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Measurement of “hard-to-count” migrant groups

Measurement of emigration from Norway: the main issues and challenges

Note by the Statistics Norway*

Abstract

The aim of this paper is to describe the main possibilities, limitations and challenges that producers of statistics are faced with in a country where the production of migration statistics is based on a strong population registration system. New developments and tendencies seen in the last 10 years are in focus. The paper concentrates on the situation in Norway, with a few references to some other register countries. It gives a short overview of the total process leading to migration statistics, and then goes on to the particular challenges related to the registration of emigrants and to consequences for the quality of the emigration data exploited by Statistics Norway.

Increased efforts to register emigrants

During the 1990s the population registration system adopted a new policy towards persons who do not report their change of address. The local population registries should spend some of their time actively looking for cases of incorrect residence registration. Twenty years later this task is larger due to the growth in international migration, but the population registry has developed new methods and routines, and is more effective than before. Statistics Norway contributes to this work. Unfortunately, it is unavoidable that emigration events registered as administrative decisions are of lower quality than events notified by the migrant.

Choices made for the production of statistics

The raw population registration data received by Statistics Norway must be processed and prepared before they can be used as the basis for statistics. The main choices made in this connection are presented, and the consequences for the quality of statistics are presented

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and discussed. In particular, the inclusion of delayed notifications in statistics has a large impact on the figures. This measure means that statistics consist of all events reported during the reference year regardless of when the event occurred.

Conclusions

One important feature of a register system as described here is that many persons are involved in the work of identifying migrations, collecting information about the migrants and increasing the quality of the data. These resources are extremely valuable for the NSI.

Another feature is the degree of integration between migration statistics and other population (demographic) statistics (and other statistics on individuals, too). Decisions about migration statistics must always take into account the whole population statistics system.

One conclusion from the paper is that the dates of migration that are used to compile statistics have great influence on the final statistics. Such factors are difficult to harmonise at the international level.

1. Introduction

What are the main challenges facing the producers of migration statistics in a country where the production is based on a strong population registration system? This paper will present a selection of the most important issues and challenges related to the field of emigration statistics in Statistics Norway – affecting both the registration of emigrants in the population register and the production of statistics.

Even if the topic here is purely emigration, it should be borne in mind that there are links between emigration and immigration, and that international migration at all stages is processed together with other population data.

The aim is to present some core issues, starting with the root causes, continuing with the consequences and corrective work carried out in the population registry, and finally the consequences for Statistics Norway and the choices it makes in the production of population statistics.

One of the main issues is not included here, and that is the production of statistics in compliance with EU regulation on migration statistics. As yet, this issue has not affected the Norwegian national statistics.

2. General background

Norway has full-coverage statistics on international migration dating back to 1950, and from 1958 the statistics were broken down by country. The first statistical data file on international migration was created in 1967, based on the electronic Central Population Register (CPR). Since modernisation in 1995, there has been only one Population register in Norway, and this is updated electronically from the local registries. Data from the CPR system are distributed to a handful of direct recipients – including Statistics Norway. One of the other recipients is an IT company acting as “distributor” to thousands of common users, thereby making the CPR data a kind of standard for much of Norwegian society.

The Norwegian Tax Administration is in charge of the population registration and the CPR. This administration consists of the Directorate of Taxes and five tax regions. In each region, local service offices receive and check forms and documentation (in this case on emigration) from the public, and then a few experts (based at 2 or 3 locations) make the decisions for the entire region. The processing of cases is more professional and specialised than before. Approximately 350 full-time equivalents (FTEs) are devoted to population registration in a tax administration that has more than 6 000 FTEs.

In principle, the Population register is a “virtual” legal register, whereas the CPR is the database. “Registration” in the population register usually takes place some time before the information is “recorded” in the CPR.

Every time someone in a population registry enters details in a screen image and presses the enter key, a transaction with the information from the actual image is produced and stored. At the end of the working day, all of the transactions (usually 5–7 000) from that day’s work are forwarded to the direct recipients, who use them directly and as input to the update of a mirror database.

