsewhere.

47/ Identity number.

48/ Includes "status" (i.e. employer, employees etc.).

49/ For men: school and professional education, examinations passed, residence in foreign countries, knowledge of foreign languages, special abilities, service in the armed forces or in the labour forces. For women: experience in office work, home economics, agriculture, factory work, nursing, work in the Red Cross etc.

50/ Name of father.

51/ Registration number - nationality at birth - employer.

52/ Name, birth date and birth place of spouse.

53/ Includes information on technical qualifications.

54/ The name and exact address of employer's business.

55/ Maiden name (married woman) - serial number of work-book.

TABLE 5. TOPICS ON WHICH DATA ARE RECORDED IN POPULATION REGISTERS (continued)

/see note at head of table./

Country number	Continent and country	Topics investigated: Name	Sex	Date of birth	Place of birth	Number of birth certificate	Marital status	Date of marriage	Place of marriage	Name of spouse	Date and type of dissolution of marriage	Place of divorce	Date of death	Place of death	Cause of death	Number of death certificate	Citizenship	National and/or ethnic group	Religion	Ancestral place of origin	Literacy status	Educational attainment	Occupation	Place of work	Place of usual residence	Place of previous residence	Relationship to head of household	Name of head of household	Name of father and mother	Place of residence of parents, spouse or guardian	Other
	EUROPE (CONTINUED)																														
51.	Iceland	X	X	X	X	...	X	X[56/]	...	...	X[56/]	...	X	X	...	...	X	...	X	...	...	...	...	...	X	...	...	...	...	X[57/]	(58/)
52.	Italy	X	X	X	X	X	X	X	X	X	...	...	X	X	X	X	X	...	...	...	...	X	X	...	X	...	X	...	...	...	(59/)
53.	Liechtenstein	X	X	X	X	...	X	X	X	X	X[60/]	...	X	X	...	...	...	...	X	...	...	...	X	...	X	...	...	...	X	...	...
54.	Luxembourg	X	X	X	X	...	X	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	X	...	X	...	X	...	X	X[61/]	(62/)
55.	Netherlands	X	X	X	X	X	X	X	X	X	X	X[63/]	X	X	X	X	X	...	X	...	...	...	X	...	X	...	...	...	X	...	...
56.	Norway	X	X	X	X	...	X	X	...	64/	X	...	X	X	X[65/]	X	X	...	X	...	...	X	X	...	X	X	...	...	X[66/]	...	...
57.	Poland	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
58.	Portugal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
59.	San Marino	X	X	X	X	X	X	X	X	X	...	...	X	X	X	X	X	...	...	...	...	...	X	X	X	...	...	...	...	...	...
60.	Spain	X	X	X	X	...	X	...	...	X	...	...	...	...	...	...	X	...	...	...	X	...	X	X	X	X	X	X	...	...	(67/)
61.	Sweden:																														
	General Register	X	X	X	X	X	X	X	X	X	X[68/]	...	X	X	X	...	X	-	X	...	...	...	X	...	X	X	...	...	X	...	(69/)
	Pop. Sample Register	X	X	X	X	X	X	X	X	X	X[68/]	...	X	X	X	...	X	-	X	...	...	...	X	...	X	X	...	...	X	...	(69/)
62.	Switzerland:																														
	Family Register	X	X	X	X	...	X	X	X	X	X	X	X	X	...	...	X	...	...	...	...	...	...	...	X	X	X	X	...	...	(70/)
	Resident Register	X	X	...	...	...	X	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	X	X	...	...	...	...	...
63.	Yugoslavia (People's Republic of Slovenia)	X	X	X	X	...	X	...	...	X	...	...	X	X	...	...	X	...	...	...	...	X	X	...	X	X	X	X	X	...	(71/)
	OCEANIA																														
64.	Niue	X	X	X	X	...	X	...	...	...	...	...	X	X	...	...	X	...	...	...	...	...	X	...	X	X	X	X	X	...	...
	UNION OF SOVIET SOCIALIST REPUBLICS																														
65.	Union of Soviet Socialist Republics	X	X	X	X[72/]	...	X	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	X	X	X	X	...	...	...	...	(73/)

56/ This information may appear on a document showing changes which occur during each year and are retained in the archives register. The register document just shows the status as of the end of the year.
57/ Permanent address of parents (for every new-born child card).
58/ Position in family - permanent person member - the mother's child birth order - Legitimacy - single or multiple birth.
59/ Data regarding pension booklet - work card and experiences to date - description and identifying marks.
60/ Type of dissolution only.
61/ Address of father and mother.
62/ Date of arrival in the community.
63/ Place where certificate of dissolution is recorded.
64/ Identification number of spouse instead of name.
65/ Also, code of cause of death.
66/ Identification number for persons born after 1964.
67/ Personal classification (neighborhood of family; neighbor; resident); disabled (or infirm) adults.
68/ Including dissolution by death.
69/ The sample register is based on data for all persons born on the 15th of any one month of the year and it is updated once a year. It functions as a "data archive" in which data emanating from various sources are put in - population censuses, vital statistics, income statistics, etc.
70/ City residence rights - legitimacy (children).
71/ Number of Identification Card - Electoral qualifications - length of residence within the commune - destination and time of departure from the commune.
72/ In urban areas only, as inhabitants in the "Building Registers".
73/ More detailed information is kept by the vital statistics registers (births, deaths, marriages and divorces); the house register (urban and rural); and the internal migration forms whose "movements in" and "movements out" are registered with the help of detachable stubs.

CHAPTER IV

ACCURACY OF POPULATION REGISTERS

The accuracy of a population register at any given time is dependent upon the accuracy of the information upon which the register was based, the reliability and completeness of information subsequently received, and the timeliness with which these changes are submitted and entered upon the register. Hence, the only way of determining the accuracy of a register is by analysing the accuracy of the sources of the base information.

A. Accuracy of components

1. Original base

The original information upon which a modern population register is based include: (1) a regular census of population, (2) a special census taken for the purpose of establishing a register, (3) a requirement that individuals present themselves for registration at a given place. In effect, the first two methods are identical, the difference being merely a matter of terminology. However, it may be noted that the use of the regular population census to establish a register might imply a lesser degree of confidentiality of the returns than is generally considered to be good census practice. None the less, the population census has been used by at least thirteen of the countries studied, including the 1849 census of the Netherlands and the 1961 census of Yugoslavia. In the latter, special forms to be used for the register were completed at the same time as the general population census. In Spain, new register forms are prepared in conjunction with the enumeration for each decennial census. Obviously, the accuracy of register information collected at the time of a census depends upon the general accuracy of the census.

The attempt to collect original register information by requiring persons to present themselves at a designated place for purposes of registration seems likely to suffer from all the drawbacks of collecting any type of information by such means. Although there is a possibility that one or two or the registers were established by this means, the available information does not confirm this.

2. Additions, deletions and changes

The essence of a continuous system of population registration is its fluidity. Additions resulting from births or immigration, deletions resulting from death or emigration, and changes in the characteristics of the persons on the register (such as occupation, marital status, adoption, etc.) must be faithfully notified within a reasonable time if the register is to serve its function of presenting a current picture of the population. This means, in practice, that the population register system must have statutory authority, that the legal duties of the public and of officials must be clearly defined and that these duties, designed to keep the registers up to date, must be enforceable at law.

(a) Vital events

(i) Accuracy

The majority of the countries have indicated that notification of birth, death, marriage and divorce, as a minimum, is received regularly and that the requisite changes are made on the population registers promptly. In general, the information is received from the registrars of vital events or the legal authorities performing the marriage or granting the divorce, but there are, of course, exceptions. In Sweden, the parish priests are civil servants and act as registrars of births and deaths and of the population register, so no physical transfer of much of the data is required. In Finland, the Netherlands, the Netherlands Antilles and Yugoslavia (Slovenic Republic), the population and vital events registers are maintained in the same office so that information for the former is collected as it is received for the latter, regardless of the source of the original report.

