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Emigration in the Norwegian context 2000-2020 – documentation and background information

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Preface

This report summarizes information relevant for statistical analyses and research on emigration from Norway in recent times. Such information is relevant for researchers and users of research in this field, and specifically for EXITNORWAY, a research project undertaken in collaboration between researchers at NIBR, OsloMet, Statistics Norway, the Norwegian Institute of Public Health (NIPH), Stockholm University, Baltic Institute of Social Sciences and University of Pennsylvania, and funded by the Norwegian Research Council (project no. 313823).

The report is written by Astri Syse at the Norwegian Institute of Public Health (NIPH), Terje Skjerpen at Statistics Norway and Marianne Tønnessen at NIBR. Kristian Tronstad, head of research at NIBR, has provided useful feedback.

Most of the information reported here, is available only in Norwegian or from multiple and separate sources. This report presents an overview of emigration in a Norwegian context with a focus on the data needed to understand this phenomenon and compiles much existing Norwegian information so it can also reach an English-speaking audience.

Oslo, october 2023

Kristian Rose Tronstad
Head of research

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Summary

This report outlines the most relevant definitions and concepts pertaining to the emigration process itself, along with those relevant for a broader understanding of the 'phenomenon' of emigration. It describes the rules and regulations pertaining to emigration from Norway and gives a brief description of emigration from Norway since 2000 and some existing knowledge on factors associated with emigration. Since immigrants are more likely to emigrate than natives, a brief overview of Norway's recent immigration history is also presented.

Next, the report aims to describe information and data that may be obtained and be of use for analyses and research on emigration from Norway. Detailed appendices present more detailed information, including the emigration notification form needed to report an emigration from Norway (Appendix A), regional information especially relevant for examining emigration from Norway in a sub-national context (Appendices B, C, and D), additional information on occupation (Appendix E) and origin country (Appendix F), as well as an example overview of data that may be obtained from Statistics Norway to describe and analyze emigration (Appendix G).

1 Introduction and background

After 2000, more than half a million individuals have left Norway. This corresponds to an average annual emigration of almost 30,000 (cf. Figure 1.1). The causes and consequences of pronounced emigration are nevertheless rarely in focus in policies and politics (in contrast to immigration which is of very much concern, in public debate, policies and politics). In this report, we will describe and contextualize the emigration over the past decades. We will briefly touch upon relevant policies and changes in these, as well as describe the data that are available and relevant for examining emigration in more detail. Such information is generally typically available only in Norwegian or from multiple, individual sources. This overview thus compiles much of the available material. Consequently, we hope that this overview will be useful for readers who are interested in demographic changes more generally and emigration in particular. Such information is also relevant for EXITNORWAY, a research project funded by the Norwegian Research Council and undertaken in collaboration between NIBR, OsloMet, Statistics Norway, Norwegian Institute of Public Health, and international partners.

Figure 1.1: Annual recorded emigration from Norway, absolute numbers, 2000-2022

Source: Statistics Norway, https://www.ssb.no/statbank/table/05803/. If a person has emigrated twice the same year, this is recorded twice.

In this introductory chapter, we begin by outlining the most relevant definitions and concepts before we proceed to describe the rules and regulations pertaining to emigration from Norway. Chapter 2 presents Norway's recent immigration history, which is relevant because most emigrants are in fact immigrants, and we present an overview of emigration from Norway since 2000 and some existing literature on emigration from Norway. In Chapter 3 we describe information and data that are useful for research on emigration from Norway. Chapter 4 gives a brief summary of the previous chapters. In the appendices, we present more detailed information, including the emigration notification form needed to report an emigration from Norway (Appendix A), along with country-specific regional information especially relevant for examining emigration from Norway in a sub-national context (Appendices B, C, and D), additional information on occupation (Appendix E) and origin country (Appendix F), as well as an example overview of data that may be obtained from Statistics Norway to describe and analyze emigration (Appendix G).

1.1 Definitions and concepts

In this report, we use definitions and concepts as they are defined and used by Statistics Norway. In instances where other official agencies use different definitions, and this has implications for possible results or interpretations of these, the most important differences are noted.

