

Arbeidsnotater

S T A T I S T I S K S E N T R A L B Y R Å

Dronningensgt. 16, Oslo - Dep., Oslo 1. Tlf. 41 38 20, 41 36 60

WORKING PAPERS FROM THE CENTRAL BUREAU OF STATISTICS OF NORWAY

IO 74/21

Oslo, 28. mai 1974

THE CENTRAL REGISTERS OF THE CENTRAL BUREAU OF STATISTICS OF NORWAY

CONTENTS

	Page
1. Introduction	2
2. The archivstatistical system	2
3. The central population register	3
3.1. Purpose and use	3
3.2. Units and population	4
3.3. List of characteristics	4
3.4. The identification number	5
3.5. Organization of the files	5
3.6. Local registration offices	6
3.7. The data processing routines. The main flow-chart with comments	6
3.8. Further plans	11
4. The central register of establishments and enterprises	13
4.1. Purpose and use	13
4.2. The units of the register	13
4.3. Activities included in the register	14
4.4. Lists of characteristics	14
4.5. Organization of the files	14
4.6. Identification numbers	15
4.7. Maintenance and data processing routines	15

Not for further publication. This is a working paper and its contents must not be quoted without specific permission in each case. The views expressed in this paper are not necessarily those of the Central Bureau of Statistics. Ikke for offentliggjøring. Dette notat er et arbeidsdokument og kan siteres eller refereres bare etter spesiell tillatelse i hvert enkelt tilfelle. Synspunkter og konklusjoner kan ikke uten videre tas som uttrykk for Statistisk Sentralbyrås oppfatning.

1. Introduction

The purpose of this paper is to give a description of the central registers of the Central Bureau of Statistics which are the central population register and the central register of establishments and enterprises. The paper will deal with the contents of the registers, the maintenance routines and their use. It also contains a brief presentation of some general aspects of registers and the archivstatistical system.

This paper is written by Mr. Knut Eriksen partially on the basis of papers in Norwegian by Mr. Svein Gåsemyr and Mrs. Kari Karlsen. The chapter about the data processing routines of the central population register is written by Mr. Egil Habberstad.

2. The archivstatistical system

The progress of the electronic data processing industry has led to an increasing interest for registers and archivstatistical systems. It has been made possible to store large quantities of information in very limited space compared to what was possible in earlier days. It has also been possible to get access to any information in the system in very short time.

The literature on the field of registers and information systems is steadily growing, and the terminology is far from standardized. Therefore it may be necessary to define in what meaning the Central Bureau of Statistics uses the words register and archivstatistical system.

A register in the strict meaning of the word is a list (a file) comprising a body of units. For each unit is only registered the necessary information to identify each unit. There are two kinds of identification information, internal and external identification. Internal identification usually refers to a number system that identify the unit within the register system and for automatic datatransmission. As examples of internal information can be mentioned enterprise number and birth number. The last is also used as external identification since it contains date of birth. External identification is used to identify the unit outside the register

system, i.e. name and address. When a register contains more characteristics than necessary for internal and external identification, it should be called a dataarchiv and not a register. Both the central register of population and the central register of establishments and enterprises contain characteristics that are not merely identification information and should thus rather be called dataarchivs in stead of registers. The information of the registers is, however, limited to what is necessary to fullfill the statistical purpose of the registers.

An archivstatistical system is a system that is based upon the idea that the data about the units is stored in a dataarchiv so that it may be brought forward when needed. This may be done by means of the identification numbers. The role of the registers in this system is to assign and maintain the identifications numbers. By means of these identification numbers information from different sources may be linked together. One also may follow one unit over a period of time.

In the Central Bureau of Statistics there is being built up an archivstatistical system. The dataarchiv of the Bureau contains all individual data for persons, establishments and enterprises that contains identification numbers. These data are collected through surveys and censuses. This information is part of the archivstatistical system in the Bureau. The basis of the system is the registers, the central register of population and the central register of enterprises and establishments.