In Belgium, Bulgaria, the Federal Republic of Germany, Iceland, Italy and Norway, information on birth, death and marriage is received from the registrar of vital events, while in Czechoslovakia, Denmark and Israel, information on births and deaths comes from the registrar but information on marriage comes directly from the authority performing the marriage, as it does in Finland. In regard to information on divorce, it appears that only in Belgium and the Netherlands does this come from the registrar of vital events, while in Denmark, Israel, Norway and Sweden, it comes from the authority granting the divorce.

Gibraltar has stated that all information on vital events is reported directly by the person concerned or by the next of kin.

It is apparent that the information on these events which reaches the population registers can usually be accurate and complete only to the same degree as the information received by the vital events registries.

(ii) Timeliness

Very little information is available on the time elapsing between the occurrence of an event and the consequent entries on the population registers. For the most part, the length of the interval is dependent upon three factors: the first is the time between the occurrence of the event and its reporting to the civil registry, the second is the interval between the time the report is received at the civil registry and its subsequent reporting to the population registry, and the third is the frequency with which consequent changes are entered on the population register. Where such events as marriage or divorce are reported to the population registry by the authority performing the marriage or divorce, or where individuals report vital events directly to the population registry, the second factor is eliminated.

Obviously, a long delay in any of the factors, whether because of a lengthy statutory time period allowed for its accomplishment or because of registration delayed beyond the statutory period, will affect the accuracy of the population register at any given time.

Information on the length of the total interval is available for only a very few countries. In Italy, the entry of a birth or a marriage on the population register might be accomplished within ten days of the event; for a death, the period might be as short as four days. In Czechoslovakia, a death or a marriage can be entered on the population register within a few days and a birth within about a week. Israel has stated that it might take as long as three months for a birth to be entered on the register and approximately two months for a death. In Hungary, the entry of a birth might take place within eight days and of a death, within one day. In Yugoslavia, a birth can be entered in no more than fifteen days, a death within three days and a marriage immediately, presumably because marriages are performed in the office of the registrar. In Sweden, the report of a birth is to be made within six weeks and that of a divorce within three days. Finland has indicated that reports of marriage, divorce and death are received speedily but that birth reports are frequently delayed for more than a month. In the Netherlands, it might take four days for the receipt of a report on a birth, six days for a death, twenty-four hours for a marriage and six months for a divorce.

Combining information available on the statutory time period for initial reporting of births, deaths, marriages and divorces to the civil registers 1/ with information received on the interval between the receipt of the initial report and the subsequent report to the population registry, it would appear that in Denmark it might take as long as sixteen days for the report of a birth to be received at the population registry, while a death report might be received within less than a week. In Norway, the report of a birth might be received within four weeks and the report of a death within eight days. In Gibraltar, where the persons concerned or the next of kin report directly to the population registry, births must be reported within twenty-one days and all other vital events within three days.

For three other countries, information has been received only on the length of time between the receipt of the information at the population registry and its entry on the register. Bulgaria has stated that changes are made immediately upon receipt of the information from the civil registry. In the Netherlands Antilles, entries on the population register are made within one day of the receipt of the report at the vital events registry, since both the population and the civil registers are maintained by the same office. In Iceland, entries are made in writing on a special set of punch cards as the reports are received, but new punch cards incorporating all changes and additions are prepared only once a year.

While the above information is too fragmentary for a valid generalization, it appears that a substantial amount of time may intervene in many cases between the occurrence of an event and the consequent change on the population register.

(b) Change of residence

(i) Accuracy

Information on change of residence is usually received directly from the person concerned, although different mechanisms are employed for the purpose in the different countries. A change of address within the area of the

1/ Handbook of Vital Statistics Methods (United Nations publication, Sales No.: 1955.XVII.1), pp. 84-85.

particular register often involves only a simple notice when the move has taken place. If the move entails a change of register, the registry must often be notified before it takes place; the person concerned is then provided with a certificate which he must surrender within a certain period of his arrival at his new residence. The surrendered certificate, or a copy thereof, is returned to his former register as proof that the move has taken place. In other cases, no report is made before the move takes place, the individual being required only to report his move into an area, the fact of which is, however, also reported back to his prior residence.

Emigration from the country may also require an advance notification by the person concerned, often with confirmation through a certificate relinquished at the departure point, or the original information may come entirely from migration officials at departure points. Notification of persons entering the country with the intent of remaining for a long enough time to necessitate their being registered is probably usually received through immigration officials, so that the registry officials can be alerted to the date by which such persons will have to appear for registration. In some cases, registration may take place at the time and place of entry.

(ii) Timeliness

The legal time interval between arrival at a new residence or entry into the country as a permanent resident and reporting to the population registry varies from two days to two weeks, with many special regulations concerning particular circumstances. Some countries have indicated that notification of change of residence is probably less dependable than that of vital events, since the facts sometimes do not come to the attention of the registry until long after the occurrence of the move, particularly when there is no requirement for notification before a move takes place.

B. Methods of verifying accuracy

Verification of the accuracy of their registers and consequent correction of errors appears to be a regular process in a number of the countries. This may be accomplished by comparison with population census results, by special inquiries designed for the purpose or by taking advantage of other opportunities which arise from the various functions of the registers.

1. Comparison with population census results

Of the countries which have provided information on the presumed degree of accuracy of the register as revealed by the extent of agreement with the results of a recent population census, Belgium reported that the differences are negligible; Gibraltar found 91 per cent agreement with its 1951 census; the Union of Soviet Socialist Republics has reported that forecasts of the 1959 population, made in 1956 partly on register information, was between 207 and 208 million persons, while the January 1959 census figure was 208 million persons; the Netherlands found almost 100 per cent agreement with the census; Norway reported that there was a net addition to the 1950 census schedules of 15,000-20,000 persons from the registers, or about 1/2 of 1 per cent of the total population; the Netherlands Antilles has reported a difference of 4 per cent

between the 1960 register population and the 1960 census population and an agreement of 99.2 per cent between the 1960 register of population and the real number of inhabitants; China (Taiwan) has stated that the population shown by the census of 1956 was only .0007 per cent higher than that of the registers; Israel reported a net addition of 18,400 persons to the population enumerated in 1961; Yugoslavia discovered an over-registration of 0.67 per cent; and comparison of the registered with the enumerated population of Finland in 1960 revealed that the former was 1.5 per cent in excess of the latter.

These figures, of course, refer only to total population and not necessarily to the detailed information about each person. They may also be merely comparisons of the two totals, but sometimes there is actually a person-by-person check of the register information and the census schedules, as in Israel, Denmark and Norway, where both additions and deletions to the registers and the census results are made. One or two of the countries have also extended the one-to-one comparisons to the individual items of information concerning each person, so that requisite correction could be made of these, too. In the Netherlands, for example, register information and 1960 census information on a number of topics were compared for individuals. In Israel, the 1961 population census enumeration was combined with a check of persons on the population register, thus providing information on the "surplus" population on the register, on the present residence of each person, and on persons missed by the census enumeration.

2. Special inquiries

In addition to comparison of census and register results, some of the countries have legal provisions for regular checking of the register through special inquiries or for special checking when required. In Slovenia, for example, a yearly verification by the registrars is required by law, while a fuller verification is conducted every five years by the Institute of Statistics of Slovenia. In the Netherlands, the communal authorities check by direct interview or by mail once a year. Denmark has provision for an optional annual verification by special questionnaire. The national registry of Iceland may order a specific check by municipal registrars, including a special population census. In Sweden, a simplified population census is taken each year, and the results are cross-checked with the parish and provincial registers. Finnish house-owners must report all of the residents of each house annually; house lists prepared from these reports are used to check the registers. In the Union of Soviet Socialist Republics, the accuracy of rural household registers is verified by annual visits to ascertain that all births and arrivals during the previous year have been entered and all records terminated in cases of death or departure.

