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**ROLE AND STATUS OF CIVIL
REGISTRATION (POPULATION
REGISTRATION) AND VITAL
STATISTICS SYSTEMS IN NORWAY ***

BY

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0. Summary

In Norway the registration of vital events is very satisfactory. Nordic countries have a long tradition on registration of vital events. The present system is a result of development during several centuries along with the steadily increasing infrastructure. It is now an integrated part of the Central Population Register System.

Norway has a vital statistics system providing statistics of a very satisfactory quality, more than sufficient for most purposes. This is firstly due to a close integration with a well organized civil registration system. Secondly, it is a result of a compilation within a developed population statistics system, with possibilities to check and supplement the information against other sources (medical records, stock data etc.).

1. Introduction

This paper describes the population registration system and the vital statistics system in Norway and the use of these systems. Norway is one of the western countries with a long tradition on population censuses and registration of vital events. Thus the present systems have been developed during many decades. Some main features of this history are sketched here.

This paper also aims to account for the main reasons why Norway has been able to achieve good systems.

Norway is a mainly mountainous country (307,000 sq.km) far to the north, between the 58th and 71st parallel. However, the climate is warmer than the latitude may indicate: the average temperature in July between +17.3 degrees C in the south and +9.1 in the north, in January between +1.2 and -14.8. The country is sparsely settled (4.35 mill. inhab., i.e. 14 per sq.km). About 72 per cent live in densely populated areas with more than 200 inhabitants. More than 90 per cent of the population belong to the Evangelical-Lutheran state church, the Church of Norway. Today Norway consists of 435 municipalities and 1,135 parishes. More than one half of the municipalities have less than 5,000 inhabitants.

Characteristic for Norway and other western countries, especially the Nordic countries, has been the close connection between the civil registration of population and vital events and the preparation of population and vital statistics. From 1735 the church registers were employed on a regular basis. The first population census took place in 1769, the second one (the first nominative census) in 1801. Norway has had a country-wide, compulsory population registration system since the end of the 1940s. Based on this system, which also provided migration data, figures on resident population in each municipality were processed annually, i.e. also for years between population censuses. Hence an account system of the number of residents in each municipality was established.

The present Population Statistics System, processing current population statistics and vital and migration statistics, is closely connected with the Central Population Register (see figures 1-4). This register is a data base which is mainly designed to serve administrative purposes.

One crucial point in the present systems is the national identification number introduced in 1964, providing the possibility of matching different population registers. To secure individual privacy and to prevent misuse of this id.number, an Act was put into force and an Inspectorate for Data Security was established. The use of the id. number is now subject to some restrictions. Work is

being done in order to be able to encrypt registers for statistical combination and use - but probably only where this is found to be necessary.

This paper is an updated and extended version of a paper presented at the Latin American Workshop on the same subject.

2. The population registration system in Norway

2.1 Historical background

Compulsory population registration was introduced in Norway just after the Second World War and has been operative since about 1950, see Hammer & Borgan (1980). Before the war 91 out of about 750 municipalities, covering 38 per cent of the total population, had established a population register on the basis of an optional act from 1905. This act permitted the local authorities to establish population registers on a voluntary basis.

The Act of Population Registers came into force on 3 December 1946, the date of the 1946 Population Census. This Act was superseded by the Act of Population Registration in 1970, but the main contents remained unchanged. According to the law a local population registry was established in each municipality, which is the smallest administrative unit in Norway (435 in 1994).

The present Act of Population Registration is based on two main principles:

- The population registries should be administered by the Directorate of Taxes, which is also responsible for the costs.
- The local population registries are subject to control and directives from a central agency for population registration.

Until 1 January 1991 Statistics Norway had the responsibility to act as a central agency for the local registries. One of the reasons for this was the close connection between activities related to population registers and the compilation of vital and migration statistics. From 1991 the responsibility for this central agency was moved to the Directorate of Taxes. One reason for this is the need for the coordination of administrative and legal matters related to the local offices which are located together with local taxation offices. Another reason is to stress the administrative status of the population registers. The administrative use, which for instance means selling of address information, may not be natural to a central bureau of statistics, and may cause problems and doubts regarding individual privacy.

Statistics Norway should have the same access to the data from the population registration system for statistical purposes after the change of responsibility. Practically this means a rather close contact between Statistics Norway and the central agency for the local registries.

The compulsory population registries were established primarily with an eye to the local authorities, particularly to their need for reliable registration of persons liable to taxation within the municipality, and persons resident in the district who are eligible and can vote. However, the extension of the National Insurance System and the need for homogenous and effective taxation procedures, gradually increased the central authorities' interest for adequate population registration and individual identification.

2.2 Rules in the Act of Population Registration

Organization

In addition to a local population register in each municipality, comprising all residents of the municipality, there must be kept a special central register of persons resident in Norway but not provable resident in any Norwegian municipality. Another register is a central register of residents who have disappeared.

The Government is responsible for the keeping of the population registers and covers the costs.

There has to be a central agency for population registration, named the Office of the National Registrar. The King (i.e. the Government) decides which institution is to be responsible for this office. The Office of the National Registrar is to control the activity of the local registers, to give necessary directives on the population registration (provisions of the act), to decide fundamental questions concerning registration and to solve disagreements between local population registries and between a local registry and residents when the disagreements can not be solved by another authority.

Duty to report and give information

According to the Act of Population Registration the King (The Government) may decide that certain investigations (surveys) (national or local) can be arranged in order to control, revise and supplement the information in the registers. In that case every person resident or temporarily present in the municipality has to give the local registry the following information about him-/herself and his/her household: Full name, date of birth, place of birth, sex and marital status, education, occupation, employer, address (place of residence), religious denomination, citizenship and for migrants to the municipality during the last five years also date of in-migration and where they came from. However, special investigations have not been arranged, but this legal authority was one of those two legal authorities used in the 1970 Population and Housing Census in order to correct the population registers by means of census information. .

Everyone renting out a house or a dwelling to others is obliged to give information about the actual persons to the local registry.

A person who moves within a municipality is obliged to report the change of address directly to the population registry within 8 days. When a person moves to another municipality, he/she is obliged to report for himself/herself and his/her family to the local registry where he/she settles down within 8 days. (They are considered to be residents of the other municipality from the date the report was received, i.e. usually not from the real day of migration.)

A person (alien or Norwegian) coming to Norway from abroad intending to stay in the country for at least 6 months, is obliged to go to the actual local registry within 8 days bringing identification documents. All persons who emigrate to another country or intend to stay abroad for at least 6 months are responsible for reporting this in advance to the local population register.

If the in-migrant is not a Nordic citizen, he/she cannot be a resident until he/she has been to the Police Foreign Department and has a residence permit. Persons coming from a Nordic country must have an "inter-Nordic" migration certificate, according to the agreement between Nordic countries. This agreement implies a coordination of the rules of registration of migrants between

these countries, even if each country generally has different time limits for registration of in-migration/immigration.

Furthermore, ecclesiastical and other official registrars and also every official authority are obliged to give to the local population registries all reports and information needed for their work. About reports on births, deaths etc., see section 2.7.

Other information

The local population registries may also receive information on residence etc. from other sources than mentioned in the Act, e.g. the postal services, which can be used to inquire whether a person is living within the municipality. However, so far Norway has no common form for reporting change of residence to the post services and to the local population register, like in Sweden.