There has also been made plans for establishing a register of buildings, but due to lack of resources it has not been carried out.

3. The central population register

3.1. Purpose and use

The central registers of CBS have production of statistics as a main purpose as mentioned in the previous chapter. In addition the central population register serves important administrative purposes. In fact, one of the main reasons for the establishing of a permanent identification number system was that the trade organizations appealed to the public authorities for simplified routines in their dealings with public administration. There are great disadvantages in operating with various identification numbers for the same person in connection with assessment of taxes, health insurance, pension scheme etc.

The identification number system of the central population register is used by central and local taxation authorities, the National Insurance Fund, the Directorate for Seamen, the Road Administration, the Defence Department, Health Administration, the Administration of Elections, educational institutions etc.

In the private sector it is mostly banks and insurance companies that use the birth number system.

However, the main reason for the Central Bureau of Statistics (CBS) to undertake the task of establishing and maintaining a central population register, was the future possibilities of producing statistics. Population statistics i.e. statistics over births, deaths, marriages, divorces, migrations etc. are produced directly from the central population register or from files related to it.

3.2. Units and population

The central population register comprises the following population:

- a. All persons resident in Norway irrespective of their nationality.
About 3,9 mill persons.
- b. All persons registered as dead, emigrated or disappeared after Nov. 1 - 1960 (the day of the population census of 1960). About 600 000 people.

Actually, this means that the central population register comprises all personal identification numbers that ever have been assigned. The register comprises about 4,5 mill individuals. The yearly augment is about 80 000 persons.

3.3. List of characteristics

The following information about each individual is registered on the situation file:

	Number of digits
Identification numbers	11
Code for municipality	4
Name	26
Address (name of street, road, etc. and number)	30
Code for postal district	2
Code for type of registration (resident, deceased etc.)	1
Marital status	1
Identification number of mother	11
Identification number of father	11
Date of death	6
Identification number of spouse	11
Family number	11
Date of the removing day	6

All reports containing changes and corrections must also contain the date of each event, so that the date of the separate events may be maintained in the register.

3.4. The identification number

The Norwegian personal identification number system is based on the data of birth and the sex of each person. The number consists of 11 digits and is constructed like this:

Date of birth	Individual	Check
Day Month Year	digits	digits
26 05 97	651	31

The last one of the three individual digits indicates sex. If the person is a woman, it is even. If the person is a man, it is uneven. Persons born in the nineteenth century are allotted numbers within the 500-749 range, and those born in the twentieth century are allotted numbers in the 000-499 range. Numbers are assigned consecutively in descending order.

The last two digits are check digits. The identification number (all the eleven digits) is called birth number and the five last digits in the birth number are called person number. The probability for an undiscovered error in the identification number is only about 1 to 100 000.

3.5. Organization of the files

The central population register is organized in 5 files:

- a) The situation file contains the actual values of the characteristics for each individual on a given date.
- b) The report file contains all reports about birth and migrations, changes and corrections in characteristics after a given date. It also contains the data of all this events.
- c) The chronology file contains the most up to data value of each characteristic as well as the date of the latest change in the characteristics.
- d) The history file has the same formal structure as the report file and comprises the old values of characteristics that have been changed and the date of the event.
- e) The statistics file contains data from the different types of reports that are used in the production of statistics. Some data are taken from the chronology file, but most of it comes directly from the reports.

3.6. Local registration offices

The central population register is kept up to date through reports from the local registration offices. There is a population registration office in each municipality. The registration offices gets reports from other public authorities and from the private persons concerned, about births, marriages, deaths, migrations etc. The registration offices maintain their own registers and send reports to the Central Bureau of Statistics twice a month.

The local registration offices maintain registers where all information of each person is registered on written cards. In addition they maintain a local register on magnetic tape.

The Central Bureau of Statistics serves as central office for the local population registration offices. Administratively the registration offices are together with the local tax assessment offices. The local and central tax authorities also make use of the local registers on magnetic tape. The data processing of this local tape registers is run by the central tax authorities and regional data centrals.