1.1.1 Residential status

Norwegian population statistics, as well as most quantitative research on population issues in Norway, is based on information from the Norwegian population register. The population register contains information of everyone that resides or have resided in Norway, as long as they are only legal residents. Norwegian-born individuals who have not left the country are automatically defined as residents.[1] Furthermore, individuals from countries outside the Nordic countries are regarded as residents of Norway when they have lived here or intend to live here for at least 6 months, even though the stay is temporary and even though they are not Norwegian citizens. The same 6-month rule applies to migration from Norway to a country outside the Nordic countries. The 6-month rule does not, however, always apply for migrations between Norway and other Nordic countries. In Denmark, for example, a person is registered as a resident if the person intends to stay in the country at least 3 months. In Sweden and Finland, the limit is one year. For persons who move to Norway from another Nordic country, the 6-month rule still applies, as residence is decided by the country of immigration's rules, cf. the Nordic agreement on population registration.[2]

From March 1987 to January 1994, asylum seekers were typically counted as immigrants and hence also as residents even though the processing of their application for residence had not been completed. Before and after this period (i.e., for the duration of our data, which run from 2000 onwards), as a main rule only asylum seekers with residence permits (that is, those who have been granted asylum) should be registered as residents.

As a main rule, persons in Norway are regarded as residents in the municipality where they have their regular daily rest, i.e., where they sleep at night. If the daily rest shifts between places, the person is regarded as residing where he/she overall may be said to live on a regular basis. Spouses with a joint home and persons sharing a joint home with their children are regarded as residing in this home, irrespective of where they actually sleep at night. Single persons who attend school (through high school) in another municipality are, as a main rule, regarded as residents of the place they lived before starting school (most commonly, the residence of their parents). Similar registration principles also apply to conscripts serving their initial military service, alternative national service conscripts, prisoners, and people admitted to hospitals. Persons admitted to or placed in other institutions or private care are usually regarded as residents of this place when the stay is intended to last, or turns out to last, at least 6 months. Students in higher education may choose to either remain registered in their family home or register as residents at their study address from the early 2000s (Ot.prp. nr. 94 (2000-2001)[3]). Regulations regarding the

[1] People living in Svalbard, on Jan Mayen or in Norwegian dependencies who on departure were registered in the population register of a Norwegian municipality shall still be counted as residents of that municipality. The same applies to people on the Norwegian continental shelf. Norwegian foreign and consular service staff and Norwegian military personnel posted for duty abroad are also counted as residents of Norway, and the same applies to their families. However, foreign staff at foreign embassies and consular services and foreign personnel attached to NATO are not counted as residents of Norway, and neither are their family members.

[2] https://lovdata.no/dokument/TRAKTAT/traktat/2004-11-01-41

[3] https://www.regjeringen.no/contentassets/2d8a02ab2af34ea09095e6c8ee18e31a/no/pdfa/otp200020010094000dddpdfa.pdf

municipality of residence are stipulated in the Population Registration Act of 16 January 1970.[4]

1.1.2 International migration

Immigration and emigration

International migration is defined as a move between Norway and abroad. *Emigration* is defined as a move from Norway to another country, whereas *immigration* is defined as move from a country other than Norway, to Norway. Both immigrations and emigrations are recorded irrespective of the migrants' country of birth or citizenship. For example, during a calendar year, immigration to Norway typically includes 8000-10,000 Norwegian citizens, most of whom are born in Norway and are thus not considered immigrants (see below). *Net migration* corresponds to the difference between the number of immigrations to and emigrations from Norway during a calendar year.

Emigrants are defined as persons who have previously been registered as residents in Norway but have left the country to reside in another country. The concept applies to all former residents who have left Norway, irrespective of their country of birth, immigrant status or citizenship. In Norway, *immigrants* are defined by their country of birth. The concept applies to all individuals who are born abroad, have two foreign-born parents and four foreign-born grandparents. Persons thus remain immigrants during their entire stay in Norway, irrespective of duration of stay or possible change of citizenship. *2nd generation immigrants*, or Norwegian-born with immigrant parents, are defined as persons born in Norway to two parents born abroad (i.e., to two immigrants), and who also have four grandparents who were born abroad. In short, most statistics and analyses on immigrants in Norway employ the classification of i) Immigrants; ii) native-born with immigrant parents (2nd generation); and iii) Natives. However, at times only immigrants are separated out. In those instances, a native may thus be defined as anyone who is not an immigrant.[5] In the analyses we focus on in this report, we primarily employ the division into three groups (i-iii) as the emigration probabilities differ between immigrants and 2nd generation.