Some people may find reasons for not giving information on where they live. There are no strong means to compel a person to register, but lack of correct registration may cause trouble in getting the mail to the right place for different municipal and governmental agencies, e.g. the National Insurance. One problem may be that foreigners leave the country without reporting to the local population registry, and it may take some time before the registry gather enough information to register them as emigrated. This has been a steadily larger problem during the last seven years because of the practice in this period to register asylum seekers as a resident before his/her application has been considered. However, this practice will come to an end from 1 January 1995. A secondary result of the 1970 population census was that about 8,000 of the "residents" in the Central Population Register (CPR) proved to have emigrated.

Neither the 1980 nor the 1990 census was used to correct the population registers. A reason for this in 1980 was a fear of negative effect on the response rate and on the quality of information given on the questionnaire distributed by mail. Another reason was that the quality of the CPR was considered satisfactory for statistical purposes. The 1990 census could not possibly be used for that purpose in a total scale, as less than 30 per cent of the adult residents got a questionnaire, because of sampling. Obviously the registers now comprise too many 'residents', maybe 10,000.

2.3 The national identification number (birth number)

The introduction of a permanent identification number for the whole population of Norway and the establishment of a central population register aimed to favour both statistical and administrative purposes. The direct occasion behind the start of work on a permanent identification number in 1961-1962 was a suggestion from the trade and industry organizations to the central governmental administration in order to rationalize the current work with reporting employees to the public (use of only one number for each person).

The individual number system is now widely used by governmental authorities. Statistics Norway strongly supported the establishment and maintenance (continuous) of a central population register because of the future possibilities in processing statistics. A central register was established in 1964.

The national identification number (in Norway officially named "birth number") consists of 11 digits and is constructed like this:

<u>Date of birth</u>			Individual digits	Check digits
Day	Month	Year		
10	09	43	419	01

The last one of the individual digits indicates sex. If the person is a woman, the number is even, otherwise the number is odd. Persons born in the 19th century are assigned numbers within the 500-749 range, and those born in the 20th century are assigned numbers in the 000-499 range.

Information on date of birth (and sex) in the id.number was considered to be suitable because date of birth usually has to be given on all forms and notifications/reports concerning statistics on persons. A drawback is that such an id. number has to be changed when incorrect information on date of birth or sex is detected. However, a neutral number series 1- 9,999,999 (possibly with a check number added) was not considered a better solution, see also Karlsen & Skaug (1968).

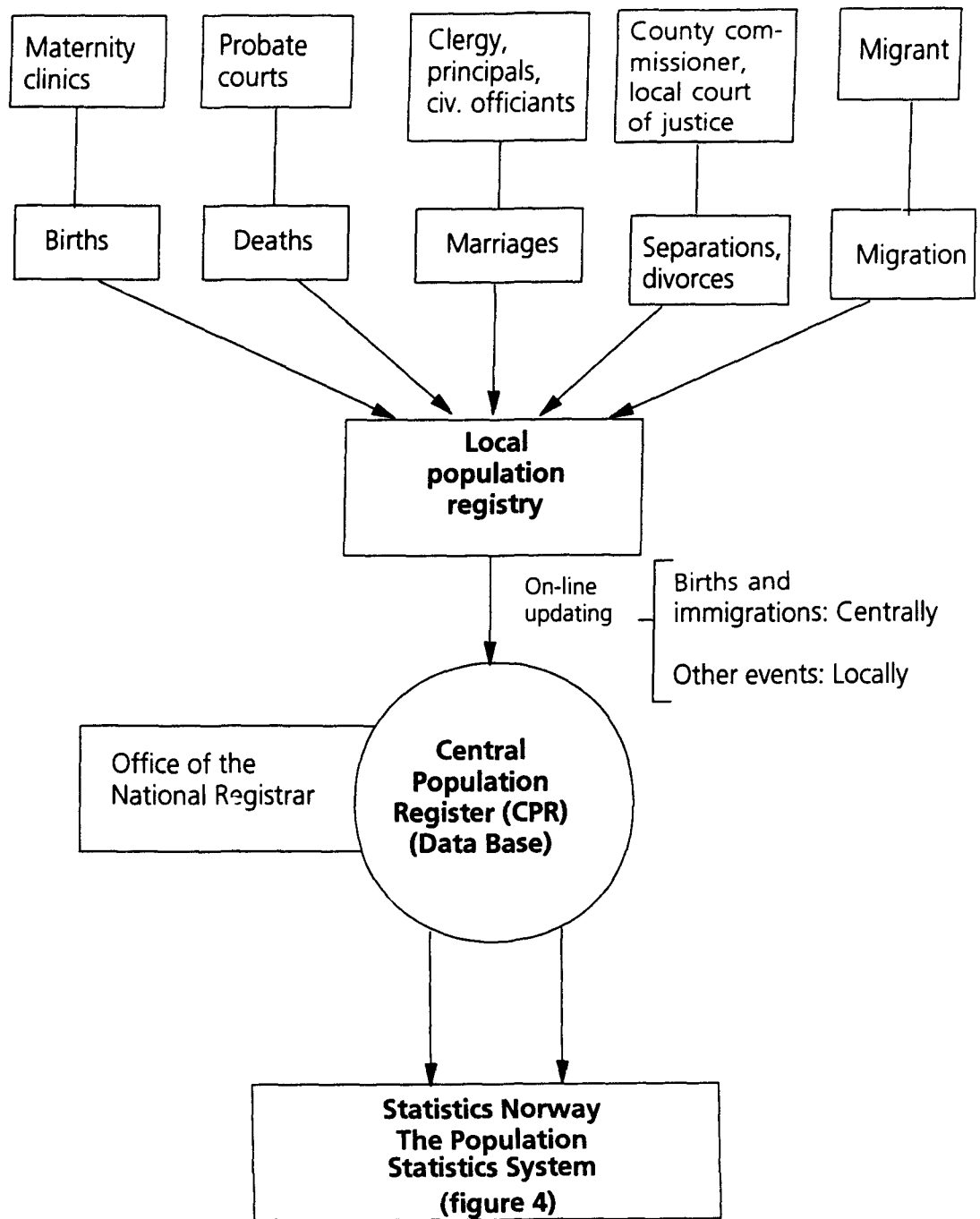
The check digits, which are calculated by two separate computer routines, are included to detect registered id.numbers which are not correct. Using one check digit it was estimated, based on experienced quality of id.numbers, that about 1 of 2,000 incorrect id.numbers (because of incorrect data or inaccurate registration) would pass through the control without being detected. Using both digits only 1 out of 100,000 incorrect id.numbers will pass through without being detected. The background for having two check digits was the planned extensive use of this number system for administrative and statistical purposes, and that accurate identification was considered important.

All id.numbers are being assigned by the Office of the National Registrar, where a computer routine keep in check assigned and not assigned numbers for each dates of birth. An id.number ever assigned to a person will never be reassigned to another person, even if the former is dead, has emigrated, disappeared etc. The id.number can only be changed by secret adoptions, wrong date of birth or wrong code for sex, and is therefore a near 100 per cent stable identification number securing correct identification and combination of information when this is necessary and legal. Furthermore, all changes of id. number, except for secret adoptions, are kept on a so-called "link file" and is being used e.g. to facilitate matching of individual records for statistical purposes.