3.7. The data processing routines. The main flow-chart with comments

(This chapter is written by Mr. Egil Habberstad.)

Summary of comments on Main flow-chart H 3

Refers to Flow-chart H 3

Block

- 1- 7 (I) Preparation of the primary material
The primary material is revised, coded, punched, and converted to magnetic tape.
- 8-14 (II) Assigning of identification number
The portion of the report material which is used for assigning permanent identification numbers is checked and corrected, after which identification numbers are assigned. The local registration offices are notified of the identification numbers assigned.
- 15-21 (III) Checking and correction of reports
Reports are checked, chronology is checked, errors are corrected, and a final report file and a statistics file are produced.
- 22 (IV) Statistics production
Statistics based on individual reports are produced.

23-28 (V) Updating and reversing of the situation file

The new updated situation file and supplements to the history file are produced.

29 (VI) Use of the register

Lists and tables for internal use are produced. Various assignments for other institutions are carried out.

Comments on the individual blocks in Main Flow-chart H 3

Block

- 1 All types of reports, change of residence notifications, notifications of marriage, etc., are completed at or pass through the local registration office of each municipality before being forwarded to the Central Bureau of Statistics. The Bureau has an agreement with some of the bigger registration offices which allows them to submit certain types of information on punched cards or magnetic tape (e.g., changes of address within one and the same municipality). All reports must bear an identification number. If the identification number is unknown or incorrect because the date of birth does not agree with that registered at the local registration office, the number must be inserted or corrected before the report is submitted to the Bureau. Corrections to reports submitted at an earlier date can be made at the local registration office, provided they do not relate to date of birth or sex. Corrections to identification numbers are always made at the Bureau.
- 2- 4 All completed forms pass through the Central Register Division and/or Statistics Office at the Bureau for revision and supplementary coding. In addition to corrections to identification numbers, recoding (i.e., amendments to the code lists of characteristics) is done at the Central Register Division. Before the material is passed on for punching, it is divided into the following four main categories:
1. Recodings. Reports designed only to correct the value of characteristics in the situation files in cases where the list of codes for a characteristic is changed.
Example: Recoding of municipality numbers as a result of municipal mergers.
 2. Corrections. Reports necessitating rectification of incorrect values of the characteristics in the situation file (exclusive of errors in the birth dates or sex, as these come under "New assignments").
Example: Correction of names where the error was originally due to a slip of the pen.
 3. Amendments. These are reports which necessitate amendment in the values of the characteristics in the situation file.
Example: Reports of change of address, immigration, emigration, marriage, divorce etc.

4. New assignments. Reports resulting in additional identification numbers e.g. births.
- 5 Reports in punched cards or magnetic tapes all consist of "amendments".
- 6 All reports which are amendments, corrections, and recordings are converted to magnetic tape and edited in accordance with a standard report format known as the "fixed report format".
- 7 Reports resulting in new assignments are converted to magnetic tape and edited in the same format as the amendments.
- 8-9 As it is important to assign an identification number as quickly as possible, a computer check is run only on characteristics affecting the identification number. Reports which are revealed by such checks to contain errors are stored by the control routine until a satisfactory correction has been made during the processing of the next batch. Correct reports are immediately released so that identification numbers can be assigned.
- 10 Assigning of personal numbers is done within each birth-date and is determined by the sex and by the century of the date of birth. Numbers are assigned consecutively in descending order. A separate file shows the last vacant number at any given time. The check digits are calculated at the same time as the assigning is done. After each assigning a survey is produced for each number-series showing the dates on which there are fewest vacant personal numbers left. In the unlikely event that the series should run out, warning is given. Reports of the "born" and "immigrated" type contain also data of the same type as the amendments. Accordingly, after allocation of a number the amendment data are extracted for a separate file. Finally, all assigned identification numbers (birth-date and personal number together) are punched into "number cards".
- 11 The number cards contain the data required to identify persons. They are sent to the local registration offices, which enter the identification numbers in their records and then return the cards to the Bureau. Any comments may be appended in the process.
- 12 When a birth date in use proves to be wrong, immediate assigning of a new identification number may often prove necessary. For this purpose the Central Register Division has available cards with pre-assigned identification numbers. Corrections are made by selecting a card with the correct birth date and sex, entering the name, and placing

it together with the other returned number cards. The correction report which is completed at the same time as the card is selected, will ensure that the used number card will be replaced by a new one.