Country and citizenship

The classification standard for countries (including country of birth as well as country of origin and destination) and citizenship was adopted in Statistics Norway in 1975. The classification has changed a bit over the past decade, mirroring political changes in the world, and details are available in Statistics Norway's classification system KLASS.[6] In short, names have been changed, new codes have been added and some have been discarded. The 2005-version includes all countries that have ever existed, whereas from 2006 the standard version only includes current countries. The versions are updated only in years when changes occur. For immigrants, their own country of birth is used in classifications (i.e., their mother's country of residence at their birth), whereas for the 2nd generation immigrants, the mother's registered country of birth is used to indicate (non-Norwegian) country background.

Emigrations

If persons intend to leave Norway to take up residence abroad (outside the Nordic region) for at least six months, they should report the move to a tax office before moving from Norway (cf. the National Registration Act, Section 8, paragraph 1). This is accomplished by

[4] https://lovdata.no/dokument/NL/lov/2016-12-09-88?q=folkeregist

[5] For registration purposes, Statistics Norway divides the entire population of Norway into a total of 30 categories, based on information about the person's own, parents' and grandparents' country of birth. These categories are called 'Basic codes' and are commonly not included in the official statistics but are available for research (cf. for instance Stambøl 2021). In 15 of the groups, the country of birth is Norway for the individual in question.

[6] https://www.ssb.no/en/klass/klassifikasjoner/91

completing a standardized form (see Appendix A). If individuals are moving to another Nordic country, the move only needs to be reported in the country that they are moving to, in line with agreement no. 41 of 1 November 2004 between Denmark, Finland, Iceland, Norway and Sweden on population registration.

The majority of emigrations are registered on the basis of notifications from individuals who opt to leave Norway. This type of emigration is termed 'self-registered de-registration' and pertain to emigrations that are self-notified.

The Norwegian Tax Administration will decide whether persons should be registered in the National Registry as having emigrated. To establish whether persons ought to be registered as emigrated, the authorities judge whether the individual in question conforms to the following criteria:

a. Has an own independent residence in the country of immigration
b. No longer has permanent housing in a Norwegian municipality
c. No longer has a working connection to a Norwegian municipality
d. Does not have a spouse or children in a Norwegian municipality
e. Has nothing but sporadic stays in a Norwegian municipality during the year.

Consequently, persons might be denied to formally be registered as emigrated from Norway if their connection to Norway is considered too strong.

Administrative de-registrations (emigrations without notification)

Whereas the number of official immigrations to Norway is assumed to be fairly accurate, as there are strong incentive structures in place for registering an immigration (e.g., to obtain a personal identification number, to be eligible for health and welfare services, etc.), the incentives to register an emigration are not similarly strong, and people who move from Norway do not always notify The Norwegian Tax Administration, which is in charge of the population register, about their emigration. As such, the number of emigrations is less accurate. This is a challenge for a country where most demographic and other statistics are based on register (and not census) data. Consequently, considerable efforts have been made to ensure that the registers comprise individuals who *de facto* reside in Norway. The Norwegian Tax Administration attempts to meet this challenge by registering individuals as emigrated if, for instance, their residence permits have expired, or the authorities are unable to reach individuals in question at their registered address. This is what is known as 'administrative de-registrations' (Vassenden 2015). As a result, the official numbers of emigrations fluctuate over time not only because of variations in the number of persons who opt to emigrate, but also by variations in the efforts made by the authorities in this matter. As a consequence, the number of net migrations may also vary for the same reason.

More specifically, such administrative de-registrations may typically concern foreign citizens who no longer have a legal permit to stay in Norway and persons who have not had a known place of residence in Norway for the past two years, unless the registration authority assumes that the persons still reside in the country. Consequently, administrative de-registrations refer to any de-registration that has not been self-notified. As Figure 1.2 shows, there has been an increase in the number of administrative de-registrations over time, suggesting that a non-negligible number of people leave Norway each year without notifying the population register.