The id.number is most frequently used on identification documents. The public is not obliged or expected to know nor remember their own id.number, but several people do so. The number is available from several sources, e.g. from the local population registry and on the notice of assessment. This id.number is now also used as an internal identification in many registers established both by governmental and private organizations. Furthermore the id.number is an entrance key to registers and a linking key when two or more registers are going to be linked.

The Act relating to "Personal Data Registers" from 1978, in force from 1980, regulates the use of this id.number and also use and matching of population registers or registers containing "information and evaluations which are directly traceable to identifiable individuals, organisations or foundations". All agencies establishing a population register need a concession from the Inspectorate for Data Security. However, some of them has got a more general concession. One aim of the law is to restrict the use of the identification number. Statistics Norway has therefore been working on a plan to replace this number by an encrypted number in different population registers. The encryption procedure will hide all identification of individuals, but at the same time allow matching of files within the same encryption series. This procedure is already in use, but only on a few data sets so far. What will be the future is not clear.

Figure 1. The Population Registration System in Norway



2.4 Rules for registration

In the provisions of the Act of Population Registration there are rules which decide in which municipality a person is going to be registered as a resident. These rules also establish the criteria to register Norwegians and aliens immigrating to Norway. The decisive factor is that the intended stay in Norway is at least 6 months. This rule has been applied even for persons who have not yet been granted permanent residence in Norway according to the Act regulating immigration - a practice which have been questioned by some users of data from the population registration.

The main criterion to decide for which municipality to register is the place where the person mainly resides during the day and the night, in particular where he/she "takes his/her night rest". However, there are exceptions. Spouses must be registered where they have their common home, even if one of them often may be taking the night rest some other place, e.g. place of work. Seamen have to be registered together with their family. Students, persons liable for military service, hospital patients and prisoners must generally be registered at the place where they were staying before the change of residence. A foreign diplomatic agent, his/her family and the staff of the mission will not be registered in Norway at all. On the other hand, a Norwegian diplomatic agent staying abroad, his/her family and the Norwegian staff at the mission will be registered as residents of Norway.

2.5 The organization of the local registries

The local population registries must carefully note all information on individuals which they receive from different sources. Until 1991-1992 most of them kept and maintained a manual, i.e. a not computerized population register. This comprised a main card for each family with information on name, address, marital status, place of birth, and if relevant, information on the spouse and the children. Main cards for resident persons (arranged geographically) and for person who have emigrated or are deceased were arranged in separate divisions. Moreover, each office had a name card register (arranged alphabetically) comprising all persons who was, or once had been registered as resident in the municipality. References were given from the name cards to the main cards.

The local population registries gradually changed the manual system into an on-line system connected to a new computerized central data base located in the Directorate of Taxes (managed by the Office of the National Registrar, belonging to the Directorate of Taxes since 1991). From March 1995 this central data base will fully replace the former CPR data base constructed in 1985. Since 1993 all the local population registries have been completely computerized. This means that the former manual local population register has changed to a terminal with on-line connection to the central data base. This change is also closely connected to the introduction of a simplified, computerized tax return.

Except for the four largest municipalities in Norway the local population registry is administratively combined with the local tax office.

2.6 The Central Population Register (CPR)

The Central Population Register (CPR) keeps record of all national identification numbers (id.numbers) assigned since the start in 1964. A certain number may never be assigned to more than one person, even if the first person is dead or has emigrated. The CPR was established on the basis of the Population Census in 1960 and comprises all persons having ever been registered as a

resident of Norway after 30 September 1964. Records on deceased or emigrated persons, even records with incorrect id. numbers ever used, are still kept physically in the register, but are properly marked (see «registration status» in annex). Thus in 1994 the CPR comprises nearly 6.0 million records, even though the resident population is still under 4.35 million.

In addition to the id. number the register contains i.a. name, address, citizenship, marital status and family relations (children - parents, wife - husband). One important feature is the date attached to most of the variables and some more technical information (see also annex). The attached dates have proved to be very important in order to maintain chronology and consistency in the registered data.

The costs establishing the CPR in 1964-1966 amounted to 5.6 million Norwegian 1966 kroner, i.e. about 800,000 US \$. About 1/3 of this were estimated costs when introducing the id. number system at the local population registries, about 1/3 were machine costs (computer, punching machines) and the rest were expenses of punch cards, tapes and overhead costs.

The register was originally established within Statistics Norway as batch oriented files. In 1985 it was reconstructed as data base established on the National Computing Centre (Honeywell-Bull mainframe) using Cobol/TP. The data base language was IDS-II which is a so called network data base. This solution is effective for interactive use, but less effective for logical and sequential running. The national identification number is the main key, but in addition it is possible to search on exact name, phonetical name, birth date or to go from one person to another via family relations. To identify a family you have to know the structure of the data base very well, but the structure is flexible because of the relations linking persons together. Until March 1995 this data base is still the actual data source for current population statistics, including vital statistics, as the National Computing Centre so far will serve as a distributor of CPR-data from the new CPR data base in the Directorate of Taxes. From March 1995 Statistics Norway will get all information needed directly from this new CPR.

The CPR data base from 1985 contains only a little historical information on each individual for the period 1964-1985, except for name history from 1 January 1983 and address history from 1 January 1985, established for administrative purposes. Therefore historical data for statistical purposes has to be organized in other files.

Between 1985 and 1993 the CPR was maintained and updated daily or weekly with information from all the local population registers. The data base was updated partly interactively from terminals at the Office of the National Registrar, partly by tapes or on-line from a "Taxation register" in the Directorate of Taxes (The taxation register and the CPR had on-line connections). About 20 persons at the Office of the National Registrar were employed with on-line updating of the CPR with births, deaths, immigrations, contracted marriages, separations, divorces and changes of name. The work of this staff also included preparation (coding etc.) of some data from these notifications which were to be used for statistical purposes only, i.e. information which was not used to update the CPR. The updating from the Directorate of Taxes comprised internal migrations and emigrations, which amounts to about 500,000 transactions a year.

The new CPR is constructed on an IBM mainframe using DB2. Since 1993 all local population registries are connected to the CPR via terminals. Most updating is done locally, see figure 1. However, all births and immigrations are updated centrally, because all national id. numbers are assigned centrally.

2.7 Notifications on vital events and migration

Statistics relating to births, marriages and deaths were, up to the end of the 1960s, based on returns from the clergy responsible for the clerical registers on births, marriages and deaths. The first general directive to the Norwegian clergy to keep records on births, marriages and deaths was given in 1685. From 1737 the church registers were employed regularly as a basis for vital statistics. Up to 1865 the clergy submitted overall returns of births, marriages and deaths, but in 1866 they were directed to submit nominative returns in the form of extracts from the church registers. Marriage ceremonies performed by the clergy of non-conformist churches under the Dissension Act of 1891 and civil marriages entered into under the provisions to the clergy and were recorded in the church registers.