13-14 The returned number cards are checked against a copy filed of those sent out. Reminders are sent out requesting the return of any cards still outstanding for one reason or another. No reminders are issued in respect of unused pre-assigned identification numbers. The reminder card is a duplicate of the first card sent out. The receipt ensures that any duplicates are rejected if both the reminder and the original card are returned. The final identification of the new unit is produced on the basis of the copy file and the returned cards.

15-17 The report check relates to every type of report except reports on new assignments. Each report is checked separately, without regard to information already on record. If an error is revealed, the report is marked accordingly and held back. Not until the error has been satisfactorily corrected with the aid of error lists and correction cards is the report released and passed on. Here, too, in practice the correction is generally made at the same time as the next batch is checked. Input into the report check may consist of only new reports, only corrections, or a combination of the two. Alternative possibilities for correction are as follows:

1. Correct any character in the report
2. Treat the report as a report to the history file
3. Accept the report if the error is marked as doubtful on the list of errors.

Undoubted errors are unacceptable and must be corrected. As part of the checking process all new reports are allotted a reference number with one check digit. This is used for identification purposes during the correction process.

18-21 As has been said, it is not until the chronology check that the purpose of the reports in the updating is determined. The purpose of the chronology check may roughly be divided into the following main points:

1. To read reports edited in accordance with the "fixed report format" and via catalogues for each type of report transfer them to "floating report formats".
To distinguish between the different types of report, one to five positions in the report can be used.

2. To carry out, against the chronology file, the checks which have been inserted via catalogues in the report in the "floating report format". These checks may vary in number and description from one type of report to another.
3. To update the characteristics in the chronology file requested via catalogues, provided all the checks referred to under Section 2 above have given positive answers and the value of the characteristic on the chronology record was not already dated later than the report. After the record of the report has been transferred to a floating format it is, in addition to identification, composed of a number of actions. These may be checking actions or updating actions. The checking actions give the answer "correct" or "incorrect", while the updating actions are dependent on the checking answers.
4. To produce a final report in "floating format" and a statistical record in "fixed format" if the conditions for updating are fulfilled.
The same data is used for production of statistics as for updating the register. The statistics record can be supplemented with characteristics from the chronology file.
5. To produce a copy of the input report in "fixed format", with errors marked and information from the chronology record, if the conditions for updating were not fulfilled.
The reports at which errors are marked are returned to the report check for correction. Abstracts from the chronology record may be required to ascertain the reason for rejection of the report. The cause may be that the report has been delayed and in consequence must be transferred direct to "history".
6. To write out the chronology record in the format prescribed by the catalogue.
In the event of, for example, changes in the number of characteristics on the situation file, it may be necessary to alter the format of the chronology record.
7. To transfer to the next check run all reports which according to a specific parameter are of too recent date to be checked. It is advisable never to include reports of a more recent date than is strictly necessary in the chronology check. This is to preclude the presence of more delayed reports than is strictly necessary at the next check.
8. To produce the required auxiliary records by correcting the identification number. Because this entails correction the sorting unit for the chronology file and the situation file, special actions have to be taken.
9. To produce the requisite check figures. These show, among other things, the number of reports of each type, the number of errors found, broken down by type of error, and the overall number of records in the various files.

22 Production of current population statistics.

23-27 The situation file is updated in the same way as the chronology file, but with the production of a history file. The history file is of the same type of format as the report ("Floating report format"), but contains the values of the characteristics which, because of the

updating, have been replaced in the situation file. The auxiliary file is employed for temporary data storage. These data may be, for example, abstracts from the "situation", auxiliary records relating to correction of identification numbers, etc.

