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on Migration Statistics*
(Geneva, 8-10 May 2000)

Topic 4

New developments in defining and counting international migrations in population registers

Submitted by Statistics Norway 1

I. Introduction

1. This paper will present selected issues relating to the development of the production of migration statistics in Norway during the last decade. The aim is to describe some of the possibilities, limitations and challenges that producers of statistics are faced with in a country where the production of migration statistics is based on a national population register. This description will necessarily have legal, technical, institutional and other dimensions.

2. The term "estimating" is often used in connection with the production of statistics. With good registers as source this term is not a good one. The main procedures in producing migration statistics in register countries are these:

(i) Defining or declaring certain events as migrations
(ii) Collecting data about the events and the persons involved
(iii) Counting the events and presenting the figures as statistics

3. Because these tasks partly are done outside Statistics Norway, an overview is given of the overall system leading to official migration statistics.

* The documentation for this work session will be processed as for seminars.

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4. There will be a few references to some other register countries.

II. Some basic information on the overall system leading to migration statistics

5. In the system for producing migration statistics the national statistical institute (NSI) is only one actor. The others are the immigration authorities and the population registration system.

The immigration authorities

6. The immigration authorities in Norway first of all consist of the Directorate of Immigration. It was established in 1988 as a result of the new Immigration Act. This act and its regulations provide the legal basis for regulating immigration. The immigration authorities use the Aliens Register in conjunction with all affairs relating to non-Nordic citizens, including e.g. applications for visas or residence permits. The register uses a special Aliens Identification Number as the main identification. In addition, some of the persons are registered with their National Personal Identification Number (PIN). Nordic citizens are not included in the Aliens Register because they do not need residence permits (according to the rules for the Common Nordic Labour Market from 1954).

7. The main role of the Norwegian immigration authorities in connection with official migration statistics is to grant residence permits to people who need one in order to stay in Norway. A residence permit is a prerequisite for subsequent registration as an immigrant in the population registration system. Another role of the immigration authorities is to collect information about the immigration events and the persons receiving residence permits. Some of this information will eventually end up in Statistics Norway and thereby in the official statistics.

8. In addition to the indirect connection via the population registration system there is a direct connection between the Directorate of Immigration and Statistics Norway. The direct relationship primarily concerns data about reasons for immigration, and will be presented in a separate paper.

The population registration system

9. The population registration system consists of 435 local population registries (there is one office in each municipality) and the Office of the National Registrar in the Directorate of Taxes. The role of the population registration system is to register persons as residents or emigrants according to the Population Registration Act, its regulations and the Nordic Agreement on Population Registration. New immigrants are assigned a PIN. The Office of the National Registrar runs the Central Population Register (CPR).

10. Compared with some other register countries, the Norwegian Office of the National Registrar is characterised by a strong integration between the legal and the register-related activity. Authority is rather centralised.

11. The CPR was established in 1964. It comprises everyone who was resident of Norway in the 1960 Census and everyone who has ever been a resident since 1 October 1964, altogether 6.3 million persons (the current resident population is 4.5 million). People who have died or emigrated are still in the CPR, but with a different status. The CPR has about 80 variables covering a wide range of demographic and administrative information.

12. National population registers were established in Iceland as early as 1953 and in Sweden, Denmark, Finland and Slovenia in the 1960s or the early 1970s. In Sweden the personal identification number was introduced in 1947.

13. The PIN is used in practically all public administrative registers in Norway that contain information on individuals, and in lots of private registers too. To stay in Norway for a long period without having a PIN, is considered to be rather difficult.

Provisions relating to international migration

14. All persons coming from abroad with the intention of staying in Norway for at least 6 months must within 8 days report to the population registry in the municipality they move to. Non-Nordic citizens must have a residence permit for at least 6 months before they can be registered as residents.

15. Persons who have been residing in any of the other Nordic countries are dealt with according to the Nordic Agreement on Population Registration. It means that they must have an Inter-Nordic Migration Certificate (issued by the local registry authorities in the country of last residence), and that they (at least in Norway) are subject to the provisions relating to internal migrations.