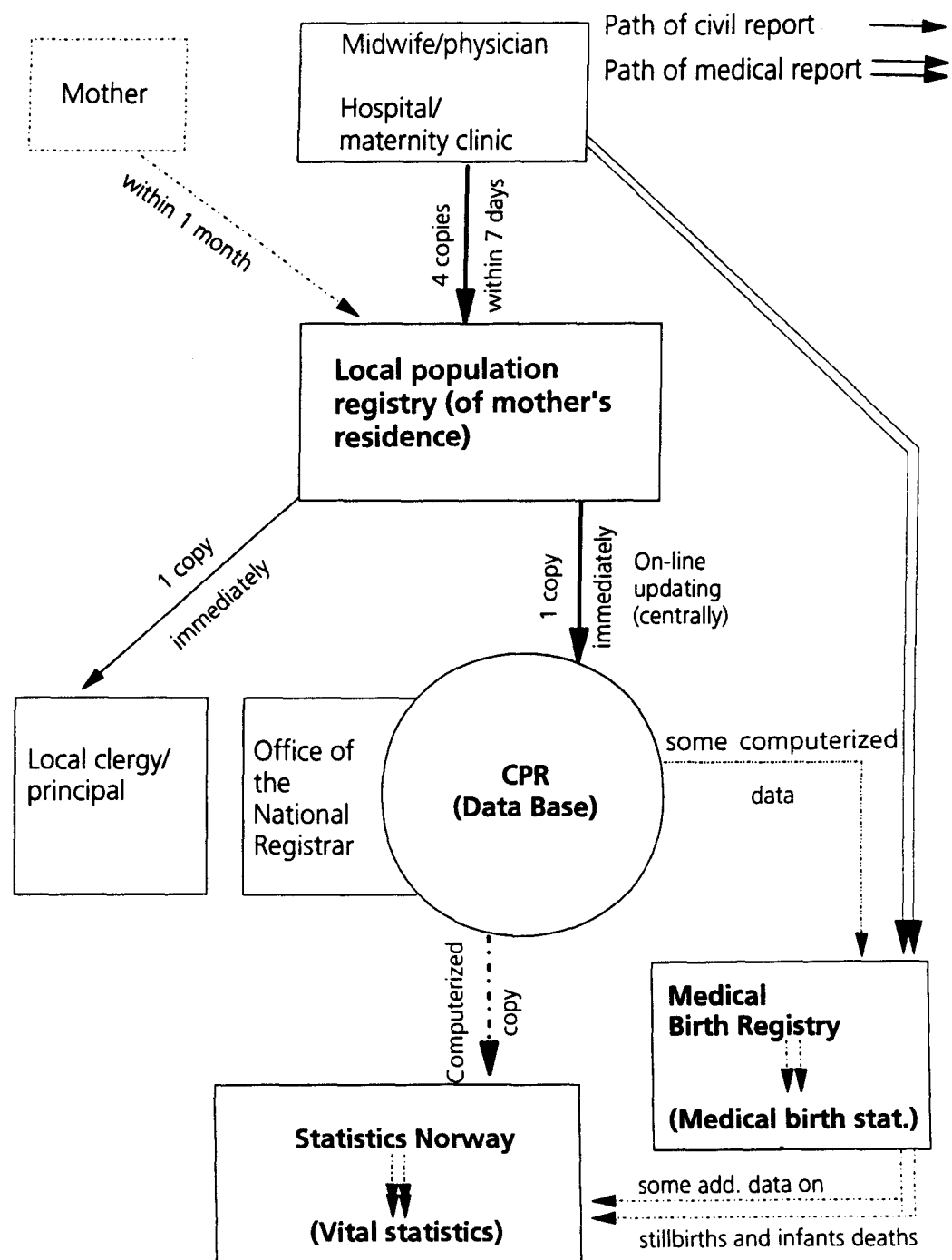
Births

Civil registration of births was introduced from 1916, the local clergy acting as registrars. The reporting includes all live births (i.e. foetus showing evidence of life at birth) and all stillbirths (i.e. foetus showing no evidence of life at birth after 28 weeks of gestation). The midwife or physician who is present at the delivery is, as soon as possible and within one week, obliged to submit the notification (the form "Melding om fødsel") in 4 copies ("snap set") to the local population registry where the mother is resident (a rule from 1968), see figure 2. If neither a midwife nor a physician is present, the mother herself is obliged to report to the local population registry within one month. In almost all cases a midwife or a physician is present, as almost all deliveries take place in a maternity clinic or during transport to a clinic.

According to the provisions of the Act on Population Registration the local population registry sends one copy (the "original") of the form "Melding om fødsel" to the Office of the National Registrar and one copy to the local clergy/principal as soon as possible. The "original" is kept and filed by the Office of the National Registrar. For births out of wedlock (illegitimate), the midwife is also obliged to report to the court collector (dealing with cases of paternity). The name of the child is updated locally. (The name of the child has to be reported to the local population registry within 6 months after the birth. Names are usually reported by the clergy, as a majority (about 80 per cent) of the children are baptized within a few months.) Live births only are given an id. number and are getting a record in the CPR. All births are to be entered in the civil birth register, regardless of parents' religious denomination. For nonconformists, the local national registry also must report the birth to the principal of the congregation. A similar exchange of data apply to other vital events.

In addition to the civil registration of births described above there is (since 1967) a compulsory medical registration of all births (live births and late foetal deaths aged 16 weeks or more) where the delivery takes place in Norway. The form ("Medisinsk registrering av fødsel"), which is also filled in by the attending physician/midwife, is forwarded through the Medical County Health Officer to the Medical Birth Registry. This data set represents a separate source of birth statistics. At the moment, tables on births by parity are processed on data from the Medical Birth Registry and published as a part of the vital statistics. These medical data on births are currently being linked with data on deaths from Statistics Norway. However, exchange of notifications between the Medical Birth Registry and Statistics Norway in order to check individual data are limited to preparing the statistics on perinatal deaths. The medical data on births include information on whether the parents are cohabiting. As more than 40 per cent of the births now are registered as out of wedlock (i.e. the woman was not married at delivery), this information is useful, showing that a large majority of these children have cohabiting parents.

Figure 2. Path of official registration of births



Deaths

All deaths must be notified to the probate court (in rural districts to the local police) in the community where the death occurred, before burial can take place. From 1939, usually a medical certificate is presented to the probate court on the form "Legeerklæring om dødsfall/melding om unaturlig dødsfall" (i.e. Medical declaration of death/death by unnatural causes), containing information on the place of death (at home, other place outside hospital, during transport to hospital, in hospital) and cause(s) of death. At the funeral the probate court is obliged to send this medical declaration to the Public Health Officer who has to forward it to Statistics Norway after supplementing the information on cause(s) of death. This medical declaration is the basis for the probate court to sign the civil report on death on the form "Melding om dødsfall i bostedsdistrikt". Copies of the civil report has to be sent to the clergy at the place where the funeral is to be held, to the social security office and one immediately to the local population registry, which carries out the on-line updating of the CPR and files the report. Three copies are kept by the probate court.

During the preparation of statistics on deaths in Statistics Norway, civil notifications on deaths are linked with medical notifications in order to be able to ask for missing notifications of both kinds. In this way some 50-100 civil notifications are each year traced and carried to the data sets.

Marriages

Report on contracted marriage is from 1965 given by the officiant performing the ceremony, directly to the local population registry on the form "Melding om vigsel", which is a part of the "snap set" named "Vigseldokument". If bride and bridegroom are resident in different municipalities, the form was to be sent first to the local population registry where the bride was resident and later to that of the bridegroom's residence, for check and additional information. Now this is being communicated on line. The local registries take care of updating the CPR and file the report.