The documents in the household registers in Spain are completely replaced every five years by new documents prepared during a special ad hoc household enumeration, which is combined with the decennial census enumeration in years ending in "0". A similar replacement took place in Yugoslavia, in connexion with its 1961 census.

3. Other measures

Aside from these specific provisions, there are many different methods employed by the different countries to achieve as great a degree of accuracy

as possible. These include such methods as comparison with data from other government agencies, or even private enterprises; the use of the residence information on the registers for mailing purposes, which results in a check of the accuracy of these addresses, and the preparation of electoral lists or population lists which are revised by local authorities. Personal-interview checking on an ad hoc basis is often done at the registry offices when individuals appear for other purposes.

As an example of the different techniques which can be used by one country, the Netherlands Antilles has stated that verification takes place through the combination of register functions in one office, so that individuals can be queried when they come to the office to report a vital event; through the exchange of information with other government agencies; through investigation of voting cards mailed out but returned as undeliverable; through periodic mass verification with personnel information of large private enterprises; and through the requirement that plate impressions made from register information must be presented by individuals in order to obtain connexion of public utility lines, medical care, old age pensions.

CHAPTER V

COSTS OF POPULATION REGISTERS

The costs of population registers are not easily comparable from country to country nor do they show any correlation with the size of the population covered.

The components of the figures submitted in 1959 by various countries differ according to the way in which each register is organized. In some countries, local registrars are employees of the central register office and their salaries are accordingly figured in the total cost. In others, particularly where the system is primarily decentralized, local costs are borne almost entirely by the local administrations and no over-all estimate is available. In some instances, it has been pointed out that it is not possible to give any figures on costs because the registrar's duties are not confined exclusively to work on the population register.

Some idea of the diversity of cost of nine registers can be gleaned from the following brief summaries of the information submitted by eight countries in 1959: 1/

Federal Republic of Germany. In the largest municipalities, the cost is approximately $240,000 (1 million DM) annually.

Gibraltar. With a staff of two, the cost was approximately $2,800 (£1,000) annually.

Iceland. With a permanent staff of four (augmented by seventeen persons of the staff of the Statistical Bureau for the two-month period during which the register is brought up to date), the 1960 budget allotment was approximately $27,000 (Kr.878,000).

Israel. With a staff of 286, the 1960/61 budget estimate for population registration and immigration control together was approximately $560,000 (£1,013,000). With a staff of 284, the 1961/62 estimate is approximately $570,000 (£1,034,000).

Netherlands. Most costs are borne by the municipalities. Without the costs of buildings, these were estimated at about $3,300,000 (Fl.12,000,000) annually. In addition, the Central Government Inspection is budgeted at approximately $100,000 (Fl.360,000) annually.

1/ The costs mentioned have been converted into United States dollars in accordance with the exchange rate in effect at the end of 1959, the year to which the data refer. This conversion is not intended to show exact amounts but only rough equivalents. The amount in the currency of the country is shown in parentheses.

Netherlands Antilles. With fourteen officials in charge of the administration of population records, the cost was approximately $40,000 (Fl.75,000) annually.

Singapore. With a staff of forty-eight (Commissioner, Deputy Commissioner, seven clerist officers, thirty-three clerical assistants, one typist and five office boys) the total cost for the year 1959 was approximately $157,488.

South Africa. With a staff of 670, the register for European, Asiatic and Coloured population, which was not yet completed as of the end of 1960, cost approximately $850,000 (£153,000) annually. The register for the Bantu population costs approximately $500,000 (R176,915) annually.

Very rough estimates of the per capita costs of these nine registers, using mid-1960 population estimates, range from $.03 annually in Singapore to $.28 in the Netherlands.

There can be no doubt that a register system is most costly at its inception, with a larger staff and a greater expenditure on equipment being required than are needed after the initial registration has been accomplished. In South Africa, for example, it is expected that the staff of the register for European, Asiatic and Coloured population will be reduced by almost half after the initial registration is completed.

Some idea of the reduction in costs after the system has been established can be obtained from the experience of Iceland. From mid-1952 to the end of 1954, while its system was being organized, the total expenditures were approximately $56,000, of which 69 per cent was spent on salaries, 15 per cent on machinery and punch cards, 5 per cent on cabinets and equipment, and 10 per cent on miscellaneous costs. For 1955, the total cost was about one third that of the previous period, with 64 per cent spent on salaries, 14 per cent on machinery and punch cards, 3 per cent on card cabinets and 19 per cent on miscellaneous items. Since then, the cost has risen slightly because of rises in salaries. It should be noted, however, that the total costs quoted are kept fairly low because of the fact that the register office does not have to pay the salary of a director, secretarial costs are absorbed by the Statistical Bureau, and there is no rent. In addition, the permanent staff numbers only four and the seventeen additional persons needed for the work of bringing the register up to date at the end of each year are supplied from the staff of the Statistical Bureau.

Some registers provide a certain amount of revenue which partially offsets their costs. These revenues come from such items as charges for replacement of lost identity cards, fees for supplying certified information regarding persons on the registers and even charges for preparing lists of persons for various non-governmental uses. In the Netherlands Antilles, the annual revenue is about $24,000 which amounts to more than half of the total costs. In Iceland, income from the sale of lists was expected to be about $US3,000 in 1960, or about 10 per cent of the costs.

A more recent information (September 1967) states that "the total basic costs for establishing the central population register in Norway, including the introduction of the identification numbers in the local population register offices, are estimated at N.Kr.5,554,000 or $US776,000, at the present exchange rate. The amount corresponds to N.Kr.1.50 per inhabitant ($0.21)." "The control of dates

of birth etc., and transfer of the identification numbers in the local registers amounted to 34 per cent of the total basic costs. The corresponding figure for the use of Electronic Data Processing Computers (mainly 1401) was 12 per cent, punching and computer operating 20 per cent, programming 10 per cent, magnetic tapes 7 per cent, punch cards and machine paper 4 per cent, and overhead costs (including office staff, inventory, etc.) 13 per cent." 2/

2/ "The Norwegian population register system" by Helge Skaug, International Symposium on Automation of Population Register Systems, vol I, page 55 (Basic Costs).

CHAPTER VI

POPULATION REGISTERS AS A MEANS OF PRODUCING STATISTICS

Nothing is more useful to the countries of the world at the present time than to have at their disposal an efficient means of producing statistics of different kinds, especially those which are indispensable to Governments for the preparation of their economic and social development plans.

With this object in view, international organizations, both world and regional, have made specific recommendations and published various technical manuals and papers dealing with the best way of organizing statistical services that will produce, in a systematic and co-ordinated fashion, the statistical data needed to meet national requirements. These papers and recommendations have also occasionally been supplemented by direct technical assistance.

Clearly, however, in most regions of the world much still remains to be done before the countries concerned will possess efficient methods of producing statistics. Consequently, while this situation persists, it will always be worth while to try to make the best use of any organized service in a given country which is capable of producing statistics, with a view to increasing its usefulness so that additional information can be obtained.

It is obvious that population registers, despite their traditional and basically administrative application, can be, and indeed are being, used as a source of important statistical information, and this use of the basic information contained in the registers can be further expanded. This does not, of course, mean that the establishment of a population register can in itself replace for statistical purposes the functions of a statistical office or similar body.

A population register can, however, in cases where the necessary requirements are met, constitute an effective and economical auxiliary apparatus, within a national statistical system, for the collection of accurate and pertinent information which would be difficult to obtain in any other way.