- 28 By using the latest version of the situation file and the history file sorted in descending order by registration date, the situation file can be reversed and counts and production of tables be carried out in the process.
- 29 In addition to the situation and history files, there are other files in the updating routine which can be used for internal and external purposes.

3.8. Further plans

The local registration offices now send reports about the same events to two different registers, the central population register and "the local magnetic-tape register". By this the local offices do a good deal of double work. Therefore plans are now being made to change this routine so that the local offices only will have to send report to one central institution, either the Bureau or the central tax authorities.

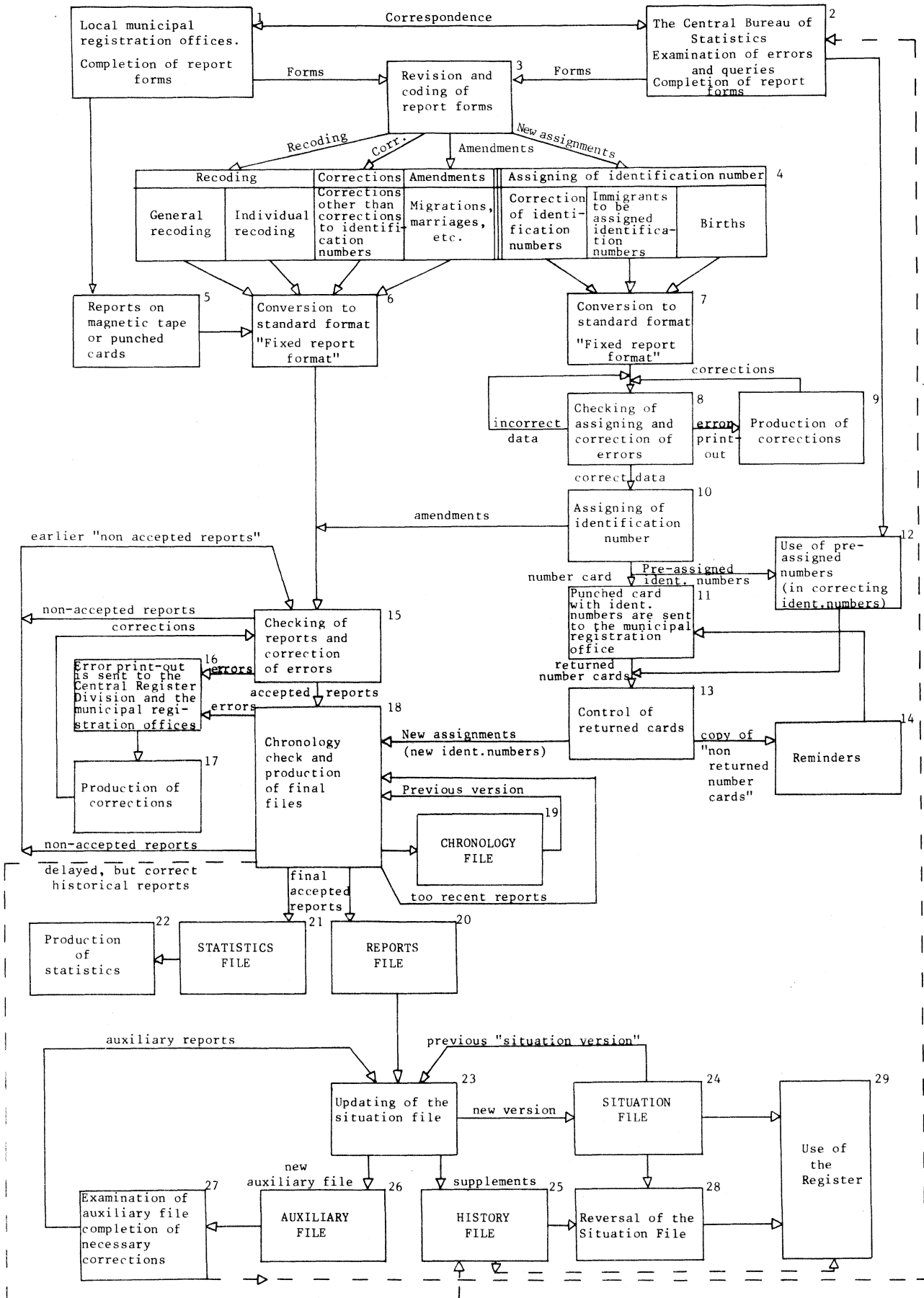
If the Bureau is chosen as this central institution, some more characteristics will have to be registered in the central population register. These are the extra characteristics that have been registered locally but not in the Bureau's register, mostly geographical characteristics like street code, land property register codes, district codes. In addition citizenship (of country) "country moved to" and "country moved from" will be established as characteristics in 1974.