3. Important factors affecting the registration of emigration

Key factors that have a major impact on the quality of the registration are:

- the public (the potential migrants),
- the legislation on population registration
- the characteristics of the population register system, in particular how it revises the history

These factors are often connected. A fourth factor not covered in this article is the characteristics of the institutions in charge.

3.1. The behaviour of the public

The Act of population registration of 1970 stipulates that everyone who wants to leave Norway for more than 6 months should notify their departure. In reality, people are either unaware of this or do not bother to find out about the rules, or know but do not care, or deliberately avoid sending notification because they think it is not in their interest to do so. Finally, they may have heard from others that the population registry does not always accept someone as an emigrant even if they have sent notification. In short, the public acts in accordance with an information and motivation structure, which does not always result in notification.

3.2. The legislation

The only paragraph concerning emigration in the Act of population registration is about the aforementioned *duty to notify*. All other provisions concerning emigration are found in the *regulation* to the act. In addition, the population registration authorities (in the Directorate of Taxes) send out directives that specify how the

regulation is to be interpreted, and issue a 260-page Handbook on population registration¹. Even these directives can change slightly over time and influence the operational definitions of international migration.

The Nordic agreement on population registration

The Nordic agreement on population registration regulates the registration of migration events between the Nordic countries. Each country interprets the agreement according to its own legislation.

The agreement stipulates rather vaguely that stays of longer than six months should be considered migration, but strongly emphasises that the country of immigration has the final say. Since none of the countries operate with a simple six-month limit in their national population registration legislation on immigration (although Norway comes close), it is difficult to know for sure how other Nordic countries treat immigration from Norway. Denmark, which normally has a three-month limit, solves the problem by making it possible for immigrants from the Nordic countries to stay up to six months without notifying their stay in Denmark.

Notwithstanding, the migrant sending country has no freedom to refuse the decision made by the receiving country. When the latter has accepted the person as an immigrant, the information is viewed the next morning on a computer screen in the sending country, where someone presses the enter key, and by doing so changes the person in question's status from resident to emigrated. At the same time, a transaction of emigration is executed. If an anomaly is identified, the case must be clarified before proceeding.

Over the past ten years, emigration to the rest of the Nordic area has amounted to a third of all emigration from Norway. In this period, almost 100 000 emigration cases from Norway have been determined and defined by population registration authorities in six foreign countries. In principle, no metadata is available for these registrations in Norway.

More about the regulation to the act

For the rest of the emigration, the main principle for the treatment of emigration cases is that a person will not be classed as emigrated if he maintains a clear connection to Norway. When making a decision, emphasis will be given to whether the person has an independent dwelling in the next country of residence, does not have the use of a dwelling in Norway, does not have a work-related connection to Norway, does not have a spouse and/or children in Norway, and does not have more than sporadic stays in Norway during the course of a year. The length of stay is also important but is not specified. With regard to decisions on emigration, the population registries now seemingly accept shorter stays than before. In short, the connection to Norway and the connection to the country of immigration are weighed up against each other.

Two considerations have made the rules stricter than ideal from a statistical point of view: the wish to 1) keep families together as economic units and thereby avoid tax evasion and 2) reduce difficulties for Norwegian students abroad.

¹ http://www.skatteetaten.no/upload/Brosjyre_og_bok/folkeregister/Handbok%20i%20folkeregistrering.pdf. (In Norwegian).

The official date of an event is important in the population registration system. The date is not something a migrant can choose himself as there may be major legal implications for both the migrant and the authorities. When someone notifies their emigration up to two weeks in advance, the official date will be the date given by the emigrant. If the notification is received by the registry after the given date, the official date will be the day of receipt of the notification.

If the emigration is notified by a registry in another Nordic country, the date will be the same as the immigration date in the country of immigration.

3.3. The characteristics of the population register system

In this connection we are interested in how the population register updates the history by revising it continuously.