For emigrations the following rules apply:

16. According to the Population Registration Act a resident who has the intention of going abroad for at least 6 months, shall report to his/her local population registry. The regulations to the act, however, no longer refer to a six-month minimum period of stay. Instead, "factors that are considered important" in the decision-making process are housing conditions in Norway and abroad, work connections, the residence of spouse and children and "only sporadic stays in Norway". The principle is that persons will not be registered as emigrants if they have economic obligations in Norway. These people cannot be registered as emigrants even if they want to.

17. On the other hand, there are people who are not allowed to stay in the register as residents even if they want to be. Foreign citizens with an expired residence permit "are regarded as emigrated". For all persons who are no longer in Norway, the local population registry can decide their emigration status.

18. Registration of persons who move from Norway to another Nordic country is, according to the Nordic agreement, decided by the country of immigration. It means that these persons will not be registered as emigrated before the country of immigration accepts the immigration.

The statistical office

19. The role of the NSI in this connection is to process and count migration transactions received from the population registration system and produce statistics with available and relevant variables. Defining the migrations and the basic collection of information about them is done before the NSI receives the data. With the help of the PIN the NSI is able to link these data with data from other sources.

III. Closer relations between the immigration authorities and the population registration system

20. When the Directorate of Immigration was established in 1988, the directorate had absolutely no contact with the Office of the National Registrar (nor with Statistics Norway, for that matter). In the beginning of the 1990s, Statistics Norway arranged among other things a meeting in order to establish relations between the two institutions. Through the decade the contacts have deepened, but as late as 1999 Statistics Norway acted as an intermediary in connection with the development of a new Aliens Register.

21. The main impression, however, is that communication between the two offices have been growing in recent years. The population registration system relies more and more directly on information received from the immigration authorities, both in regard to information on the immigrants (e.g. citizenship

and country of birth) and their residence permits. One small example is that some years ago the population registration system decided to use the same country list as the immigration authorities. Three years ago the local population registries started to use expired residence permits to identify persons who had probably left the country without notifying the registration authorities. In general, more information is transferred electronically on a regular basis.

22. The trend towards more rational data flows between the Directorate of Immigration and the population registration system will continue in the future. This change is in the best interest of official migration statistics, but there are challenges, too. For Statistics Norway, keeping up to date or even influencing developments, is a demanding process. One should remember that these relations are not between Statistics Norway and another institution, but between two external institutions.

23. A not unthinkable example may illustrate the situation for the NSI: It would be disastrous for official migration statistics if these institutions conclude that they are no longer interested in 'country of birth' as a variable. The 1989 Statistics Act is a tool for Statistics Norway to avoid such negative effects. However, hard work is necessary too.

IV. Developments in the relations between the population registration system and Statistics Norway

24. Since the very earliest childhood of civil registration, the needs of statistics have been at the mercy of the registration system. This unbalanced dependency cannot be avoided, but it is possible to reduce the disadvantages.

25. The head of the Division for Population Statistics in Statistics Norway became the driving force behind the establishment of the CPR in the 1960s. Locating the CPR within his division was even discussed. It did not happen, but compiling population statistics was one of the main purposes of the CPR, and the new Office of the National Registrar had close relations with the demographers.

26. If we jump 20 years ahead, this office is still a part of Statistics Norway, but in many respects has become a "state within a state". Population statistics are not a dominant purpose any longer although some of the employees have a background in statistical work.

27. Eventually, running an administrative register was not considered natural for an NSI, and in 1991 the Office of the National Registrar was transferred to the Directorate of Taxes. Taxation has always been one of the main reasons for having a system of population registration, so the close relationship with taxation on both a local and national level is no accident 2.

28. Step by step the Office of the National Registrar and population registration in general have been integrated into the tax administration. One indicator of this has been the letterheads - once they said 'The Office of National Registrar', now it is 'Directorate of Taxes'. In the new organisation plan for the directorate even the name 'The Office of the National Registrar' has disappeared. Reports from some local offices (now called 'Population Registry and Tax Office') confirm that pure population registration considerations must compete with taxation considerations.

29. In summary, the last 35 years have seen a steadily increasing distance between the population registration system and the production of population statistics.

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2 In some countries it would have been natural to transfer the Office of National Registrar to the Ministry of Interior (as in Slovenia in 1998 and in Denmark), but a ministry of interior doesn't really exist in Norway. In addition the tradition in Norway (and even more in Sweden) is to let directorates, and not ministries, do most of the practical work of the public administration.