Civil officiants and the principals of religious bodies separated from the Church of Norway, have also liability to report marriages to the clerical register of the parish.

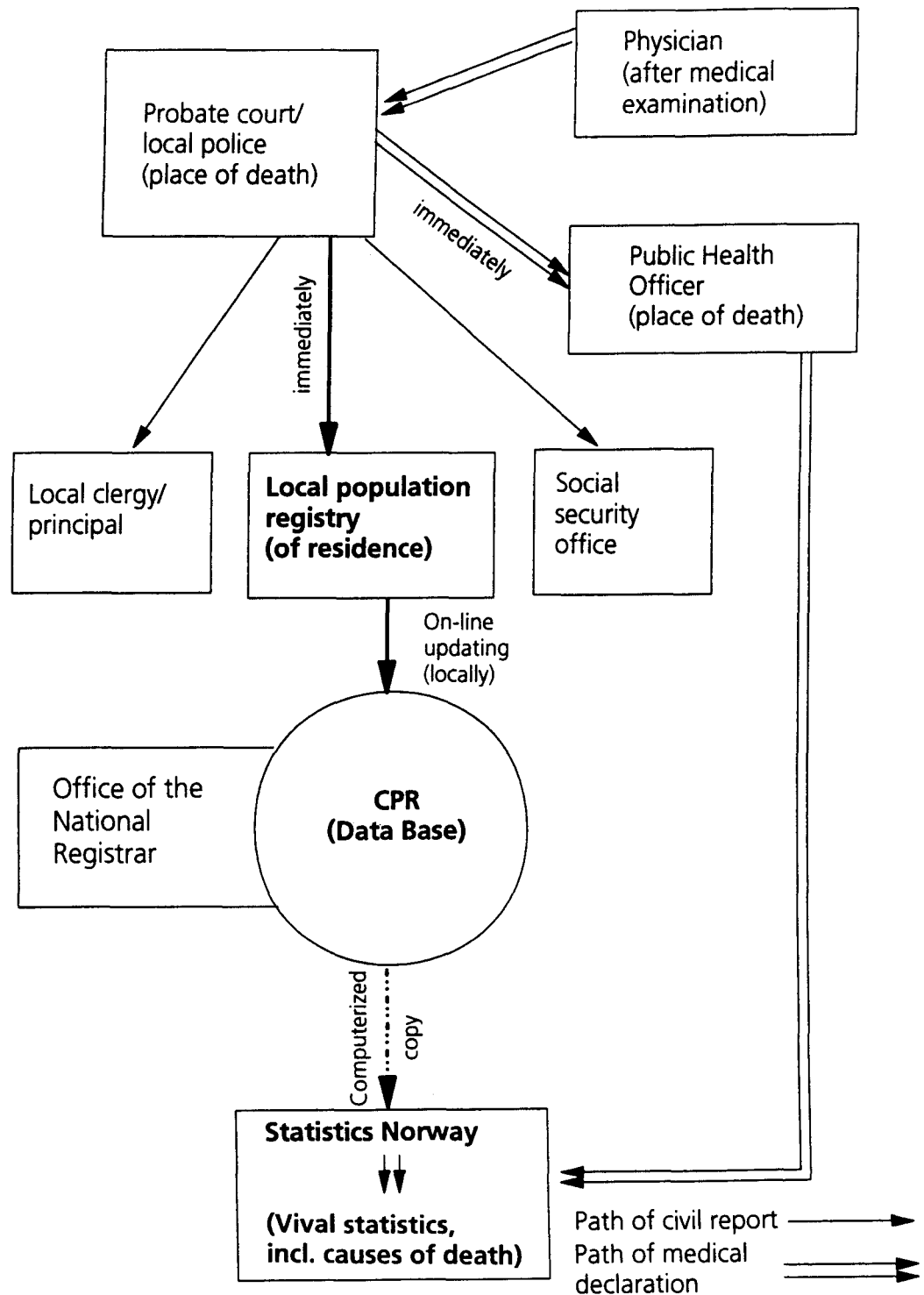
From August 1993 an Act on registered partnerships for homosexual couples entered into effect. Reports on contracted partnerships are received by Statistics Norway which compile statistics.

Divorces and separations

Report on divorce or separation are sent from the County Commissioner and from the local court of justice to the local population registry on the form "Melding om separasjon/skilsmiss/omstøtelse av ekteskap". This form is also used for annulment of marriage. If the two parts are resident in different municipalities, the report was first sent to both of the local population registries, like the procedure for marriages. Because of this forwarding some reports might be somewhat delayed and cause late updating of CPR. With on-line communication is this problem smaller.

Separation is a state where husband and wife live apart. The two parts are not obliged to report to the local population registry if they move together again. However, the local population registries sometimes distribute a request on stop of separation (the form "Forespørsel/melding om opphør av separasjon") to suspected persons being registered as separated. The actual persons are requested to return the form to the local population registry which take care of updating the CPR.

Figure 3. Path of official registration of deaths



Vital events concerning Norwegian citizens abroad are reported to the Office of the National Registrar via the Ministry of Foreign Affairs.

Migration

Notifications on migration are mainly based on information from the migrants given at the local population registries (duty according to law). However, some notifications are based on information from other sources. Notifications on internal migration and emigration were until 1993 sent to the Directorate of Taxes, and registered (read) optically. After inclusion in the Taxation Register they were conveyed to the CPR via on-line connections. Before the notifications on migration were used for batch-updating of the CPR, they were checked, also in order to secure consistency and chronology. Some notifications might be much delayed, which may result in incorrect regional location of vital events, as this information was taken from the CPR, not from the notification.

Now notifications on internal migration and emigration are subject to local updating, while immigration is updated centrally.

2.8 Experiences from civil registration

The directives given in the 1680s contained no provisions about how the records of births, deaths and marriages should be maintained. Therefore the records were maintained heterogeneously and were often rather incomplete. In order to better the situation, rules were provided in 1812. According to the rules of 1877 separate records should be maintained in each parish (about 1,000).

Major problems in connection to civil registration belong to the past. As described above the duty to report vital events is connected to the primary source, which is an official authority (midwife/physician, County Commissioner etc.). The notifications are received by the local population registries, which are all permanent offices. In smaller municipalities the local population registry is, for practical purposes, administratively combined with the tax office. This has ensured a high degree of uniformity in the practical register routines in the different municipalities. Thus no part-time registrars are used for civil registration only.

In the smallest municipalities (with 200-300 inhab.) the total number of vital events may be less than 10 a year. This is no problem, as the registrar is a full-time employee with additional tasks. Generally, the registration of vital events is even more complete in small municipalities than in the larger ones, as a small community is more "surveyable", and because information received by the taxation officials may be taken into account.

The coverage of the reporting of vital events is very satisfactory, close to 100.0 per cent (see also item 3.2). However, notifications on marriages and divorces may be somewhat delayed, because registration may be necessary in two local population registries if the persons involved are resident in different municipalities. In fact, the delay of vital notifications does not vary by region, urban/rural district or season/weather. There is no regular communication problems. Even in the most typical rural districts the infrastructure (roads, electricity, telecommunications) is very well developed, as a result of a conscious, regional policy. The Sami (Lappish) minority in North Norway does not represent any problem to CR, as this minority now is fairly well integrated in the Norwegian community. However, they have their own parliament. The difference between the date of the event and the date when the notification is received by the local national registry is

regularly controlled by the travelling inspectors of the Office of the National Registrar. Variations are occasional, due to mistakes etc.