Some transactions provide new information on events that already exist in the data. The new information may be a correction to an error in the original entry, or may be supplementary or new information that has been received by the population register. In some cases, these transactions only correct the value of one variable, and in other cases the entire event is annulled. For emigration, corrections are made by annulling the erroneous event and then re-establishing it with the correct values.

Since 1995, the CPR system has forwarded 503 700 emigration transactions to the direct recipients. A total of 491 800 emigration events remain following the recipients' execution of annulment transactions.

4. Consequences of the factors for the quality of population registration

Both the behaviour of the public and the legislation may result in over-coverage of population. In particular, missing notifications of emigration are known to be an important cause of over-coverage.

If one population growth factor is persistently missing, the population size will deviate more and more from the true value. If this growth factor is emigration, there will be an ever growing over-coverage in the population. There is, however, no reason to believe that this is the case for Norway, so this alternative will not be discussed here.

4.1. Continuing, but relatively stable over-coverage of population

The more realistic scenario is a continued and relatively stable over-coverage. At any given time the population count will be too high due to non-reporting or late reporting of emigration events.

Missing stays abroad

Finished stays abroad (i.e. including both departure and return) may be missing if they are not reported or discovered by the population registry before the person in question returns to Norway. In such cases, even the immigration will be missing.

Emigration is not missing, but registration is delayed

The other main alternative is where emigration is registered, but that it is registered later than it should be. This happens when the person reports late, or if the stay abroad is discovered after some time abroad by the population registry, which then emigrates the person administratively. In such cases, the emigration event is not missing, but delayed. Sometimes a registration error is not discovered until the person is much older. Such cases are relatively uncommon, but since these age groups are so small, the “administrative survivors” can harm the reliability of relevant statistics.

If, for example, 10 000 people are administratively emigrated every year, and we have reason to believe that they have actually stayed abroad for two years before this change of status, the constant over-coverage is 20 000.

4.2. Over-coverage due to strict rules for registration of emigration

As mentioned above, emigration rules are strict, which means that statistically relevant stays abroad are not always registered in the population register. The consequence is population over-coverage, which Statistics Norway is almost the only interested party to be concerned about².

5. The population registry’s attempts at correction: efforts to find and register de facto emigrants

The single most common source for “administrative emigration” has been expired residence permits received from the Norwegian Directorate of Immigration. In 2009, however, non-Nordic EU citizens no longer needed a residence permit, and the challenges to maintain the quality of the register immediately increased. Since then, new legislation, methods and routines have been developed, which cover even those who do not need a residence permit with a fixed period of validity.

The registry basically uses three sources for the cleaning work: 1) expired residence permits, 2) tips from the public or institutions on persons who have left Norway, and 3) unknown place of residence for at least two years. The indications for the latter may be returned post, a very low income, residence at an overcrowded address and so on – often in combination. The first step is to register persons found with an “unknown address”, and if there is no response from them within two years, they will be emigrated.

Statistics Norway has been an important contributor to this work, by returning non-functioning addresses (i.e. returned post) to the population registry and by acting as a competent data processing institution for the Directorate of Taxes.

² A project to identify and count non-active people (potential de facto emigrants) in the population will be initiated soon in Statistics Norway. The work will be based on matching registers from different sectors.

If the registry makes a decision about emigration, the dating rules depend on the source of information. In the case of an expired residence permit, the official date will be set to the expiry date (or the calculated length of stay for the residence permit). For the two other sources, the event date is set to the day of decision. It is possible, however, that the dating rules have not always been strictly adhered to, or adhered to by all registrars.

As seen in table 1, a record high number of people were emigrated (12 800) in 2013, many of whom had stayed for 2-3 years with the status “without known residence”. This status is a new source, while the use of expired residence permits was more important a few years ago.