Positive trends, after all

30. In spite of these bleak trends, the air is not at all filled with despair. There are clear positive trends outweighing the negative ones. Our partners have accepted the existence of the Statistics Act, and sometimes they realise that the existence of a user like Statistics Norway may have positive effects on their field of work. Statistics Norway has a new population registration system that provides an opportunity, and the need for, close contacts about the data.

31. Inside the Directorate of Taxes there apparently has been a growing understanding of the importance of correct population registration. They have discovered that in certain tax cases (e.g. renting out flats) the registered residence of the owner is essential. The integration within the directorate opens up new possibilities for flows of information, which is an advantage for the work of improving the quality of the residence registration (see next chapter). The CPR is growing in importance as a hub in an increasingly integrated register society.

32. In certain cases the directorate has been a (mighty) ally for Statistics Norway. One example is the huge "dwelling address project" (necessary for a housing register) now under way.

33. Daily co-operation consists of regular meetings and other forms of contact. One conclusion from this process is this: Statistics Norway first of all needs a professional partner, someone who really knows how to run a large register, more than a partner that always agrees. The Norwegian population registration system fulfils this requirement.

V. Increased efforts to register emigrants

34. Ten years ago the population registries simply registered the notifications they received, and did not wonder much about whether everyone who was obliged to report their move did in fact do so. The attitude towards persons who had left the country without giving any notification was that "at least we don't lose them as tax-payers". The local registries were reluctant to resolve a person's emigration status unless it was totally obvious that the person concerned had left the country a long time ago.

35. This situation gradually changed in the beginning of the 1990s. An inspector at the Office of the National Registrar realised that the government would lose money if the residence registration did not show the correct municipality or country (Norway/abroad). She discovered that some foreigners who had returned to their country of origin could still draw e.g. children allowances because they had neglected their obligation to notify the population registry 3. Similarly it was possible to have unjustified tax reductions or social benefits if someone was registered as resident in a municipality where they did not live.

36. *Outside* the population registration system the pressure came from Statistics Norway. In the so-called Immigrant Statistics Project initiated in 1991, one of the main goals was to have all foreigners who had left the country registered as emigrants. The same year an education survey was conducted among foreign-born who had arrived in Norway after the 1980 Census. Out of 61 000 questionnaires, 11 000 were returned because the recipients were not found at their current address. Two years later 8 300 still had not changed their address, and the PINs belonging to these persons were sent to the Office of the National Registrar. The result of the scrutiny at the local population registries was that around 3 000 were registered as emigrated, directly or as family members. In the statistics the result of this work is seen as unusually high figures for emigration in 1993 (up to 20 per cent higher than "normal"). In reality these emigrations had taken place during the previous years.

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3 Other rights or obligations that are partly or totally dependent on the country of residence are e.g. rent allowance, unemployment benefits, pension entitlement and of course taxation.

More active population registration

37. The inspector's ideas, combined with the obvious effect of the clearing action based on the PINs from Statistics Norway, resulted in a new policy towards persons who do not report their change of address. At first it was called "active population registration", later "value-oriented population registration". The latter name refers to the economic values being at stake. It was decided that the local population registries should spend 25 per cent of their time actively looking for cases of incorrect residence registration. The regulations were changed in order to give wider authority to the local registries to make decisions.

38. In practice value-oriented population registration means this: The population registries are expected to actively follow up information they receive about suspicious cases. "Following up" usually means writing a letter to the person concerned, and if there is no answer or the answer does not give a good explanation, "a decision is made".

39. The sources are, e.g., mail returns from the taxation process, or returned voting cards. In addition, agreements are signed with other public institutions such as schools, social security offices and the police, to obtain information if residence registrations seem to be incorrect. Copies of change of address notifications are sent from the post offices. Schools report all school leavers. If this information does not coincide with the migration reports received from the public, the registry writes a letter. Some school children are sent to their parents' homeland to go to school there. The registry's work may result in a decision about the person's emigration status pursuant to the act and the regulations, which may go against the will of the parents (because they do not want to lose the allowance for the child).

40. In some special cases immigrant families are requested to show up at the registry within, e.g. a week. If the family is not able to do that because it resides abroad, the registry may register the family members as emigrated.