In connection with the central population register there is planned an address register. Every address in the country will get a special address identification number. This number is all the address identification that is needed on the report forms that the central population register receives. This will simplify the register routines a great deal and reduce the total number of reports. In addition the address-information in the register will be standardized as to way of writing etc.

The address register may be the basis of the establishing of a central register of buildings and/or land estate. But this project is on a preliminary stage, and it is dependent of the cooperation between several governmental and municipal institutions.

POPULATION REGISTER MAIN FLOW-CHART

H3: The entire project



4. The central register of establishments and enterprises

4.1. Purpose and use

The central register of establishments and enterprises was established in 1956. In connection with the census of establishments in 1953, a register was set up on punched cards comprising all known establishments in Norway in several industrial branches. It was decided that this register was to form the basis of a permanent register of establishments and enterprises.

The main purpose of the register of establishments and enterprises is to serve as a basis for the collecting of statistical data from enterprises and establishments. Partial registers for industrial statistics and statistics of accounts are produced from the central register. Statistics of wholesale and retail trade are produced directly from data in the central register.

4.2. The units of the register

It is important that the statistical units are defined in the same way in all different statistical surveys of the CBS. In the economic statistics produced by the CBS, the units for reporting and processing are the same as in the central register of establishments and enterprises.

An establishment is in principle defined as a functional unit which at a single physical location is engaged predominantly in activities within a specific activity group. It must be possible to give reports on size of production (turnover) and number of persons employed.

An enterprise may in principle be defined as an institutional unit comprising all economic activities engaged in by one and the same owner.

Regarding profitmaking activities, the enterprise generally corresponds to the concept of a firm. An enterprise may thus be a joint-stock company, a co-operative association, a partnership, an individual proprietorship etc.

In the case of non-profitmaking activities, the enterprise unit is largely an institution, association, organization etc. Regarding the public sector, the activities of the governmental administration and the major municipalities are divided into enterprises chiefly by Ministry department, service etc.

An enterprise may consist of one or more establishments. Enterprises consisting of only one establishment are referred to as single unit enterprises. Enterprises with two or more establishments are called multi-unit enterprises.

4.3. Activities included in the register

The central register of establishments and enterprises comprises all units that employ wage-earners in all kinds of activity except house-work (domestic services). This means that in addition to profitmaking activities, the register also includes governmental and municipal activities (including administration) and non-profitmaking activities, institutions, associations etc. with employees.

The register also comprises all units which are obliged to pay value-added tax, except units in agriculture, forestry and fishing.

This means that very few economic activities are not covered by the definition of what the register of establishments and enterprises comprises.

Today the register comprises about 200 000 establishments. About 10 000 enterprises are multi-unit enterprises.

4.4. List of characteristics

The following information about each unit is registered in the situation file:

	Number of digits
Identity number	7
Enterprise number	7
Name x characteristic	45
Address (street, road etc.)	20
Postal code and address (city etc.)	15
Municipality code	4
Code for industrial classification	5
Type of unit	1
State of activity (activ, not activ etc.)	1
Ownership (limited, partnership, individual etc.)	1
Annual (Number of employees (average for the year)	4
reports(Size of production (turnover)	6

4.5. Organization of the files

The central register of establishments and enterprises is organized in situation file, report file and history file.