The use of population registers as a means of producing statistics is based on the following two practical considerations: (a) the proper organization and functioning of a population register, and (b) the ability of present-day electronic computers to store and process a large volume of statistical data of various kinds.

A systematic presentation of the relevant statistics is possible if the operations involved in preparing a work programme for a population register are suitably co-ordinated with the data-processing activities of one or more electronic computers. Further information on points (a) and (b) of the preceding paragraph is given below.

A. Basic structural features of a population register

In the light of the information provided in previous chapters and in the various statistical tables, attention will now be given to the basic structural features of a population register as they apply to the production of statistics. Obviously no attempt is being made to claim that one or another of the national registration systems mentioned in this paper in fact produces reliable statistics or that all those systems have the combination of characteristics or qualities required for doing so.

This reservation having been made, the following is the combination of basic characteristics needed for what might be called a model population register for the production of reliable statistics:

(a) Nation-wide coverage;

(b) The individual as the unit of investigation and control, with no distinction as between social groups;

(c) Authorization by a legal instrument (law, regulations, etc.) whereby the declaration of information is made compulsory;

(d) A centralized or decentralized system of organization (according to whichever is more in keeping with the needs and circumstances of the country);

(e) Standardized definitions which can be used both for current statistical and for census purposes;

(f) Availability of suitable personnel;

(g) Availability of accurate and complete information that is systematically kept up to date, and periodic verification of the accuracy of the information;

(h) Close links with the population and housing censuses;

(i) Use of (conventional) electro-mechanical equipment or of electronic computers for the processing of the information.

It is quite apparent that a properly functioning population register having the aforementioned basic characteristics - all of which are derived from the information on the various kinds of population register now in use, which are described in the preceding chapters - could be of great assistance in the production of statistics in any country.

B. Advantages of using electronic computers in conjunction with population registers

This is not the place for a detailed description of all the advantages of electronic computers, such as their great versatility, their capacity for storing information and the many different functions which they can perform, if well programmed, to ensure the fullest and most accurate use of the stored data. It is a fact recognized by the experts who work with them that there is still much to be discovered about possible ways of using computers more extensively and to better advantage.

With regard to the use of electronic computers in conjunction with population registers, it will be interesting to refer to the experience of one modern country, Israel, and its views on the advantages of using computers for its population registers. According to one expert, the chief advantages 1/ of the new system are:

(a) Accuracy by cutting down on manual written work;

(b) Time-saving by rapid and simultaneous processing;

(c) Completeness and security of material by its being kept as a tape file instead of as movable cards;

(d) Space-saving by putting the contents of four card-files onto two magnetic tapes;

(e) Communication possibilities with other computers;

(f) Changes and improvements in the preparation of the voters' rolls;

(g) Extra utilization of data in a cheaper and easier form;

(h) More frequent updating and therefore supply of more accurate information.

These are the more outstanding advantages, but there are many others. Another expert from the same country, supplying further information on this subject, refers to some of them:

(a) The addition of several items to the records for each individual;

(b) The introduction of various validity checks and control totals, which eliminated wrong data and made it possible to balance the file. This type of control is very important in a system which deals with millions of individual records;

(c) A thorough check-up of every field of the population-file records was performed during the establishment of the files, and about 200,000 errors and inconsistencies were revealed and corrected;

(d) The establishment of a special-purpose file to facilitate the services to users of statistics;

(e) A saving in manpower amounting to twenty men.

To all this, the same expert added the following remarks:

> "In general, the value of this system" (meaning the use of computers) "should be measured by the services it can now supply in a more convenient way to the users of the file. During the short

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1/ "Population registration in the State of Israel", by Y. Huebner. International Symposium on Automation of Population Register Systems, vol. II, pp. 49-50.

existence of the file, several large institutions have already benefited from the new system.

"The second most important advantage of this system is, in my opinion, the ability to serve as a firm basis for future developments, something which could not be said for the old system." 2/

It would be helpful to refer to the experiences of other advanced countries which have used electronic computers in conjunction with their population registers both in the interests of efficiency and in order to produce various kinds of statistics, especially population statistics. The interested reader is therefore invited to consult the following studies relating to Sweden, 3/ Italy (City of Bologna), 4/ Norway, 5/ Finland, 6/ Denmark 7/ and the Netherlands. 8/

It is apparent from what has been said that it is logically possible for a population register, suitably co-ordinated with the operations of one or more electronic computers, to produce statistics in an entirely satisfactory form and thus serve as an integral part of a national statistical network.

C. A basic co-ordinating element

An essential element in the production of reliable statistics directly related to a population register as well as of statistics that can be derived from such a register when used in conjunction with electronic computers is what has come to be known as the "identification number". The identification number is the one basic link in any grouping or combining of personal statistical data which are drawn directly from a population register or other sources in order to be processed by an electronic computer.

2/ "The automation of the population register system in Israel", by I. Silbergeld. International Symposium on Automation of Population Register Systems, vol. II, pp. 74-75.

3/ International Symposium on Automation of Population Register Systems, vol. I, "The introduction of computer registers and the production of demographic data", pp. 369-374, by E.V. Hofsten.

4/ Ibid., vol. II. "The City of Bologna population file system", by G. Azzaroni, E. Baroncini and S. Fiorelli, pp. 101-126.

5/ Ibid., vol. I. "The Norwegian population register system", by H. Skaug, pp. 13-39.

6/ Ibid., vol. I. "Integrated population register systems in Finland", by E. Kostamo, pp. 41-50.

7/ Ibid., vol. I. "Description of the Central Person Register (CPR) in Denmark", by Bjorn Eriksen, pp. 61-68.

8/ Ibid., vol. I. "Experience in the use of computers in population registration", by E. Boer, pp. 265-272.

Since the individual is the basic unit in a population register, an exclusive, permanent and verifiable number for each person represents the only way in which the relevant particulars of any one person can be combined with the particulars of other persons included in the register and likewise the only way in which all these particulars can be combined with personal data from other statistical sources.

For this reason all the countries which are now using electronic computers for the preparation of statistics link together all the data pertaining to the same individual, whatever the source or origin of the information, by means of an identification number.

The composition of the identification number has already been the object of study at the international level.

The following description of the identification number used for the population register in Norway will give some idea of how it is formed:

(a) The first six digits represent the date of birth - two digits for the day, two for the month and two for the year.

(b) The next three digits represent the order of birth on the given day and the person's sex.

Only three figures are used because not many more than 250 births take place in Norway on any one day of the year. The sex is shown by the last of the three digits, which is even for females and odd for males. These three figures taken together are called the serial number.

(c) To complete the identification number there are two figures known as "check-digits", the purpose of which is to ensure, through the operation of the electronic system, that the identification number is correct.

To give a specific example, an identification number in the population register of Norway would be as follows:

Identification number

Date of birth			Personal number	
Day	Month	Year	Serial number	Check-digits
21	09	30	258	73

The above number refers to a woman born on 21 September 1930. All the identification numbers are computed automatically. 9/

Not all countries, of course, follow the same procedure in establishing their identification numbers. Some, for example, begin the date of birth with the year, instead of the day (Sweden); others do not use the date of birth at all, the

9/ "The Norwegian population register system", by Helge Skaug. International Symposium on Automation of Population Register Systems, vol. I, pp. 18-19.

identification number being instead a "serial number" (Israel, six figures) or a "record number" or "registration number" (Netherlands, eight figures). Other countries use additional or different factors in their registration numbers, such as the initial letter of the father's name (Germany). Also, not all countries use the same number of check-digits; some use only one figure (Denmark, Finland, Sweden), others use two (Belgium, Norway) and one uses none at all (Israel).