41. In the middle of the 1990s the population registration system found out that the expired residence permits could be used as indicator of non-residence. Registries received lists of persons who did not have a valid residence permit from the Directorate of Immigration. In this first round in 1997 and 1998 around 4 000 persons in Oslo were registered as emigrated. For these emigrations the expiry date of the residence permit was used as date of emigration. All the delayed emigrations caused anomalies in the statistics, but at the same time the quality of the residence registration in the CPR increased, which of course was in the interest of statistics.

42. Since 1998 new cases of expired residence permits are processed immediately. Local registries have a special routine each month that produces a list of all new cases. A quality improvement activity that is continuous is an advantage for the production of migration statistics.

43. Sometimes The Register for End-of-the-Year Certificates in the Directorate of Taxes is used for the "investigation". No registrations found in that register strengthens an assumption of non-reported moves from Norway. During the next couple of years better address information and an improved housing register will definitely contribute positively to the value-oriented population registration.

44. The registration of "administrative" (i.e. not self-notified) emigrations is done in the ordinary screen image for the registration of emigrations. There the registered date of departure will be the day the decision is made or the expiry date of the residence permit. An early date is set if that is necessary to avoid that the person in question gains social benefits or rights dependent on the length of registered residence. The 'country of next residence' will normally not be known in case of administrative emigrations. On the screen image there is no space for registering the fact that the emigration is "administrative". Sta-

tistics Norway has asked the Office of the National Registrar about better registration routines, in particular more real dates or at least a variable indicating administrative migration, but has not received a positive response.

45. This kind of active population registration is carried out in Sweden and Denmark too, but possibly less systematic. In Sweden it is called "residence control", while in Denmark the activity does not have any special name. For years the housing register in Denmark (and Finland) has been used to check if families report moves to dwellings already occupied. In Finland people can now be registered where they wish. It is not clear how this new situation influences the possibility to control the correspondence between the actual and the registered residence of the people.

The 1999 education survey

46. In the autumn of 1999 Statistics Norway conducted a new survey of education among (mostly) immigrants in order to fill the gaps in the education register. More than 92 000 questionnaires were sent out, and about 8 000 were returned because the person was not found at the current address. Out of them at least 2 200 have probably left the country without giving notice.

47. The percentage of returned questionnaires went down from 18 per cent in 1991 to nine in 1999, so in that way we can see progress. The result confirms that the active steps taken to improve quality have borne fruit. This outcome was not obvious. A theory existed that the public had been less conscientious during the last decade, and that this change had outweighed the increased control activity.

48. On the other hand, after all the efforts there were reasons to expect an even lower rate of return than nine per cent. So the result is both uplifting and a little bit worrying at the same time. The final conclusion will be clearer when the data are analysed.

49. In 1993 British and American citizens had the highest rates of return caused by wrong addresses. In 1999 the nationality distribution was mixed. The main tendency is that the rate of mail return is high (15 per cent) for immigrants from Western Europe (outside Nordic countries) and North America/Oceania, while refugee groups have low rates.

50. Statistics Norway will probably hand over the PINs of these persons to the Office of the National Registrar during the spring of 2000. After scrutiny in the local registries we will see how many will be registered as emigrants this time.

51. In Denmark the NSI is not allowed to return PINs to the CPR-office.

VI. The new CPR

52. In 1989-1995 the local population registries were connected on-line to a new CPR. The local physical *registers* were then superfluous, but not the local offices (the registries). In 1995 the old system was finally replaced by the new CPR.

53. Before the change, notifications had been sent by traditional mail, while now the registration is done directly on the screen and the CPR updated in that way. As late as 1995 this was in fact not a technical revolution. In Denmark the local population registries were computerised as early as in the 1970s, but for different reasons this transition was delayed in Norway.

54. As a database the new CPR is organised in a much better way than the old one. First and foremost it was constructed for updating purposes, and not for serving the public directly. Improved updating

functions had the positive side effect of making it easier to update copy bases. The on-line connection improved the timeliness and the possibilities for control. The new CPR contained more and better variables. First of all the transactions were improved, with more differentiated categories of change, and generally the chronology of the transactions that were sent to the distributors became very good.