2.9 Use of the Central Population Register

The CPR is the main basis for current demographic statistics in Norway. This register system contains stock data (for population and family statistics) as well as flow data (for vital and migration statistics). Furthermore it is important for use in other statistics and in sample surveys. Several governmental agencies have direct access to information in the data base. Also private companies and persons may have access to some of the information in the register.

Secrecy

The entire staff, local and central, attached to the population registration in Norway is strictly bound by professional secrecy. According to the present regulations, the staff is only permitted to give private persons and companies the last address and the national identification number of "name-mentioned" persons. That means that the description of each person for whom the last address or individual number is wanted, must be sufficient to identify him/her. A list of possible persons and data on all these cannot be given.

Public authorities, however, are entitled to have the information they need for use in their work. Data from the CPR may also be placed at the disposal of researchers, depending on the purpose/use and provided that this will not harm the residents. Residents can have their address blocked, after a well-founded petition.

User service

The Office of the National Registrar (from 1991 placed under the Directorate of Taxes) manages and is responsible for the data in the CPR which has since 1985 been operated by the National Computing Centre. Until March 1995 a certain agreement between the data owner (the Directorate of Taxes) and the operator regulates the user service from the CPR. This means that all access to CPR-data has to be approved by the Office of the National Registrar through a specified application. The application form is available from the National Computing Service, which is responsible for the practical connecting of users.

Data from the CPR can be reached on-line from a terminal or via programme-to-programme communication. Data can also be delivered through batch-sessions. From March 1995 there will be three different distributors from the new CPR (located in the Directorate of Taxes), among these the National Computing Centre.

Fields of use and users

Data from the CPR are mainly used for the following purposes:

- * Verification of information given by customers of the user of CPR-data
- * Updating of users registers
- * Automatic registration of basic information
- * Finding correct national identification number (id. number)
- * Finding correct address, incl. dealing with returned mail

Important users via the National Computing Service are:

- The Police Computing Service
- The Directorate of Roads (names of driving licence holders)
- Town treasurers
- The governmental agency for collection of payments
- The National Broadcasting Corporation, licence office
- Hospitals (name of residents in the district)
- Banks
- Insurance companies
- Commercial inquiry agencies

Important users of CPR-data not connected to the National Computing Centre are the National Insurance Administration, the School Enrolment Authorities and the Conscription Service. Along with Statistics Norway these agencies will have their own connection to the new CPR from March 1995.

Another use of CPR-data is the processing of lists of persons entitled to vote. Situation files which are more than 5 years old have to be handed over to the National Archive. These files will later be an important source for tracing ancestors.

Cohabitation without marriage, which is a rather frequent phenomenon in Norway (applies to about 25 per cent of couples aged 20-44 years), is not registered (directly) in the CPR. Information on cohabitation is often requested, for both statistical and administrative purposes. For some purposes, e.g. related to the National Insurance Administration, cohabiting couples without marriage who have been cohabiting for at least 2 years are given the same status as married couples. Hence information on registered address in the CPR has been used as a basis for classification.

3. The Population Statistics System

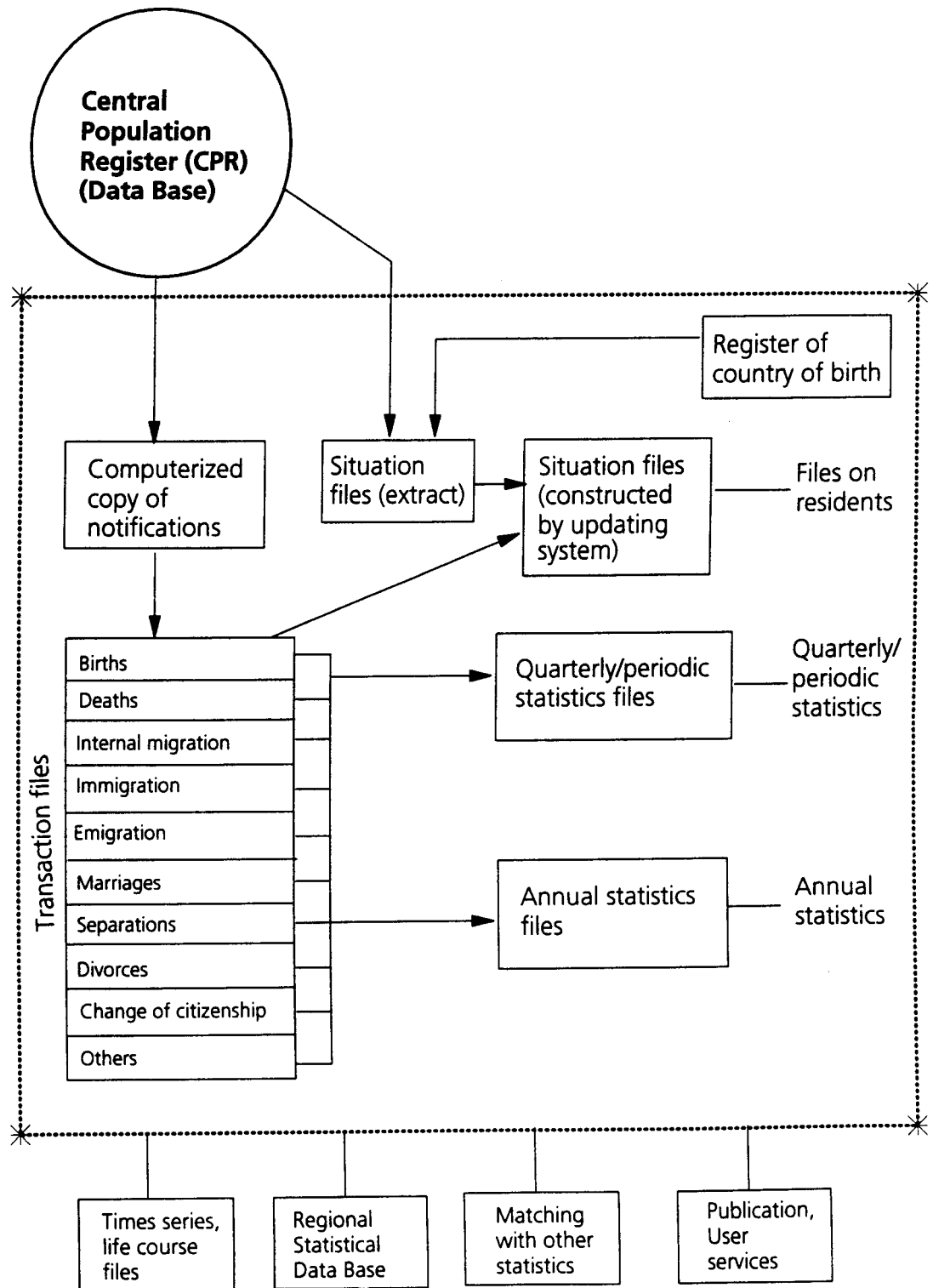
3.1 Background and organization

Statistics Norway is responsible for almost all official demographic statistics, including vital statistics. As the CPR data base established in 1985 is most efficient for interactive on-line and administrative use, it was decided to develop a separate production system for current population statistics (stocks and flows) within Statistics Norway (see figure 4). The aim of this system was to produce traditional demographic statistics in an effective way, but also to secure data for use in other statistics based on data related to individuals, e.g. census data and data on education, income etc.