While it would be out of place here to elaborate further on the technical details of how these identification numbers are made up, reference has been made to them in order to emphasize the all-important role which they either play or can play in the production of various kinds of statistics when population registers are used in conjunction with other sources of statistical information.

D. Country experience in the use of population registers for the production of statistics

From the explanations given so far it is clear that a population register which is properly organized and which is used in conjunction with electronic computers for the processing of information is theoretically capable of producing reliable statistics. There are not, however, at the present time many countries which have population registers and are experienced in operating them or, above all, which have access to electronic computers for producing both statistics based on the register and statistics based on original data obtained from other sources through the use of identification numbers.

For this reason and in view of the dearth of experience in this area, a brief outline - in which no attempt will be made to pass judgement on the appropriateness or otherwise of using population registers for the production of statistics - will now be given of the experience that certain countries have had in the use of their population registers for statistical purposes. Knowledge of this experience on the part of other countries may perhaps serve as a guide or provide some idea of the potentialities of population registers for the production of statistics.

For convenience, the experiences are set forth below in English alphabetical order.

1. Experience of Denmark

Denmark is another country with a very long tradition of population registration, and, according to the available information, a central population register, using computers and individual identification numbers, was to be set up in 1968. Although the plans for the production of statistics are not yet complete, some information is available concerning the compilation of vital statistics from the data available in the population registers.

On the basis of this information it should be possible to set up a programme for the production of statistical tables combining data on sex, age, marital status and geographical distribution (towns, rural districts etc.) with other relevant variables. These tabulations will very probably be compiled annually and be supplemented by less detailed monthly or quarterly tabulations.

In the process of updating the central register, the data for each type of vital event will be recorded on magnetic tape and will then be used for the production of statistics on both a monthly and an annual basis.

For this purpose, the central population register will be provided with all the relevant data and be informed of all changes in the data relating to vital statistics by the local registers.

This information for the central register will not, however, be complete, since, in addition to the vital statistics data, medical statistical data are required, particularly with respect to the cause of death. It was therefore decided to match the taped data on deaths with taped data relating to death certificates by means of the individual identification number which must always appear on the death certificate. In order to accelerate the process of statistical compilation, the magnetic tapes containing the death-certificate data will be processed optically.

The same or similar problems will occur in the case of birth statistics, which are to be supplemented with medical statistical data on such matters as the weight and size of the child, embryonic position and so on that are not considered appropriate for inclusion in the population registers. Here, too, it is planned to use supplementary magnetic tapes containing information provided by physicians and midwives. The relevant statistics will be produced in the same way as the mortality statistics.

Magnetic-tape extracts from the central register will likewise make it possible to compile marriage statistics and statistics of internal and external migration.

In the case of divorce statistics, some additional data, such as the formal cause of divorce, the conditions of legal separation and the like, are required. In view, however, of the limited number of divorces (6,000 a year), it is not considered practical to obtain this information from the register, and it will therefore be derived from reports received directly from the competent authorities.

According to the available information, intensive use will be made of identification numbers in Denmark in order to facilitate the compilation of additional types of statistics.

Another demographic problem being considered by Denmark is the extent to which population censuses may be affected by the statistical potentialities of the new population registration system. In this connexion, it is felt that some information, particularly that relating to occupation, industry and status (as employer, employee, etc.) will not be available from the central population register in a sufficiently specified form and also that it is not possible to obtain full coverage for the "household" concept in the censuses. There are also some types of information - such as the number of births for each woman and the distribution of these births over the child-bearing period - which are difficult to obtain without the help of censuses.

There is, finally, the question of how effective censuses have thus far been as a means of checking the local population registers. It is thought that the central register might require periodic checking. 10/

2. Experience of Finland

An interesting example of a scheme for the production of statistics is the plan for a population register system in Finland - which has one of the oldest register systems in the world (see note to table 1) - that was proposed in 1964 by the Finnish State Computer Centre. The many registers kept by various State organizations in Finland are closely co-ordinated with a system of local population registers which are integrated into a central population register. The proposed scheme would be as follows:

(a) The population register proper, the census lists and the address card systems would be integrated into one system;

(b) A population register centre would co-ordinate, control and develop population registration and facilitate the efficient transmission of data;

(c) Computers would be used to update files and to process lists, notifications, file-cards, etc. They would also be used in all other phases of the work in which automatic data-processing is feasible. The attached organization chart is of interest in this connexion.

In addition to the possibilities for the integration of registers illustrated in the organization chart, the computer facilities of the population register centre could be used to update many other governmental registers of persons, to process lists and notifications, to compile statistics and to provide material for scientific research. The following functions are envisaged:

(a) Updating of voting lists;

(b) Provision of lists of school-age children for school boards;

(c) Editing and filing of information on vagrants and prisoners;

(d) Editing and filing of information for the Treasury in connexion with the payment of pensions, life annuities and disability compensation;

(e) Provision of data to guardianship boards, communal child guardians and social welfare boards.

The population register centre will also facilitate the rapid compilation of statistics on population movement, size and structure. It is also planned to transfer the population register to magnetic tape so that it can be used by the Central Office of Statistics. The information on the tape could then be kept up to date with statistical data on education, occupation, status (as employer,

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10/ The information on Denmark has been taken from the paper "Application of population registers: the statistical application" (Denmark), by Jørgen Wedbye - International Symposium on Automation of Population Register Systems, vol. II, pp. 127-132.

employee, etc.), socio-economic status, status in household, type of business in the case of employers and, where appropriate, type of crime. Such data could be provided mainly by the local population registers and the decennial censuses.

The population register centre could also serve as a source of material for the following types of research:

(a) Criminological research;

(b) Medical and health research;

(c) Social research.

It is obvious that the full statistical potential of a population register integrated with other national registers can only be realized through the uniform, permanent and general use of individual identification numbers. This requirement is being fully met in Finland. 11/

3. Experience of Israel

The national population register and its individual identification numbers have been used for the following purposes: (a) the compilation of data on the size and characteristics of the population; (b) the compilation of data on population changes; and (c) the use of the individual identification numbers for record linkage not involving the population register files. These three different uses of the population register indicate the various ways in which it can be used for the production mainly of demographic statistics.

With respect to item (a) above, the Israel population register, which is the most comprehensive source of information on internal migration, makes it possible to carry out inter-censal counts of the size and demographic composition of the population in each locality and in detailed areas within larger localities. Such information is obviously useful for local and regional administration and planning, in addition to its intrinsic demographic interest. These counts were extended after the introduction of computers, and they are to be carried out every few years during inter-censal periods.

One specific use of the population register material is to serve as a basis of comparison with the census returns. Such comparison was first undertaken on the occasion of the 1961 census with the aim of assessing and improving coverage, supplementing or correcting the recording of individual characteristics (addresses in the population register, absence of identification numbers) and studying the consistency of the information in both sets of data.

The demographic information recorded for each individual in the population register may serve as a subsidiary source of data in the processing of vital or migratory statistics. For example, the information omitted in vital and migratory

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11/ The information on Finland has been taken from the paper "Integrated population register systems in Finland", by Eero Kostamo. International Symposium on Automation of Population Register Systems, vol. I, pp. 41-50.

records and available in the population register is often obtained from the latter source. Also, where a given characteristic - for example, the marital status of emigrants and absentees abroad - is not supplied in a particular registration form, it can, as is now being planned, be extracted from the population register.

The population register also assists demographic work by providing the names and addresses of individuals whom it is intended to include in specific surveys. For example, the population register may: (a) serve as a frame for the extraction of population samples (additional details on this process are given below); (b) provide complete lists of specific sub-populations - whether selected according to demographic or geographical criteria - for example, persons of a given age or immigrants from a certain country or the population of a specific locality or urban area; and (c) be used for follow-up studies, where the names and identification numbers of the groups investigated are known.