55. A transaction is produced every time someone in the population registration system pushes the enter-key after they have filled in a screen image. The precise time of this act (down to nearest second) is recorded in the transaction. The transactions are stored for the rest of the workday and at 9 p.m. electronically transferred to the direct receivers/distributors. There are about 5 000 transactions per day.

56. It was decided that Statistics Norway should be one of the few direct receivers of data from the new CPR. A copy base for statistical purpose would be established within Statistics Norway, updated by the received transactions.

57. A similar modernisation of the national population register took place in Sweden during the 1990s, and in Finland and Slovenia quite recently there have been developments, too. For all the countries the new database systems are Oracle or DB2.

58. In a society steadily more dependent on registers, identification numbers are increasingly needed for other foreigners than those accepted as immigrants. For that reason the so-called D-number (it is like a PIN with 40 added to the day of birth) was allocated to more than 500 000 persons in the 1990s. These persons have economic relations with Norwegian authorities without being residents, and are of no interest for population statistics (but they are used by income statistics). The new CPR handles these D-numbers in a more systematic way than the former one.

VII. A new system for population statistics

59. The system for population statistics receives and process available data mainly from the CPR, but some other sources may be used too. The main purpose of the system is to produce current population statistics and to provide all the NSI with population data on individuals.

60. Until 1994 Statistics Norway received stock files from the CPR once a year. They contained only the requested variables, and were more or less ready for use. Transactions were supplied monthly on tape. They were currently laid on so-called vsam files, which can be described as a simple database solution. A system for updating the stock files with the transactions existed, but the system and the data were not good enough to produce stock files that would be identical with new stock files from the CPR.

61. During the latter part of the 1990s, a new population statistics system was established in Statistics Norway. At the same time the hardware and software were changed from mainframe to Unix and client/server.

62. Statistics Norway received a complete copy of the CPR as of 1 January 1999. The intention is to rely on this initial copy for the future, and currently keep it updated by the received transactions. The CPR-copy in Statistics Norway has so far been updated each month, but in the near future this will be done once a week.

63. To ensure that the register in Statistics Norway is an exact copy of the CPR, the main variables are checked every three months by comparing simple frequency tables. After one year the two databases have shown only one difference: One person is married in one register and single in the other one.

64. The new system is an Oracle database. The two most important tables are the so-called Population Table and the Transaction Table. These two tables are connected as shown in figure 1.

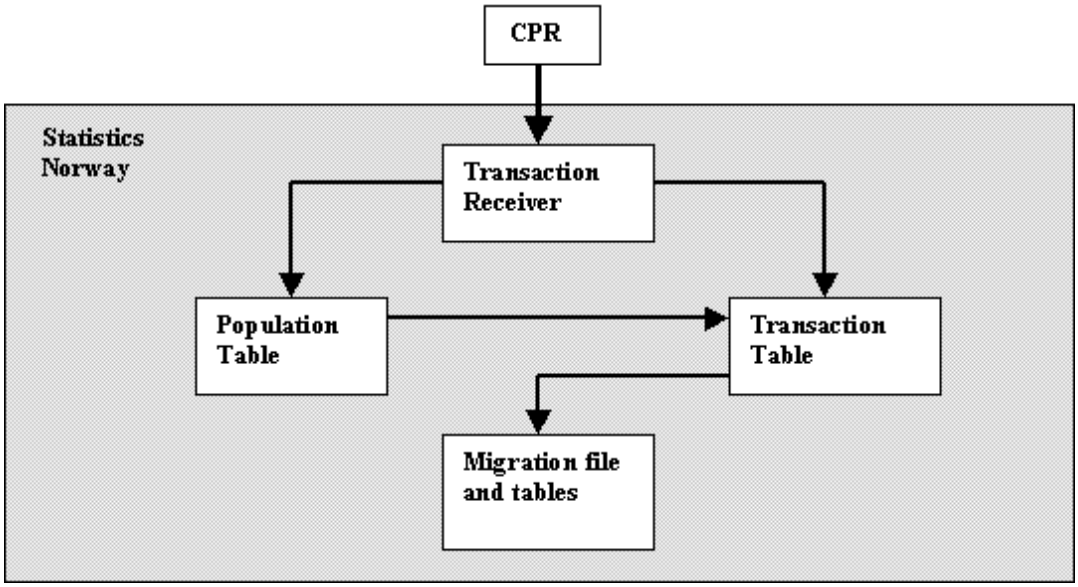

Figure 1. The system for production of migration statistics

65. The transactions from the CPR are stored in the Transaction Receiver exactly as they are received. When updating the Population Table transactions on births and first time immigrations create new records. This means that the Population Table will grow constantly. The other transactions will only change the value of one or more variables.