The system was developed on an IBM 4381 mainframe (later Comparex 8/81), mainly using key sequential files (VSAM). A documentation system (meta data system) was used for easy updating and retrieval of data by means of a menu driven system. For retrieval the programme language Easytrieve Plus has been mainly used.

A new system will be developed during 1995. This will consist of an Oracle data base on UNIX using client/server based system.

Figure 4. The Population Statistics System in Norway



The core of the Population Statistics System is a situation file and several files on transactions (notification registers). The input to the system has come on a regular basis from the CPR.

Situation file: One extract from the CPR once a year with reference to the situation by 1 January, updated with notifications received till 1 March (concerning events taking place before 1 January), in order to be sufficiently complete. Before 1991 the extract was taken with notifications received until 1 April. The quality seems to allow this earlier extraction of data. Thus the vital statistics for the year 1990 could be released earlier than previous years, without a loss of quality which is worth mentioning.

3.2 Contents and quality

Coverage: Total resident population.

Variables	Age (from the id.number)
(examples):	Sex ("-")
	Citizenship
	Marital status
	Municipality
	Basic unit (enumeration district)
	Country of emigration
	Number of children (ever born to each woman)
	Family code
	Id. number of spouse
	Id. number of father
	Id. number of mother

Important: Date of registration is attached to most variables.

Transaction files: One file every month - a copy of the transactions used in updating the CPR. Files are split into the following types:

	Approximate number of events/records per year
Births:	60 000
Deaths:	45 000
Marriages:	2*20 000
Separations:	2*12 000
Divorces:	2*11 000
Migration between municipal.:	170 000
Immigration:	25 000
Emigration:	15 000
Change of citizenship:	5 000

The files are accumulated with notifications received from January one year to the end of February the next year to produce final annual statistics on births, deaths etc. taking place in the calendar year. To allow for events on delayed reports, notifications on vital events in calendar year n received later than 1 March year $n+1$ are included in the transaction file for calendar year $n+1$. However, the amount of these "late" events is insignificant for most purposes, e.g. about 100 births per year (i.e. 0.17 per cent), about 150 deaths (0.33 per cent), about 300 contracted marriages (1.5

per cent) and about 200 immigrations (0.8 per cent). On the other hand, complete datasets are important in some studies, i.e. in life course analysis. Thus, in life course files of the Population Statistics System all reported events are included and referred to the correct calendar year.

3.3 Some features of the system

a) Check of completeness and consistency of the files: The files are controlled for missing information, logical errors and correct sequence of notifications (e.g. is date of marriage before or after registered migration? The notifications are often received in a non-chronological order.)

b) Documentation of files for easy retrieval and processing: Each variable is documented using a documentation system developed in Statistics Norway. The retrieval programme which is mainly based on Easytrieve Plus uses the documentation for e.g.:

- * Selection of content of tables
- * Aggregation of variables
- * Coding and regrouping of variables
- * Matching of files
- * Output to paper or file

c) A system for updating the situation file to an optional date: By means of the notifications of births, deaths, marriages, separations, divorces and migrations in combination with the situation 1 January, it is possible to construct a situation file as per any date of the year, e.g. 15 February. This system is useful to give (offer) population figures as a data base in other statistics or for matching with files on e.g. education or income. The updating system may be used to construct situation files back to 1985.

d) Basis for production of statistics in printed tables or as files for input to other systems: Tables for printed publications or user ordered table packages are produced on the mainframe by standard tabulating programmes. Files are also delivered to the Regional Statistical Data Base (RSDB) and distributed on magnetic tapes or diskettes.

e) Basis for the matching of files with other files: Both the situation file, the updated situation file and the separate files of transaction may be matched with other files when necessary. At present this is done by means of the national identification number (id.number), but work is being done on a system of encryption of the number to secure individual privacy even better.

Some of these files play a central role in producing census statistics, see also Furseth, J. (1991).

Extracts of the files are also used to update historical files and files on individual life courses (see section 3.4).

3.4 Products and users

Most official statistics are given for the 435 municipalities as the lowest level. Much effort has been done in developing statistics for parts of municipalities as a basis for local planning. These statistics are mainly connected to a system of about 13 500 basic units. During the last decade these units have been used in the population censuses and in current population statistics, and will now be applicable in vital statistics.

The main channels of publication of vital statistics are:

- * Quarterly statistics on births, deaths (provisional figures for last quarter, final figures for previous quarter). Published in Weekly Bulletin of Statistics and in Regional Statistics.
- * Annual publication Population Statistics Volume III Survey. Separate chapters on births (live births, late foetal deaths), deaths (incl. marriages contracted, marriages dissolved (by death and divorce; separations)
- * Annual publication Health Statistics. Tables on births and deaths related to health: Births by gestational age and birth weight, abortions, perinatal and infant mortality
- * Tables in Statistical Yearbook of Norway
- * Survey publication every 5th year
- * Contributions to the Social Survey publication
- * Contributions to international organizations
- * User-ordered table packages
- * User services; about 2,000 man-hours every year to answer requests by mail or telephone. Most of these man-hours are free (not charged for).

Figures on marriages, divorces and separations are published only once a year, because these notifications come something later than those on births and deaths.

The main user groups are:

- | | |
|------------------------|-----------------------------|
| * The Government | * Trade and industry |
| * Politicians | * Universities, researchers |
| * Local administration | * Students |
| * Mass media | * The ordinary public |

3.5 Input to files for life course analysis

A file of mothers was constructed in 1985 on the basis of data from the Central Population Register (CPR). The file comprises all women born after 1920 resident in Norway. This file has later been updated with mothers and births up to 1992. Identification is the national identification number (id.number) of the woman (mother). The file contains:

- * Id.number of the woman
- * Marital status of the woman
- * Date for (last change of) marital status
- * Registration status (i.e. resident, dead, emigrated)
- * Date for registration status
- * Municipality of residence
- * Number of live born children
- * Id.number of each child
- * Code for children born abroad
- * Id.number of father of each child

The file contains only information on women who have been registered as a resident in Norway after 1 November 1960, but also for these women some information may be lacking. Back to year of birth 1953 almost all births (at least 98 per cent) are linked to the mother. Before 1953 the per cent of linked births declines rapidly. This file, partly in combination with information from the population censuses in 1960, 1970 and 1980, has proved to be useful for demographic analyses of

fertility, marriage and divorce histories, see e.g. Brunborg & Kravdal (1986), Kravdal & Noack (1988) and Kravdal (1989).

A file of fathers has also been constructed. It is organized like the file of mothers and represents a source for birth and marital histories for men. (A similar approach has been taken when constructing a migration history file, containing migration histories for all persons resident in Norway since 1967.)

A file of children has also been established. This file contains selected cohorts of children. Examination of the history of each child will give useful information on changes in family relations, mothers and fathers situation (marital status, migration, education, income etc.).