Figure 1.2: Emigrations, self-registered and administratively de-registered. Absolute numbers (left) and percent (right). 2000-2020

Source: Data in the EXITNORWAY project, provided from Statistics Norway

Even though administrative de-registrations aim to remove a major share of the individuals who fail to report that they have emigrated from Norway, there may still be people in the Norwegian population register that have actually left the country long time ago. In a document in progress by Kåre Vassenden at Statistics Norway (provided by email 7 May 2022), estimates from 1 January 2015 suggest that a minimum of around 8000 persons in the population register have actually emigrated and should have been recorded as such. The estimate is based on deviations in addresses and income levels below a minimum pre-specified amount. Applying the same criteria but a higher income level resulted in a maximum estimate of around 45,000. According to Vassenden at Statistics Norway, the maximum figure is most likely to reflect the actual circumstance and thus be more accurate than the minimum figure. When examining the maximum estimated figure in more detail, Vassenden reports that the majority (64%) are immigrants, near a quarter (23%) natives, i.e., persons born in Norway with two Norwegian-born parents and thus without an immigrant background, and a small share are Norwegian-born persons with two immigrant parents (8%). The majority are men and fairly young (80% are age 45 or below). Among the immigrants, a pronounced share is labor migrants (39%), primarily from Eastern EU countries.

This challenge is also observed in earlier emigration studies (Pettersen 2013), attributed in part to the EU Directive 2004/38/EC, which implied that EEA citizens no longer needed permission to reside or work in Norway, only a registration certificate from the police. This registration certificate has no expiry date, and thus the Tax Administration lost an important source of information for identifying persons likely to no longer be residents in Norway (ibid).

According to Vassenden, nearly one fifth of the maximum estimated assumed emigrated individuals had been administratively de-registered 1.5 years later, whereas this pertained to near half (45%) of the minimum estimate. The Tax Administration also categorized 1100 persons as ‘without a permanent address’, which typically is an intermediate step before an administratively out-registration takes place. Vassenden thus concludes that a large share of

those individuals are likely to become administratively de-registered after some time (although this category also includes some homeless persons still living in Norway).[7]

When people are administratively registered as emigrated, the date of this decision is recorded as the emigration date. Mostly likely the actual move from Norway took place some years earlier, but the exact date is not known to the authorities. However, this biases all estimates of emigrants' duration of stay in Norway and age at departure, unless the analyses are restricted to self-notified emigrants only. As mentioned above, this also means that fluctuations in emigration may be due to changes in administrative capacity in The Tax Administration and not, for instance, business cycles. In addition, when people do not notify the Norwegian authorities about their emigration, they consequently do not provide information about their country of destination.

1.1.3 Regional definitions and concepts

Norway is a long-stretched country, with multiple regional classifications. Four classifications of particular relevance for statistical analyses are presented below: (i) municipality, (ii) economic region, (iii) county, and (iv) centrality. Since 2000, all these regional classifications have changed somewhat, mainly due to a recently implemented reform of local government, resulting in the merging and establishment of several new municipalities and counties. The main aim of the local government reform is to reduce the number of municipalities, to help ensure good, equivalent services for inhabitants, today and in the future, in both larger and smaller municipalities, and give the municipalities more power, in part by transferring certain tasks from the national level to the municipalities and counties.

Municipality

Municipality is both a term for a political and an administrative level in Norway, as well as a regional level in the publication of statistics.[8] The municipality level corresponds to the NUTS 5-level in the EU's regional classification. In 2000, there were 435 municipalities in Norway. The number of municipalities was reduced to 428 by 2014, through 7 voluntary merges. Between 2016 and 2020, many mergers were implemented, in part voluntary and in part not, and from January 2020, 356 municipalities exist (cf. Appendix B). Currently, the municipalities range in population size from around only 200 inhabitants to almost 700,000 inhabitants, with a median size of about 5000.

Norwegian municipalities are not fully autonomous units, but exercise autonomy within the framework determined by the Parliament. To counteract differences in the service provision between the municipalities, the state provides guidelines and adopts common laws and regulations which, among other things, require municipalities to ensure the provision of welfare services, in compliance with certain predefined minimum standards (Meld. St. 12 (2011–2012) 2012).[9]

Appendix B gives information on the names of the municipalities, their codes, population and number of immigrants as of 1 January 2020, as well and the immigrant share of the population. The municipalities with the highest shares of immigrants (>30%) are Oslo, Lørenskog and Båtsfjord. The three municipalities with the lowest share of immigrants are

[7] The issue of wrongful de-registrations was much debated (unfortunately only in Norwegian) in 2019, in news stories in media (e.g., https://www.nrk.no/rogaland/fikk-sjokkbeskjed-fra-legen_-_-du-eksisterer-ikke-1.14744085 and https://www.abcnyheter.no/helse-og-livsstil/livet/2019/07/14/195592475/de-hjemlose-som-forsvinner-fra-systemet), from civil society (e.g., https://www.rusfeltet.no/arkiv/bostedslos-eller-utvandret-hjelp-fattige-som-kan-miste-rettigheter) and politically (e.g., https://www.stortinget.no/no/Saker-og-publikasjoner/Sporsmal/Skriftlige-sporsmal-og-svar/Skriftlig-sporsmal/?qid=76819).