With regard to item (b) on page 53, the introduction of computers has made it possible to carry out tabulations for the combined study of aspects of internal migration reflected in the population register, namely: (a) type of migration - between localities, within localities and within conurbations; (b) source and destination of the migration, specifying detailed areas within larger localities; and (c) demographic characteristics of the migrants.

For all vital occurrences and permanent external migrations, both the population register and the Central Bureau of Statistics use the same statistical information, although the Central Bureau of Statistics processes the information independently. In some instances, however, the availability of additional facilities or of specific information in the population register has led the Central Bureau of Statistics to use the register's statistical material for the preparation of certain tabulations on vital statistics and external migration. For example, in connexion with population changes the population register uses a system for the automatic coding of the specific area in which any urban address is included. As an inexpensive by-product of this procedure, statistics classified by detailed urban areas of residence, or by typological strata of such areas, can be obtained on births, deaths (particularly infant deaths), new immigrants, emigrants, etc. These data, when related to the inter-censal counts of population size and composition, will make it possible to calculate specific rates for urban areas.

For current estimates of the composition of the population by marital status, it is possible to obtain from the population register information on the demographic characteristics of widowed persons which is not obtainable from the death notification form now in use. However, it is recognized that the population register is still incomplete in this respect.

Rectifications of personal characteristics of the population are recorded in the population register, after certain legal and administrative requirements have been duly met. Rectifications of age are of particular demographic interest, for they are reflected in the returns of the next population census and, if neglected, will slightly affect its comparability with the population estimates based on the previous census.

The cumulative information on vital events and other events relating to individuals (and perhaps, in the future, to whole families) which is stored in the computers will facilitate longitudinal studies. These studies may

concern specific topics such as investigations of birth-year cohorts with respect to marriage and child-bearing patterns or of immigration-year cohorts with respect to changes of residence. More systematically, all changes recorded for a representative population sample might be accumulated and studied longitudinally.

With regard to item (c) of page , there is wide scope for the use of individual identification numbers for demographic purposes through record linkage not involving the population register files. Some examples of such use are as follows:

(a) Record linkage between roughly synchronous sets of data:

Linking between the population census and surveys of independently drawn population samples, for evaluative comparison of returns relating to the same individuals;

Linking between the population census and vital and migratory statistics around the census date, for the study of vital and migratory phenomena in the light of the additional individual information and household data provided by the census;

Linking between the census and full enumerations or sample surveys of sub-populations, for example, school pupils or university students, patients suffering from specific diseases, inmates of institutions, etc.;

Linking of data from various types of current statistics relating to the same individual. For example, in Israel, infant mortality has been studied for several years by combining the information from the death record (in particular, age at death and cause of death) with the details on the infant's parents available only in the birth record.

(b) Record linkage in follow-up studies

This operation opens up broad prospects for statistical and scientific research. Outside the orbit of the automated population register files, individual identification numbers can be instrumental in effecting linkage between recordings of the same type or of different types and from different sources. For example, successive hospitalizations of the same individual, or the physical development, school attainment and occupational history of the same young people. The culmination of this idea is the establishment of permanent automated archives for specific groups of persons or events. For this, the basic prerequisite is of course the introduction of the individual identification number adopted by the population register into the records of the various sources of statistics. In Israel, the Ministry of Health recently instructed all hospitals to include the individual identification number in all patient records.

It is not always easy, however, to introduce the identification numbers with a high degree of accuracy and completeness; conditions may vary in this regard according to the type of person involved and the circumstances in which the identification number has to be obtained. 12/

12/ The foregoing information on Israel has been taken from the paper "Use of the Israel population register for demographic statistics", by O. Schmelz and C. Ben-Amram. International Symposium on Automation of Population Register Systems, vol. I, pp. 361-368.

Without dwelling on technical details - which, moreover, have been fully taken into account in Israel statistical practice - it will be interesting to see how the population register has been used as a framework for special surveys, especially in view of the fact that the register has individual records for all inhabitants and is updated each month on the basis of administrative notifications. The register has been used for sample surveys of households and individuals, always on the basis of rigorous designs prepared by experts. Some of the main applications are given below.

(a) The register as a framework for primary sampling units

The Central Bureau of Statistics has used the register in this way since 1954 for the quarterly labour force survey, in which data on the labour force and on unemployment have been obtained on the basis of a sample of 6,000 households. For the purposes of this sample, enumeration districts with probability proportional to size were selected by computer.

(b) The register as a framework for sampling individuals

This procedure has been used in a radio listeners' survey and in a survey of public opinion on the national lottery. The main drawback of using the register for this purpose has been the high proportion of persons not enumerable due to insufficient updating of addresses.

(c) The register as a framework for sampling households

In many important surveys the household has served as both the unit of enumeration and the final sampling unit - for example, in the labour force surveys and the family expenditure surveys. The register at the present time is compiled solely on an individual basis, without any cross-reference to indicate household composition. Plans are now being made to use the register of inhabitants of the recently incorporated areas of the city of Jerusalem as a framework to supplement the labour force survey.

(d) The register as a basis for sampling in connexion with the population census

The 1961 census of population and housing in Israel was carried out in two stages: the first, covering 100 per cent of the population, was concerned with collecting the main demographic data, while the second, covering a sample of only 20 per cent of the households, was carried out for the purpose of collecting detailed socio-economic data. The households included in the sample were selected in the first stage by the enumerators, who systematically designated every fifth household in their listing books. The listing of households was in the order of enumeration, for which strict rules were laid down. 13/ Preliminary plans for the 1971 population census envisage the use of sampling with the population register as the frame of reference. 14/

13/ For further details see the paper "Automated linkage of population registers and population censuses", by R.R. Baron. International Symposium on Automation of Population Register Systems, vol. I, pp. 331-339.

14/ The information has been taken from the paper "The Israel population register as a framework for sample surveys", by Gad Nathan and Raphael Raymond Brown. International Symposium on Automation of Population Register Systems, vol. I, pp. 341-348.

4. Experience of the Netherlands

The use of the local population registers - both the local registers and the central register - for statistical purposes in the Netherlands is described by the Central Bureau of Statistics of that country as follows.

The population register system of the Netherlands offers many possibilities from the statistical standpoint. 15/ These include:

(a) The checking of addresses in order that additional information may be sought;

(b) The determination of exact population figures for specific dates in the periods between censuses;

(c) The provision of basic information for the planning of sampling surveys;

(d) The provision of data for the improvement of vital statistics.

The Netherlands is currently in the process of completely automating its traditional system of registers (central and local).

In this process of automating the system, the following basic principles are being observed:

(a) The supervision of the whole system is strictly centralized;

(b) Responsibility for the operation of the system is entirely decentralized;

(c) There is complete uniformity in the system, its procedures and the forms to be used.

Because of their reliability and completeness, the municipal (or local) population registers have become the main source of information for numerous public and private institutions. 16/

In addition, as far as the local administration is concerned, the municipal population register serves as the basis for:

(a) The sending out of notices, certificates and announcements;

(b) The establishment of registers for the town's own purposes;

(c) The conduct of statistical surveys of all kinds.

Fifteen years ago, a private firm, with the permission of the central Government, began introducing the use of computers in connexion with the

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15/ "Short statement on the population registers in the Netherlands", by T. Van den Brink, Central Bureau of Statistics, 5 pages.

16/ See: "Centralization or decentralization of population register system", by Dr. H.J.B. Aarts. International Symposium on Automation of Population Register Systems, vol. I, p. 280.

population registers of many municipalities. This was done, firstly, to replace the statistical work previously done by conventional methods, and, secondly, to provide data for purposes of taxation, elections, military service, medical services (tuberculosis check-ups, vaccinations) and the sending out of notices to heads of households and other persons.