4.6. Identification numbers

Two series of identification numbers are used. All units, establishments and multi-unit enterprises are assigned an identity number. In addition all units are assigned an enterprise number. The enterprise number is common for all units belonging to the same enterprise.

The identification numbers are assigned continuously from the Bureau and have no built-in information. The numbers consist of 6 digits plus 1 check-digit. The register of establishments includes enterprise number as a link characteristic for each establishment.

4.7. Maintenance and data processing routines

(Summary of comments on the flow-chart.)

Block

1- 4 Preparation of the primary material

The primary material from various sources is checked, revised (and) coded and converted to magnetic tape.

5-11 Control- and updating routines

The reports, the situation file and the history file are input in the maintenance routine. The output is a new updated situation file and a new history file.

12-14 Name-card control

The distribution of name-cards once a year to a part of the register is the most important way of maintaining the register.

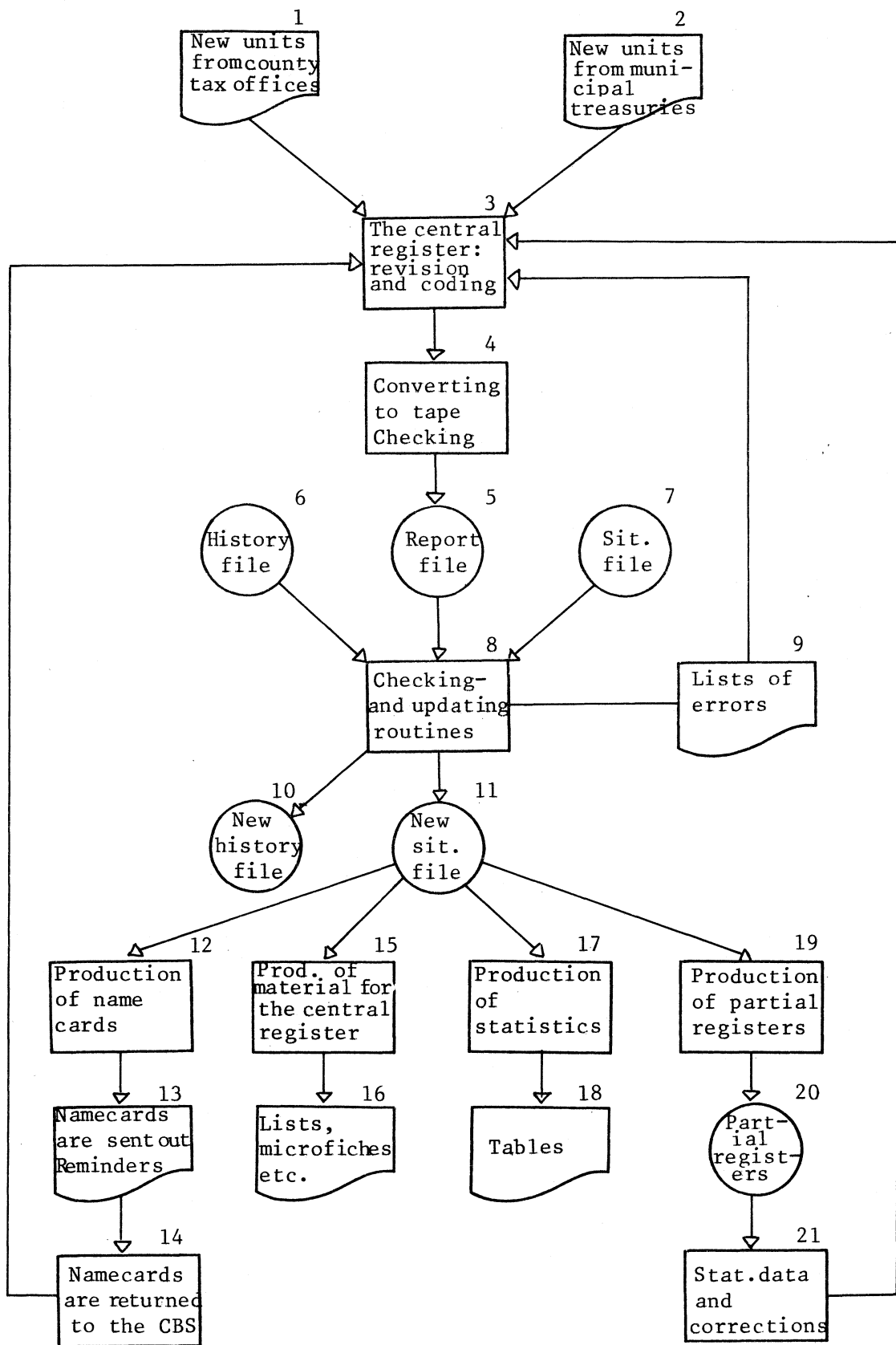
15-18 Use of the register

Lists and films mostly for internal use are produced. Statistics are produced.

19-21 Partial registers

For the preprinting of forms for different statistical purposes, partial registers are drawn. The returned information from these forms is used in the maintenance of the register.

MAIN FLOW-CHART OF THE CENTRAL REGISTER OF ESTABLISHMENTS AND ENTERPRISES



Comments on the individual blocks

Block

- 1- 2 The main sources for new establishments and enterprises to the register are:
- (1) The county tax offices: All firms (i.e. establishments and enterprises) which are obliged to pay value-added tax, must register at the county tax offices. The registrations are reported to the value-added tax register and copies of the registration forms are sent to the CBS. This is the most important source of new units for the Central register of establishments and enterprises. However, one does not get information from this source about firms that give up business.
- (2) The municipal treasuries: All enterprises that employ wage-earners (also governmental and public activities) have to report to the municipal treasuries. The treasuries continually send reports to the CBS
- 3 All reports that are received from different sources are subject to checking, revision and supplementary coding at the central register of establishments and enterprises (which is a part of the Register Division at the CBS). An alphabetic sorted list is kept up to date continuous.