[8] https://www.ssb.no/en/klass/klassifikasjoner/131

[9] https://www.regjeringen.no/no/dokumenter/meld-st-12-20112012/id671829/. For English, see for instance Molven, Olav & Ferkis, Julia (Eds.), Healthcare, Welfare and Law. Health legislation as a mirror of the Norwegian welfare state. Gyldendal akademisk 2011.

Rindal, Bindal and Aremark, which all have a share less than 5 percent. The mean and median immigrant shares are, respectively, 12.6 and 11.8 percent. In terms of absolute numbers, the most populous cities have the largest number of immigrants (Oslo, Bergen, Trondheim, and Stavanger).

KOSTRA is a national information system that provides aggregate information and statistics on municipal activities.[10] From this database one may extract characteristics of an individuals' residential municipality and merge such information to individual level data using the municipality ID number.

Economic region

Economic region is a regional, standardized classification for the level between county and municipality.[11] The name reflects that the criteria used to define regions (e.g., labor market and trade) are related to the economic conditions of the area. Per 2020, a total of 85 units exists (cf. Table 1.1). In 2000, there were 90 economic regions[12], but in 2002 the number was reduced to 89. In 2018, some municipalities were moved across regions, but the overall number remained the same. On 1 January 2020 the number was reduced by four to the current number (85). The main purpose of the classification is to constitute an appropriate level for the publishing of statistics, but it should also correspond to the NUTS 4-level in the EU's regional classification.

Table 1.1 shows the name of the economic regions, their codes, the number of inhabitants and immigrants and the share of immigrants as of 1 January 2020. Note that the code structure is hierarchical since the two first of the five digits correspond to the county code (discussed below). Oslo is the economic region with the highest immigration share, whereas Nord-Gudbrandsdal is the region with the lowest immigration share. The mean and median immigrant shares in the economic regions are 13.5 and 12.3 percent, respectively.

Table 1.1: No. of inhabitants and immigrants in different economic regions as of 1 January 2020[13]

Economic region	Code for economic region	No. of inhabitants	No. of immigrants	Share of immigrants[a]
Oslo	03001	693,494	234,354	33.8
Dalane	11001	24,080	2,793	11.6
Stavanger/Sandnes	11002	223,111	51,309	23.0
Jæren	11003	121,356	18,792	15.5
Indre Ryfylke	11004	10,973	1,340	12.2
Haugaland	11005	100,372	13,492	13.4
Ørsta/Volda	15001	21,298	2,250	10.6
Søre Sunnmøre	15002	28,224	4,354	15.4
Ålesund	15003	66,258	10,500	15.8
Ålesund omland	15004	32,469	4,667	14.4
Molde	15005	65,384	7,851	12.0
Kristiansund	15006	38,649	4,830	12.5
Sunndal/Surnadal	15007	12,956	1,146	8.8
Brønnøysund	18001	12,980	1,045	8.1
Mosjøen	18002	16,057	1,290	8.0
Sandnessjøen	18003	16,427	1,985	12.1
Mo i Rana	18004	32,399	2,763	8.5
Bodø	18005	52,357	5,661	10.8
Salten	18006	30,965	2,915	9.4

10 KOSTRA - Key figures on municipal activities. Municipal-state-reporting. Online at: https://www.ssb.no/en/offentlig-sektor/kostra

11 https://www.ssb.no/en/klass/klassifikasjoner/108

12 https://www.ssb.no/a/publikasjoner/pdf/nos_c616/nos_c616.pdf

13 An overview of the municipalities in each economic region can be found at https://www.ssb.no/en/klass/klassifikasjoner/108/korrespondanser/985