The increase in local-government activity in fields such as school-building, care of the aged, urbanization, industrialization, sociological research and the like has created an increasing demand for data on housing and population.

Since, to a great extent, this information can, with the aid of computers, be extracted from the population registers, the functions and importance of these registers have been greatly enhanced. 17/

5. Experience of Norway

In this country, the local population registers are designed primarily to accommodate local administrative needs - for example, the provision of information to assessment authorities, insurance funds, health authorities, the police and so on. More infrequently, information is furnished to election officials, schools, the military authorities and planners. Any local or governmental agency may, on request, obtain information on individuals from the local population registers.

The central population register was first used for addressing purposes, but the identification numbers which it provided were subsequently introduced into the tax and social welfare administration. These identification numbers have also been used for the National Cancer Register and for the issuance of driving licences and have also been adopted by a number of other institutions.

In the Central Bureau of Statistics itself, the central population register will, in all probability, be used to provide information on certain categories of citizens for administrative purposes (for example: name and address of men and women in certain age groups and/or definite geographical regions). Furthermore, the register will provide an excellent basis for investigations based on samples.

With regard to the statistical uses of the population registers, detailed population and migration statistics to meet local needs are usually compiled by the local register offices, either manually or with the aid of punched cards.

The introduction of the identification numbers and the use of computers make it possible to combine information about the same units which is derived from different sources and relates to different dates or periods. The inclusion of more variables in quantitative analyses of demographic phenomena enables theories and social problems to be studied more extensively than has hitherto been possible. Given proper planning and co-ordination, statistics can be substantially expanded and improved without loss of time and at a reasonable extra cost.

17/ See: "Experience in the use of computers in population registration", by E. Boer, International Symposium on Automation of Population Register Systems, vol. I, pp. 266-269.

The identification numbers have been linked to the 1960 census data on individuals and have been transferred to magnetic tape. As a result, the 1960 data on place of residence, education, occupation and so on can now be combined with the information on place of residence, marital status and the like for the whole population or for specific age groups at any point in time later than 30 September 1964. The identification numbers have also been linked to the 1960 fishery census, comprising about 61,000 fishermen. Although very little information was collected for the new census carried out in 1967, that information will be linked to the 1960 fishery census and will thus enable the desired statistics to be obtained.

As the identification number system has also been adopted in surveys on private consumption, the matching of data from this field with information from other sources will provide a better basis for research on consumption habits.

In 1968, data on the 1967 income of all individual taxpayers, including identification numbers, will be available on magnetic tape from the tax authorities. This will ensure a permanent extension of income statistics based also on data already prepared for other statistical purposes. In a similar manner, specific data on individuals may be obtained from other administrative agencies.

As more institutions adopt the identification number system, the possibilities of expanding and improving statistics will, in principle, increase. Furthermore, the effort required of respondents will be reduced when the information need be collected only once. Population statistics will thus expand far beyond their traditional domain to include social and economic as well as demographic data.

On the basis of the up-to-date information in the individual records of the population register (the situation file), population statistics by sex, age, marital status and residence can be produced for any desired date. Heretofore, detailed statistics of this kind have as a rule been available only in connexion with the population censuses taken each decade.

The organization of a "history file" makes it possible to carry out statistical studies of a topic on an individual basis over a period of time. For example, after a number of years, detailed statistics might easily be compiled showing how many emigrants return to Norway after certain periods of time. Similarly, after a future election, it would be possible to show how many persons did not vote compared with a previous election, with an indication of their age and geographical distribution.

Since information on family relationships is now being collected, statistics on fertility rates in marriage will also in time be improved. Internal migration can in the same manner be studied more intensively than hitherto. This information will also provide a better foundation for preparing population forecasts. 18/

18/ The information on Norway has been taken from the paper "The Norwegian population register system", by Helge Skaug. International Symposium on Automation of Population Register Systems, vol. I, pp. 14-38.

6. Experience of Sweden

The use of identification numbers in the population register of this country makes it possible for each individual to be easily identified and for any changes to be made in the information contained in his individual record. The individual records which contain demographic, social and economic data, thus constitute a fundamental prerequisite for social and economic studies. The identification numbers, and therefore the data which they identify and control, are used for various purposes and in a considerable number of registers. They are used, for example, for administrative purposes by social security agencies, by universities for the registration of students and by the military authorities.

As regards the production of official statistics the identification numbers are used in connexion with vital statistics (for which the population registers are the traditional source), statistics of higher education, labour statistics, consumer expenditure statistics, criminal statistics and morbidity statistics.

Among non-official statistics, they are used for the wage statistics produced by the Employers' Confederation.

The identification number (which is always the same number for the same person) is used, in addition to the population register, in the register of teachers, the register of government officials, the register of academically trained people, the register of medical personnel, the registers of persons insured in the local social insurance offices and the register of persons born on the fifteenth of any month.

The practical applications of the identification number in Sweden include the cross-classification of selected data from the 1950 and 1960 censuses, of income statistics with vital statistics, of causes of death statistics with census data, and of the register of agricultural holdings with population census data.

The population register consisting of persons born on the fifteenth of each month, which is now kept on magnetic tape, is used as a frame in sampling, and its principal applications have been the following:

(a) In connexion with the 1950 and 1960 censuses it was used for processing certain statistics, such as migration, family and income statistics;

(b) During the 1950s, the processing of migration reports at the individual level made it possible for the interregional migratory streams to be mapped out relatively well;

(c) Since this register makes it possible to follow individual persons throughout life, as far as demographic events are concerned, it has also been used for a study of the time span between successive births in marriage in relation to the mother's year of birth, age at marriage and number of children in 1960. Surveys have also been made of the composition of the family and its changes.

The regional population registers have served for some time as a basis for the preparation of the population and housing censuses. As, however, the information in those registers has now been transferred to magnetic tape (computers), it will no longer be necessary to go through the process of extracting personal data from the registers by means of punched cards. In the next census, in 1970, it will be possible for demographic data (in particular, data on sex, age, marital status, nationality and country of birth) to be collected directly from the magnetic tape. These data can then be combined with the information on economic activity, housing conditions and the like which is collected by means of census forms. It is estimated that in the 1970 census the demographic data for 8 million people will not have to be punched on cards. By comparison with the 1965 census, this represents a decrease of 7 million persons for whom individual data cards must be punched, for in that census register data on magnetic tape were available for Stockholm only.

Much more could, of course, be said about the way in which the Swedish population registers are organized and how they relate to such other activities as tax collection and the registration of immovable property which are closely connected with the population registers as regards working methods and the production of information. 19/

E. Uses of population registers for statistical purposes

In chapter II (page 11), some of the statistical applications or uses of population registers were discussed on the basis of the information initially available; these included: population estimation, migration statistics, census planning, census evaluation, sampling frame and genetic studies.

Population registers have thus been used for some time to obtain particular kinds of statistics, especially population statistics. This use has greatly increased in recent years, owing to the introduction of individual identification numbers in the registers and the use of computers.

In page 50, an account has been given, on the basis of more recent information, of how various kinds of statistics have been compiled from some of the more modern population registers (Denmark, Finland, Israel, the Netherlands, Norway and Sweden).

Summing up, the most important of the many statistical applications are the following:

Population statistics: vital statistics, size and characteristics of the population, population changes, migration statistics (internal and external);

Electoral statistics;

19/ The information on Sweden has been taken from the paper "Population registration and its use for statistical purposes", by Rune Tryggveson. International Symposium on Automation of Population Register Systems, vol. I, pp. 375-384.