The construction of the migration history file and the file of children have been initiated and partly funded by governmental users interested in the process of migration and the welfare of children. One background for this is the growing instability in the Norwegian society related to family formation and dissolution, and partly migration.

3.6 Input to the Regional Statistical Data Base (RSDB)

RSDB is a system for storing, retrieving and processing regional statistics. The data base consists of disaggregated statistical tables at different regional levels for different years. There are more than approximately 150,000 elements per municipality as well as several elements for counties and basic units. The data base covers most topics where regional data is produced. Within the field of demographic statistics the base covers several time series of vital statistics. Most statistics refer to the lowest administrative level, municipalities. However, some statistics are also found for basic units, counties and postal districts. In addition to statistical tables there are several catalogues for the classification of regions; i.e. trade districts and type of municipality.

4. Status of CR and VS - some approaches

- Norway has a vital statistics system providing statistics of a very satisfactory quality, concerning completeness, reliability and actuality. The quality is more than sufficient for most purposes. This is most likely due to a close integration with a well organized civil registration system, and with possibilities to check the information against other sources (medical records, stock data etc.).

- As the statistics for the last 25 years are based on data related to a stable identification number and accurate dated events, the fairly consistent data set represents a valuable source for life course analysis; birth history, marriage history, migration history etc.

- The quality of the population registration system is satisfactory for many purposes, but not all. This is partly due to missing reports on migration from the migrants, in relation to the rules in the Act of Population Registration. But it is also partly due to the contents of the rules, which do not always correspond with the definitions most adequate for statistical purposes (e.g. single students are registered in their parents' home).

- The Norwegian population registration system (e.g. the CPR) includes family relations making it possible to group persons in the same family, i.e. persons from only two generations (married couples with or without children, mother/father with children, single persons). As the proportion of not married cohabiting couples is considerable, the lacking registration (and lacking current

statistics) of cohabitation is a noticeable drawback. So is also the lack of a household registration in the CPR. So far population censuses are the only source.

- In Norway the CPR plays an important role in the population and housing census: As a basis for drawing samples, as a basis for addressing and preprinting of CPR-information and as a data source (sex, age, marital status, place of residence etc.) in addition to questionnaire information.

- Efforts are now done in order to establish a dwelling (household) register with identification to corresponding units in the CPR. When this is a reality and provided there is a more reliable register of employers/employees, future population and housing censuses in Norway can be carried out by matching registers, i.e. without a questionnaire. This has been a reality in Denmark since 1981 and in Finland since 1990, while the situation in Sweden is more or less the same as in Norway.

5. Important conditions for the present status

A number of circumstances appear to have given important conditions for suitable CR and VS systems. Some of these have been mentioned already. Others are referred to below.

History - community. Nordic countries are relatively small and fairly stable communities, regarding demography as well as politics and religion. The official registers on births, deaths and marriages have been kept by clerical officials for several centuries, and became gradually the basis for vital statistics. In Norway the first general directive to the effect that the clergy should maintain a record of births, deaths and marriages was given in the 1680s already. The coverage and timeliness of vital reports is probably a result on the fact that Norway for decades has been a fairly well regulated social democratic society. In addition, social rights (child benefit, funeral subsidy etc.) give motivation to report vital events. The public are usually loyal to the authorities. Hence, some 98-99 per cent of them receiving a population census form by mail in 1980 and 1990 filled in and returned this form after two addressed reminders. However, the public's duty to report their current residence to the local population registry has not been sufficiently carried out so far. Because of missing reports on migration, the CPR counts too many residents, mainly foreign citizens who have left Norway.

Legislation. According to the Act of Population Registration local population registries were established in every municipality. These are subject to control and directives by a central agency. Ecclesiastical and other official registrars and also other authorities are obliged to give the local population registries all information they need for their work. According to this law Statistics Norway has access to registered information for statistical purposes. A law in force from 1980 relating to registers on individuals regulates the use of the national identification number and also the use and matching of such registers. All agencies establishing a population register need a concession from the Inspectorate for Data Security. In 1989 a law (the Statistics Act) was passed to make it easier for Statistics Norway to utilize data from public systems established for administrative purposes. Thus the plans of such systems have to be reported to Statistics Norway, which has the right to influence the planning of systems which may be of use for statistical purposes.

The national identification number. The CPR was established in 1964-1966. It aimed to favour both statistical and administrative purposes. A crucial point was the national identification number, which is permanent for all residents. This individual number system is now widely used by governmental authorities and private organizations. It is also being used as an internal identification in many registers and as a linking key when registers are matched.

The Central Population Register (CPR). The register was originally established as batch oriented files, but was reconstructed as a data base in 1985, established at the National Computing Centre. Several governmental agencies have direct access to information in the data base, and also private companies may have access to some of this information. The present CPR are maintained and updated daily on line mainly from terminals at the local population registries. The entire staff, local and central, is strictly bound by professional secrecy.

User service. The Office of the National Registrar manages and is responsible for the data in the CPR. A certain agreement between the data owner (the Directorate of Taxes) and the operator (3 operators from March 1995) regulates the user service from the CPR. This means that all access to CPR-data has to be approved by the Office of the National Registrar through a special application. Data from the CPR can be reached on-line or can be delivered through batch-sessions. CPR-data are used for several purposes. The extensive use of the CPR has two important features: It is good for the quality of the information registered and it contributes considerably to cover establishment and running expenses. Thus, such registers should be well marketed in order to be found useful.

Collaboration. International collaboration on civil registration and vital statistics, especially between Nordic countries, has contributed to well developed systems in these countries.

EDP. A fully computerized population registration system in Norway from 1993 means simplification of routines, fewer removals of data and therefore less risk for errors than earlier. This could be expected to have positive effects on both actuality and quality of registered data. However, in fact this gains may turn out to be rather poor. With other words: The very satisfactory situation in Norway concerning CR and VS is not mainly due to extensive use of ultra modern data-processing facilities like data bases etc. Far more important are the other conditions referred to above. Even in the 1950s the quality of population registration data was fairly good, in spite of manual routines and forwarding by mail.

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THE MAIN CONTENTS OF THE CENTRAL POPULATION REGISTER (CPR)

Identification number ("birth no.")	Family name
Id. number status	Middle name
Date for the number	First name
Basis for the number	Change in name, date
	Change in name, basis
Registration status (resident, dead, emigrated, disappeared)	Id. number of children
Registration date	Children's birth type
Basis for registration	Children's birth number
Spec. registration type	Id. number of spouse (history)
Spec. reg. type, date	Citizenship of spouse (history)
Spec. reg. type, basis	
Marital status	Marital status (history)
Marital status registration date	Marital status reg. date (history)
Marital status, basis	
Id. number of spouse (relation)	Municipality (number)
Date of death	of residence
Family id. number (relation)	Mother's name
Family id. number, date	Mother's citizenship
Id. number of father (relation)	Father's name
Id. number of mother (relation)	Father's citizenship
Citizenship	Spouse's name
Citizenship, reg. date	Spouse's citizenship
	+ several historical information etc.
From country immigrated	
From country, date	
From country, basis	
To country emigrated	
To country, date	
To country, basis	
Address (street - name, number)	
Address reg. date	
Migration date	
Post number (zip code)	
Post name (post office name)	