Table 1. Registrations of emigration events in the Population register, by source of information and recording year. 2004-2013

Recording year	Total	Notifi- cation from emigrant	Notifi- cation from Nordic registry	Decis- ion in total	Decision			Percentage		
					Un- known place of stay	Exired resi- dence permit	Other/ unspeci- fied	Notifi- cation from Nordic registry	Deci- sion	Percent- age of the non-Nordic emigration
Total	269 535	103 424	96 470	69 641	4 544	55 185	9 912	36	26	40
2004	23 141	9 525	9 581	4 035	23	3 304	708	41	17	30
2005	21 918	9 408	8 522	3 988	34	3 729	225	39	18	30
2006	22 106	9 384	8 645	4 077	36	3 678	363	39	18	30
2007	22 258	9 176	8 546	4 536	21	4 273	242	38	20	33
2008	23 384	9 543	8 821	5 020	11	4 843	166	38	21	34
2009	26 784	10 485	8 871	7 428	30	7 033	365	33	28	41
2010	30 964	11 289	10 495	9 180	34	8 622	524	34	30	45
2011	32 702	10 972	11 657	10 073	443	8 472	1 158	36	31	48
2012	31 066	11 673	10 865	8 528	581	5 338	2 609	35	27	42
2013	35 212	11 969	10 467	12 776	3 331	5 893	3 552	30	36	52

6. Consequences for the quality of the data received by Statistics

Norway

What we have learnt so far has an impact on the quality of the data received by Statistics Norway. The ‘cleaning up’ referred to in the last chapter has a positive effect on the quality of the statistics, but unfortunately the data quality of these emigration events will not be the same as for ordinary notifications.

6.1. Missing stays abroad

If finished stays abroad are never discovered, the net immigration figure for the period covering the stays will not be compromised and no corrected data will be created. The extent of the problem in these cases can, therefore, easily be underestimated. “What we cannot see does not harm us” is sometimes true. Nevertheless, it is unfortunate to lose events that should have been included in the statistics. In addition, the missing stays may contribute to the continued over-coverage problem.

6.2. Delayed emigration events

Another problem is migration events that are not missing in the long term, but which are late. Timely events do not create major quality problems regarding the date of the event, but if an event is late, a range of issues arise. Some statistical issues arising from late information will be discussed in chapter 7. Here, only the immediate consequences for the data quality will be presented.

There are various reasons for late emigration events: late notification of the migration, time-consuming cleaning work, and corrections of old data. Some ordinary cases take time to process in the population registry, but this is relatively uncommon.

6.3. The reliability of the date of event

When the date is set back in time and there is a big time difference, the official event date can often refer to a time period for which statistics have already been compiled (see more in chapter 7).

The multitude of dating rules leads to a varying degree of discrepancies between the reality and the registered value. This means that emigration dates are not very accurate, with the greatest consequences for the shortest stays.

6.4. Missing country of next residence

If the source of an administrative decision is the expired residence permit or “unknown place of residence”, it is not possible to know where the person in question has gone. The result of this is a certain amount of missing entries for country of next residence in the data.

The tendency towards an increase in the percentage of unknown variables has been a cause for concern for Statistics Norway, but the dilemma is that the immediate reason behind the increase is actually a positive development (as described in chapter 5). For most of the 1990s, the percentage unknown country of next residence in Norwegian emigration statistics was around 5 per cent. Then in 2003, the figure suddenly jumped to 13 per cent, increasing to 27 per cent until 2009 and as much as 34 per cent in 2013.

The general picture is that percentages are acceptably low for nationals from some neighbouring countries, but almost total for nationals of some distant countries. This skewed distribution may partly indicate the reason behind the high percentage of unknown variables. Notwithstanding, the high figures are a sign of invidious consequences.

7. Choices made in the production of statistical data and statistics

7.1. Introduction

The raw population registration data received by Statistics Norway need to be processed and prepared before they can be used as the basis for statistics. In this connection, it is necessary to make some choices. In particular, the inclusion of delayed notifications in the statistics has a large impact on the figures. This

measure means that statistics consist of all events reported during the reference year regardless of when the event occurred.