Social security, health and judicial statistics;

Educational statistics;

Statistics of family income and consumption;

Labour statistics;

Income tax statistics;

Family and housing statistics;

Combinations of statistics: income statistics with vital statistics; cause of death statistics with population census data; statistics on agricultural holdings with population census data (see also: combination of synchronous data, page 55);

Statistics for follow-up studies (demographic, educational, medical, etc.);

Comparison of population register data with census data; supplementing of register data with vital statistics data;

Preparation of population or sub-population lists by address, age groups, sex, etc. for various statistical purposes (inquiries, samples);

Use of the registers as sampling frames.

F. Statistical secrecy

In view of the nature of the information contained in population registers, which is described in some detail in table 5, it is obvious that much of it is of a personal nature, although this does not mean that it cannot be obtained fairly easily from other administrative or statistical sources in a given country.

There has, however, been some concern in professional, administrative and political circles about the possible abuse of such information, inasmuch as the individual identification numbers, which have recently been introduced or are rapidly being introduced in the population registers of countries, and particularly of those which are using or intend to use computers, make it possible to accumulate a great deal of data on individuals, some of which should remain confidential (clinical, economic, tax and similar data).

While, as has been seen, the introduction of computers into the population register system has opened up new and broad prospects for the production of statistics, it has also aroused suspicion concerning the possible misuse of the data collected. In this connexion, it is relevant to quote from a paper which was read at the International Symposium on Automation of Population Register Systems, held in Israel.

"The efficient functioning of government departments which the general interest demands, and the conditions attached to their public functioning - certainly in a country with a democratic government - require that automation

should only be undertaken circumspectly and with the utmost caution. In making use of computerized population files, the government must also remember its responsibilities. This means that the use of computerized population files - i.e., the data provided - should be governed by high standards of accuracy, reliability, discretion and control." 20/

Having drawn attention to the danger, the paper also indicates the remedy: the adoption by the competent government authorities of legislation (which already exists in many countries) designed to guarantee the efficient control of the information collected in order to avoid possible abuses, such as its use for other than strictly statistical purposes (in which the names of the persons concerned are not identified) or expressly authorized administrative purposes. Such legislation should identify the authorities responsible for collecting any type of information and the conditions in which they may do so. Furthermore, the right of citizens to know which bodies and officials are authorized to obtain information and the use to be made of that information should be recognized.

Legislation which guarantees respect for the privacy of information concerning citizens and ensures that this information will not be made available to unauthorized persons or bodies will serve to establish and maintain confidence between the administrative or statistical agencies and the population, thus making it easy for those agencies to obtain the information they need.

It should be added that in practice there have been few major cases of misuse of statistical information by the staff of statistical offices, and, where this has happened, the appropriate penalties have been applied. In the specific case of the operation of population registers in conjunction with computers in a system consisting of local offices and a central office, reference may be made to the experience of one country (Norway), which states the following: "The staff dealing with registration matters... has been very loyal in this respect /referring to the staff's conscientiousness in not providing information on individuals to specific bodies such as insurance companies, advertising bureaux, commercial firms, etc. when they were in a position to do so/. Since the establishment of compulsory local population registers in 1947, no employee has been /accused of/... misuse of information in the service." 21/

The statistical secrecy required in connexion with population registers is the same as that called for in connexion with population censuses. Year after year the experience of all the countries of the world shows that this secrecy is

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20/ "Privacy with computerized population files", by E. Boer, p. 87. International Symposium on Automation of Population Register Systems, vol. I, pp. 85-92.

21/ "The Norwegian population register system", by Helge Skaug, p. 33. International Symposium on Automation of Population Register Systems, vol. I, pp. 13-39.

effectively and jealously maintained in the censuses. There is therefore no special reason to doubt that the same secrecy will be established and maintained with regard to the population registers, irrespective of the means used to process the available data (conventional electro-mechanical means or computers). To sum up, it is merely a matter of inculcating a deep sense of professional responsibility in the statistical and administrative staff.

CHAPTER VII

CONCLUSIONS

On the basis of what has been said in the preceding chapters, the following conclusions are submitted for consideration and future decision to the countries concerned:

(a) Population registers operating within a centralized system, a decentralized system or a combination of both systems and established in accordance with the conditions prevailing in each country can constitute effective instruments for the attainment of their specific ends, which are, generally speaking, of an administrative nature;

(b) They must have a sound statutory basis in which the duties of the public and of officials responsible for the proper current maintenance of the registers are clearly defined and enforceable at law. Without a clear and enforceable obligation it is likely that many of the public would not trouble to notify changes, except in times of emergency, when registration might be a prerequisite, for example, for the provision of food rationing documents;

(c) The base data should be accurate at least to the degree of a good population census. Regardless of whether the data are first collected by means of a fairly short-time census enumeration or an individual registration which may stretch over a longer period of time, there must be provision for a satisfactory means of obtaining and recording subsequent additions, deletions and changes. If the initial registration extends over a period of several years, it must be recognized that many changes will occur during this time and that the information collected at the beginning of the period will already be considerably out of date by the time the last persons are registered;

(d) While it is not realistic to expect that a register, any more than a census, can ever be completely accurate in every respect, very high degrees of accuracy have been achieved in some countries. Contrariwise, there are indications that a number of register systems are totally inadequate for any statistical purposes because they are highly inaccurate, and there is not even any good estimate of the degree of their inadequacy. To avoid such inaccuracy, it is necessary that machinery be provided to ensure that at least vital events and changes of residence are reported promptly and completely and that the information received is recorded as quickly and as accurately as possible. Even in countries with highly developed statistical systems, there is some lag between the occurrence of an event and the consequent changes on the registers. Where methods are not adequately developed, the lag will inevitably be longer;

(e) The successful operation of a population register depends on the efficiency of: its legal basis, its administration and budget, the selection of its staff, the collection and updating of information and the co-operation of the people, who must be properly informed of the usefulness of the registers;

(f) Generally speaking, population registers have produced better results and have operated more efficiently in those countries which have the longest tradition of statistical organization. Countries with a good statistical organization find it easier to organize efficient population registers, and conversely, a good population register can provide useful assistance in the production of statistics in addition to its administrative uses;

(g) As a corollary of the foregoing, countries with an inadequate statistical organization will experience difficulties in establishing a population register, especially on a national basis. If, however, it becomes necessary to establish a population register, either for its traditional purposes or for urgent administrative needs (civil register, verification of elections or tax payments, information on special population groups, etc.) or for other reasons, the register could first be introduced in one or more metropolitan areas so as to provide an opportunity to acquire experience, train staff and gradually expand statistical production;

(h) The preparation and execution of the 1970 population and housing censuses as part of the world programme sponsored by the United Nations provide an ideal opportunity for those countries, which deem it appropriate, to take the necessary steps to establish or improve their population registers;

(i) Although population registers have, since their introduction, been used for administrative purposes, international experience shows that they can be effectively used for statistical purposes;

(j) When a population register is efficiently organized and operated, it can, through the use of computers, be used to:

Produce various kinds of continuous statistics, derived either from information directly incorporated in the register or from information obtained from other sources;

Combine synchronous data from one or more sources for purposes of research and analysis;

Gather together over a period of time independent and isolated items of data concerning the same persons for purposes of follow-up studies;

Evaluate the completeness (enumeration of all units) and quality (accuracy of the information) of the results of population censuses, and, conversely, to update its own records on the basis of the population censuses;

Provide demographic, social and economic data by which the information provided by the population censuses can be updated in the inter-censal periods;

Provide, in such detail as may be required, and on a national or regional basis or for specific sub-populations (adults of a certain age, students, pensioners, military conscripts, electors, indigenous population, etc.), sampling frames for carrying out surveys or for amplifying the information to be obtained by censuses;

Provide, mainly for the urban areas of a country, lists of dwellings (with address, number of inhabitants, etc.) to facilitate the organization of the pre-enumeration phase of population and housing censuses.

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