66. The difference between the Transaction Receiver and the Transaction Table is that some variables are added from the Population Table to the transactions before they are stored in the Transaction Table. These variables first of all provide information about the situation before the Population Table was updated by the transaction concerned (e.g. former address, former citizenship or former marital status).

67. From the Population Table it is possible to extract the resident population on any given date. This is possible because the Population Table can be updated by the transactions until any given date.

68. When extracting data from the database, the relevant variables are taken from the tables where they are stored. In principle each variable should be stored only in one table.

From the Transaction Table to migration files

69. The transactions from the CPR consist of both real events and of cancellations and corrections. Before the real events can be counted, the cancellation and correction transactions must be taken into account. In that way the real events are corrected and some even cancelled. This is done with the help of SAS after the relevant transactions are extracted from the Transaction Table.

70. It is easy to see that the system of transactions in the CPR first of all is constructed for updating the stock. It is unavoidable that the final result (the value after updating) is in spite of everything more important than the registration steps. The only problem is that Statistics Norway is as dependent on proper registration procedures for the event statistics as it is on a proper registration result for the stock

statistics. For the statistics it is important to be able to distinguish real events from corrections, and only the real events should be counted. The registration procedures mainly fulfil the needs of both of the population registration system and the production of statistics, but there is still room for improvement.

71. An immigration transaction has about 60 variables while the emigration transaction has only 15 (see Appendix). The reason for this difference is that a lot of information is needed from the immigrants to be registered in the CPR. But for the emigrants there is already a lot of information in the CPR.

72. Statistics Sweden has several transaction tables, one for each type of event. The transaction tables consist of pure events, this means that the tables are updated with cancellations and corrections. Such tables can therefore be called event tables. Statistics Norway has similar ideas about constructing a system of event tables. The advantages of event tables are that the tables are better suited for directly extracting statistics and for analysing. In addition, the cancellation of reports is done in a more controlled way, and can therefore be of better quality.

Creating new variables

73. With the new system of population statistics it is easy to create new variables either by using information already in the database or adding information from other sources. New variables can be added to the Population Table or to the Transaction Table, or both.

74. In 1999 work started on integrating variables related to the immigrants' background in the database. These variables are mainly derived from historical data belonging to Statistics Norway. This work will be completed in 2000.

75. Before long it will be necessary to establish a table with the most important information from the register of numeric addresses. Similarly there are ideas about a separate table for reasons for immigration (based on data received from the immigration authorities) and a table of adoptions.

A better system

76. The new system of population statistics is very flexible. New information can easily be incorporated in the database and thereby in the statistics. Most important of all is that the quality of the migration statistics is quite high although there will always be room for improvement.

77. Basically the development in Sweden as regards the population statistics system has been parallel to the development in Norway, even if there are many differences. Finland started in 1999 with a similar system. In Denmark they have chosen to gradually improve the existing system, instead of establishing a new one.

VIII. Handling delays

78. The establishment of an on-line based CPR had the effect that notifications no longer were sent by time-consuming traditional mail. But still some time elapses from the actual date (= the date reported by the immigrants) to the official date of event and then until the event is registered in the computer (called recording date). Each type of event has its own profile of time differences. For births, deaths, marriages and divorces the official date of event is always the same as the actual one. For migrations it is not so 4.

4 One example: Most of the Kosovo Albanians that were brought to Norway during the war from April to June 1999, were registered in the CPR as late as in September and October.

79. However, Statistics Norway has never used the reported date of event as the reference date, only the official date 5. For that reason the problems with delays are related only to the time between the official date of event and the recording date. If the elapsed time for a transaction is too long, the transaction may arrive too late to be included in the period that the transaction refers to. Normally there is only a small difference between the official date of event and the recording date, but for some migrations we are talking about months or even years.