7.2. Waiting time before extraction of data

It obviously takes time from an event takes place until it is recorded, at least when the date refers to a biological or external legal event. With regard to migration, the dates may be determined by factors other than the actual reality, and will in some cases be close to or equal to the recording date. Notwithstanding, the introduction of a waiting period from the reference period/date up to the extraction of data helps improve the quality of the statistics – until waiting has a detrimental effect on the timeliness. In Norwegian population statistics, one month has been the standard since 1998, and approximately the same time is used in the other Nordic countries.

A 1-month wait has a positive effect on the “quick” transactions such as births, whereas emigration transaction need more time and would have benefited from an additional month. However, if most of the delayed information were to be received a wait of some years would be necessary (illustrated in table 2).

7.3. Choice of variable for date of event

Statistics Norway uses the official date of event, even when the migrants themselves have given an additional date of actual migration. This date is entered for approximately half of the notified emigration events, is not quality assured, and may often be inconsistent with the other data in the population register.

7.4. Including the lag?

Some events have an event date that refers to a year before the reference year. These events are called a ‘lag’. A lag arises due to a large time difference between the official event date and the recording date – the reasons for which can vary. These events are normally just as correct as others and conversely, no delay does not necessarily mean that the date is reliable (the date may refer to the date of decision).

In Norwegian population statistics, all lags have been included since 1998. The main justification is that it would be wrong to skip events that have happened once and which have not been included in previously published statistics. For emigration in particular, the lag is just too big (up to 20 per cent) to be ignored and omitted from the statistics. As table 2 shows, the logic behind including the lag is that it represents a substitute for relevant events that will take place in the future (“the aftermath”). The table shows how including the lag in the statistics for 2008 in a way offset the events that we now know took place in the following years.

Table 2. The lag of emigration events 2004-2013, compared with the supply of new events referring to the same official year of event

Official year of event	Reference year of the statistics										Total	After-math
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013		
-1990	13	4	5	4	4	2	1	4	2	1		
1991	2	1		3	1			1				
1992	5	2	3	1	1			2				
1993		1	1					1				
1994	1	2	1		1		1					
1995	3	1	1	1			1	1				
1996	2	2	2		1	1			3	2		
1997	5	1	1						1			
1998	10		1	1			1	1				
1999	25	7		1		1	2	1	1			
2000	91	19	4	7		1	1	4	1	3		
2001	375	57	12	8	4	1	11	11	10	9		
2002	640	65	22	7	1	12	4	7	14	5		
2003	1995	395	48	12	7	9	8	6	9	10		
2004	20104	1861	257	38	12	12	12	17	24	10	22 347	2 243
2005		19291	1706	93	51	39	24	21	23	19	21 267	1 976
2006			19989	1652	284	142	65	26	17	8	22 183	2 194
2007				20294	2296	270	96	37	22	13	23 028	2 734
2008					20952	4505	640	269	69	24	26 459	5 507
2009						21554	5618	788	58	29	28 047	6 493
2010							25021	3658	147	53	28 879	3 858
2011								27611	1543	102	29 256	1 645
2012									29281	2023	31 304	2 023
2013										33405	33 405	0
Total	23 271	21 709	22 053	22 122	23 615	26 549	31 506	32 466	31 227	35 716		
Lag	3 167	2 418	2 064	1 828	2 663	4 995	6 485	4 855	1 946	2 311		
Percent	13,6	11,1	9,4	8,3	11,3	18,8	20,6	15,0	6,2	6,5		

The rectangles marked in 2008 is an example only

Year	A	B	B - A	A	B	B - A	Cumulative difference
	Official figures 1)	So far final count 2)		Lag	After-math		
2004	23 271	22 347	-924	3 167	2 243	-924	-924
2005	21 709	21 267	-442	2 418	1 976	-442	-1 366
2006	22 053	22 183	130	2 064	2 194	130	-1 236
2007	22 122	23 028	906	1 828	2 734	906	-330
2008	23 615	26 459	2 844	2 663	5 507	2 844	2 514
2009	26 549	28 047	1 498	4 995	6 493	1 498	4 012
2010	31 506	28 879	-2 627	6 485	3 858	-2 627	1 385
2011	32 466	29 256	-3 210	4 855	1 645	-3 210	-1 825
2012	31 227	31 304	77	1 946	2 023	77	-1 748
Total	234 518	232 770	-1 748	30 421	28 673	-1 748	