- 4- 5 The reports are punched and converted to tape. They also goes through a checking routine. The output of this routine is the report file and a list of errors.
- 6-11 The situation file contains the actual value of each characteristic of the register at a given date (last updating day). The history file contains the old values of the characteristics of the situation file that have been changed and the date of the change. The report file, the situation file and the history file are input in the checking - and updating routine. This routine checks that the reports are consistent with the information of the situation - and history files. Lists of errors are produced and sent to the Central Register. A new updated version of the situation file is produced, and the old values of the characteristics will go to the history file.
- 12-14 Once a year a part of the register is checked through a so called name-cards check. Name-cards (small forms with preprinted information) are produced for establishments in certain industry groups

which may vary from one year to another. The check only comprises units that are not subject to other statistical surveys e.g. industrial statistics from the CBS. The cards are sent to the main office of the enterprise which checks the preprinted information (name, address etc.) and gives information about kind of activity, number of people employed and size of production (sales). The cards are then returned to CBS where they are treated according to block 3. Reminders are sent to the enterprises that do not return the namecards in time.

- 15-16 For internal use at the Central Register, lists on microfiches are produced from the situation file sorted by identification number and by enterprise number. There is also produced a list sorted alphabetically by the name of the enterprises and with all belonging establishments. This list is produced on paper because it has to be kept up to date continuous. For use at other divisions of the CBS, there are also produced various lists, mostly on paper.
- 17-18 The situation file is also used directly for production of the annual statistics for commission broking, wholesale and retail trade.
- 19-21 Partial register files are produced from the situation file. These registers contain the establishments/enterprises that will be subject to different statistical surveys, either annual, quarterly or monthly (industrial statistics, accounting statistics etc.). Preprinted forms, slips etc. are produced from the partial registers. The central register is updated with information about number of people employed and size of production (turnover) collected from the statistical forms. Also errors and corrections that are detected through the use of the partial registers are used in the maintenance of the central register.