80. This basic problem raises two questions: How long should a producer of statistics wait after the reference period before it is time to stop waiting for more transactions, and how should transactions that refer to an earlier period than the reference period be handled? These latter transactions are called "delays". The two questions can be answered separately, even though they are slightly related (the longer waiting time, the fewer delays).

81. Until 1989 the answer to these question for the Norwegian annual, final population statistics was three months' waiting time, while no delays were included. In 1990 it was decided to reduce the waiting time to two months and include delays referring to the year before the reference year. Including delays from before the previous year was not discussed, probably because really old notifications was believed to create difficulties.

82. Surprisingly enough, after 1995 we could see exceptionally high numbers of emigration delays referring to earlier times (1 000 - 2 000 cases, 5-10 per cent of the official emigration figures). According to the rules these were not included in the statistics. The result was that the residual in the population ac-

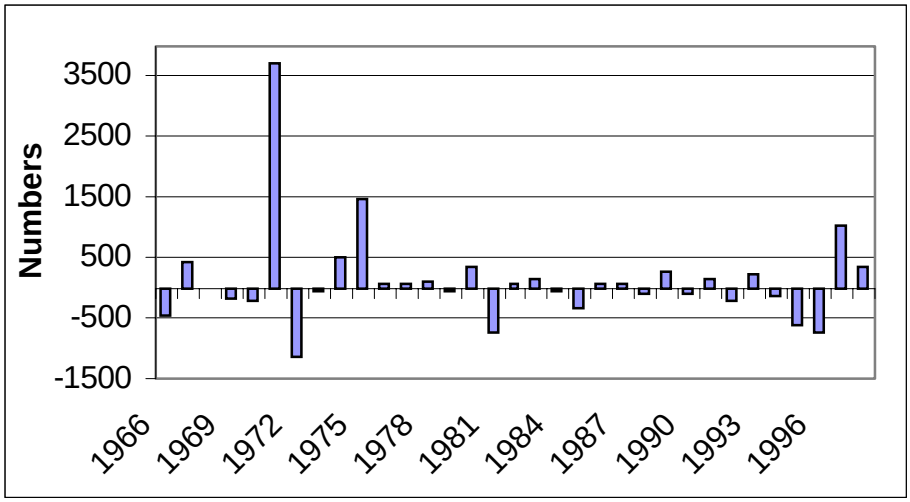

Figure 2. Not explained population growth. 1966-1998

count increased. The sum of the four growth factors differed more than acceptable from the population growth (which is defined as the difference between the size of the population as of 1 January and 31 December the same year). To put it in another way, a relatively high proportion of the population growth could not be explained. This tendency can be seen for 1995-1997 in figure 2. Luckily, still the residuals for these years were much lower than it was in 1970, when the Census was used to correct the CPR.

83. In addition to the higher residuals, the net migration was biased when the number of immigration delays was different from the number of emigration delays. Besides, it was seen as unfortunate that the

5 The reason that the reported date of event has not been used, is not quite clear. Reliability, availability and a wish to reflect the official registration status may be three factors. At least for emigrations information of good quality about actual dates is not available.

number of migrations summed up for several years, obviously no longer would be correct. Quarterly statistics, where no delays were included, did not add up to the annual statistics.

84. The disadvantage with the inclusion of delays is that the statistics will not reflect exactly the activity in the reference period. However, because of the difference between the actual/reported date of event and the official date, the statistics do not reflect the reality properly even if delays are excluded. This applies to migrations in particular. At least, when all events and all dates are included in the data files, it is easy to distribute the delays to the periods they are referring to, if that is desirable.

85. By including all delays all events are counted in the statistics, but some in the "wrong" period. It is better to have the right level of the migrations over the years referring to the wrong period than wrong figures referring to the right period. So much more this is the best choice when it is difficult to get data about the exact period of occurrence.

86. In 1999 it was decided to include all delays in Norwegian population statistics. The decision came too late for births and deaths in the statistics for 1998, but applied to migrations. From 2000 the new policy will apply to the quarterly statistics, too. With the new rule Norwegian population statistics have adopted the same procedure as Danish population statistics. Swedish statistics do not include delays, but the numbers are properly presented in the main publications. Until 1997 the Swedish migration data did not have any date of event, only the recording date. For that reason the problem of delays in migration statistics is quite new, and possibly the present practice will be reconsidered.