1) From the column totals
2) From the row totals

7.5. Attempts to improve the coverage of ‘country of next residence’

A question producers of statistics ask themselves is whether it is possible to *impute* country of next residence in some way or other. The only method tried so far has been to assume that if a person has a chain of migration events it is safe to give an unknown country in the middle of the chain the same value as the other events. However, even when combined with the country of the postal address the efforts have been of little help.

The only possibility for more imputation is to find the country breakdown for the emigrants for whom that information is given, and then impute a country on the unknown cases according to the percentages. For example, if, in a category, 10 per cent of those with a country of next residence have emigrated to Germany, then 10 per cent of the unknown cases will be drawn randomly and given Germany as their country of next residence.

The problem, however, is that for most nationalities the number of known cases is rather small compared to the number of cases to be imputed. For instance, the countries of next residence notified by 10 Somalis could determine the country for 90 Somalis that have left Norway without any notification. It is difficult to know if the former group of Somalis is representative of the latter, and in any case the breakdown of countries of the former, small group may be accidental. All accidental values will be magnified and create some strange results. Nevertheless, this method must be explored.

7.6. Using the received information on corrections

Annulments and other changes make the data processing more complicated, but on the other hand it is important for the quality of the data that updates are made. Until a few years ago, the processing system did not deal with annulments, but now it does.

If an annulment transaction refers to an event that is already included in published statistics, however, there is no real possibility for this transaction to have any effect on current statistics for later periods.

7.7. Processing data for research

There are different demands on statistics and on individual level data. Statistics are closed once a year and possible minor errors do not influence the statistics of the forthcoming years. There is also no demand for individual level consistency between two reference periods. Some errors at individual level will be smoothed away in the broad figures. This does not apply in individual level data.

When the statistics are compiled, the information in the data is frozen, and individual level data used as the basis for the statistics cannot be altered later, even if new information on the persons or events is received. For high quality research, however, using data that for practical reasons was closed once a year would be pointless. Instead, the entire data set should be corrected and up-to-date to the greatest degree possible. In general, for research-related use the dynamic qualities of the data should be utilised.

In addition, life course analysis demands that the events for each person are in a logical order. This requires further scrutiny and processing of the data, and errors and omissions need to be rectified.

The incompatibility between the wish to produce finalised, frozen statistics and the wish to keep the data sets up-to-date is difficult to manage.

8. Conclusions

A crucial feature of the Norwegian statistics on emigration is that this field is a part of a bigger picture. Emigration belongs together with the area of immigration and should be viewed in context with that. It is also one of the population growth factors. The production systems used contain more than emigration data, and decisions made on the handling of data are often common decisions for a number of areas.

Furthermore, a large number of people outside Statistics Norway are also involved in the work of defining migration events operationally, collecting information on migrants and improving the quality of the data. These resources are extremely valuable for Statistics Norway.

The larger area in which emigration forms a part, also encompasses the Nordic agreement on population registration, which is an important asset for the Nordic population statistics.

However, as we have seen there are enough topics to be preoccupied with, issues to be discussed and problems to resolve. Can anything be done to reduce the deficiencies? If there are solutions, they are mainly to be found in the population registration system. It should be possible to get more migrants to give notification of their migration themselves. Another possibility lies in the potential for greater internationalisation of administrative systems, such as the exchange of national insurance information within the EU/EEA.

Statistics Norway does not have any choices in relation to data sources; it has to take the data it can get. However, it does have a degree of influence on the administrative system, along with various other users, and it also makes decisions in relation to the production of statistics.