87. The Norwegian and Danish practice to include delays is not in accordance with the international recommendations (paragraph 140).

88. In all the other Nordic countries the waiting time for the final, annual statistics is only one month. The potentials for reducing the waiting time in Norway will be monitored. However, the future need for integrating data from other sources than the CPR (adoptions, addresses, reasons for immigration), combined with a wish to have the same extraction date for all the variables, may hinder a reduction from two months' waiting time.

IX. Some conclusions

89. In a country where migration statistics are based on a national population register, the quality of the statistics is very much dependent on factors that are outside the NSI. Consequently much effort is used to influence these factors so that the NSI is supplied with relevant and reliable data. In spite of the efforts and the Statistics Act, there are limits to the influence of the NSI. This means that there are limitations for international recommendations too to have effect on the statistics produced by a register country.

90. Certainly there are some disadvantages with such a register system. It is not always oriented towards demography and towards the needs of statistics. But seen from the NSI, the disadvantages are far outweighed by the advantages. The NSI benefits greatly from an integrated register society, and is willing to pay a price in terms of reduced influence on all details. In addition, the NSI has an obligation to reflect and to produce statistics relevant for this integrated register society. That way it is quite natural to accept decisions made by the official population registration authorities.

91. The main changes of the last decade have undoubtedly been for the better. The overall quality of register data is higher than it was ten years ago. For the producers of statistics flexibility has increased, and the timeliness of the data is better. But how can the users see the effects of the trends?

92. There are two answers to that question: There will always be improvements in the production system that are not visible to the users. Higher flexibility, efficiency and quality, and better systems for providing the rest of the NSI with data, are important aims to aspire to even if the users of population statistics do not see the results in terms of new tables.

93. The second answer is that some of the developments are so new that there has not been time yet to see all the advantages and to develop new tables produced by the new system. For some variables (e.g. country of birth) timeliness will be dramatically improved, beginning next year. Gradually more efforts may be directed to the final part of the production chain.

Appendix.
Variables in the transactions for immigration and emigration

Variables that are included in both the immigration and emigration transactions are marked with an 'x'. Some variables are lined up on one line.

Length	Name, description	In the emigration transactions
11	Personal identification number (PIN) (containing date of birth and sex)	x
8	Recording date (yyyymmdd)	x
6	Recording time (hhmmss)	x
1	Transaction type (= 1)	x
1	Cause of transaction ('02' for immigrations, '32' for emigrations)	x
8	Registration date	x
1	Registration status ('1' (resident) for immigrations, '3' for emigrations)	x
50	Surname. 50 First name. 50 Middle name. 50 Maiden/bachelor name	
25	Shortened name	
8	Registration date of name	
4	Municipality/country of birth	
20	Place of birth	
3	Citizenship	
8	Registration date of citizenship	
11	Family identification number	
8	Registration date of family number	
1	Family code	
1	Specified registration status (resident on Svalbard, diplomat, without housing)	
8	Date of specified registration status	
1	Marital status	
8	Registration date of marital status	
11	Personal identification number of spouse, or	
6	Date of birth of spouse, 50 Name of spouse, 3 Citizenship of spouse	
8	Registration date of address	
8	Reported date of move	
4	Municipality of residence	
12	Numeric address	
25	Name of address	
1	Type of numeric address	
25	Additional address (e.g. c/o address)	
4	Post code	
2	School district. 2 Polling zone	
30	Postal address line 1. 30 Postal address line 2. 30 Postal address line 3	x
3	Postal address - country	x
3	Country of last residence (country of next residence for emigrations)	x
8	Registration date of country of last/next residence	x
8	Reported migration date of country of last/next residence (not in use)	x
1	Residence permit	
8	Expiry date of residence permit	
8	Aliens Identification Number	
11	PIN of mother, or	
6	Date if birth of mother. 50 Name of mother. 3 Citizenship of mother	
11	PIN of father, or	
6	Date of birth of father. 50 Name of father. 3 Citizenship of father	
11	Previous D-number	
8	Date of previous D-number	
1	Assignment code (if the PIN is assigned because of this immigration or not)	

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