Ofoten	18007	23,193	2,704	11.7
Lofoten	18008	24,554	3,254	13.3
Vesterålen	18009	32,303	3,724	11.5
Halden	30001	32,698	4,994	15.3
Fredrikstad/Sarpsborg	30002	151,293	28,600	18.9
Moss	30003	55,009	10,979	20.0
Indre Østfold	30004	60,447	10,648	17.6
Follo	30005	144,372	26,947	18.7
Lillestrøm	30006	226,642	54,242	23.9
Ullensaker/Eidsvoll	30007	82,054	19,756	24.1
Asker/Bærum	30008	222,172	48,059	21.6
Hønefoss	30009	46,504	7,180	15.4
Drammen	30010	165,202	39,393	23.8
Kongsberg	30011	34,240	5,408	15.8
Hallingdal	30012	20,532	3,334	16.2
Kongsvinger	34001	41,468	4,530	10.9
Hamar	34002	94,875	11,761	12.4
Elverum	34003	44,370	4,806	10.8
Tynset	34004	17,207	1,966	11.4
Nord-Gudbrandsdal	34005	18,262	1,344	7.4
Midt-Gudbrandsdal	34006	13,234	1,324	10.0
Lillehammer	34007	39,551	5,131	13.0
Gjøvik	34008	84,840	10,423	12.3
Valdres	34009	17,578	1,954	11.1
Holmestrand	38001	24,699	3,516	14.2
Tønsberg/Horten	38002	110,374	16,406	14.9
Sandefjord/Larvik	38003	110,968	18,749	16.9
Porsgrunn/Skien	38004	91,339	14,535	15.9
Grenland	38005	30,841	3,244	10.5
Midt-Telemark	38006	16,959	2,484	14.6
Øst-Telemark	38007	20,313	2,643	13.0
Vest-Telemark	38008	13,903	1,434	10.3
Østregionen	42001	19,223	2,351	12.2
Arendal	42002	74,494	10,865	14.6
Kristiansand	42003	111,633	20,030	17.9
Kristiansand omland	42004	32,405	4,098	12.6
Mandal	42005	23,046	2,879	12.5
Lyngdal/Farsund	42006	21,736	2,613	12.0
Flekkefjord	42007	15,015	1,985	13.2
Setesdal og Sirdal	42008	9,679	1,227	12.7
Stord	46001	39,671	4,742	12.0
Sunnhordland Aust	46002	20,002	1,834	9.2
Indre Hardanger	46003	11,954	1,432	12.0
Voss	46004	29,254	3,237	11.1
Bergen	46005	283,929	52,116	18.4
Midthordland	46006	108,596	12,797	11.8
Nordhordland	46007	37,018	3,909	10.6
Indre Sogn	46008	28,756	3,386	11.8
Sunnfjord og Ytre Sogn	46009	34,074	3,714	10.9
Nordfjord og Kinn	46010	43,277	5,987	13.8
Trøndelag sør	50001	23,287	2,469	10.6
Orkland og øyregionen	50002	36,384	4,744	13.0
Trondheim	50003	205,163	33,420	16.3
Trondheim forstad	50004	39,206	3,716	9.5
Værnes	50005	31,398	2,946	9.4
Levanger/Verdalsøra	50006	37,739	3,370	8.9
Steinkjer	50007	33,236	2,901	8.7
Fosen	50008	25,643	2,105	8.2
Namdal	50009	36,646	3,685	10.1
Sør-Troms	54001	37,390	3,908	10.5
Midt-Troms	54002	30,043	2,979	9.9
Tromsø	54003	76,974	11,633	15.1
Nord-Troms	54004	23,432	2,280	9.7
Vest-Finnmark	54005	25,592	2,739	10.7
Midt-Finnmark	54006	24,883	4,069	16.4
Øst-Finnmark	54007	12,618	1,910	15.1

[a]In percent.

County

County is both a term for a political and an administrative level in Norway, as well as a regional level in the publication of statistics. The counties correspond to EU's NUTS-3 level. At 1 January 2020, the number of counties was reduced from 19 to 11, due to the aforementioned local government reform.

Table 1.2 below shows the population and immigration sizes in the 11 counties together with the immigration share as of 1 January 2020. Viken and Oslo (the latter being the capital city of Norway) are the two counties with the largest populations and with the largest stocks of immigrants. However, the immigrant share is higher in Oslo than in Viken. In Oslo about a third of the population are immigrants, whereas the share in Viken is about 21 percent. Innlandet is the county with the lowest share amounting to about 11.5 percent. The mean share is 16.2 percent.

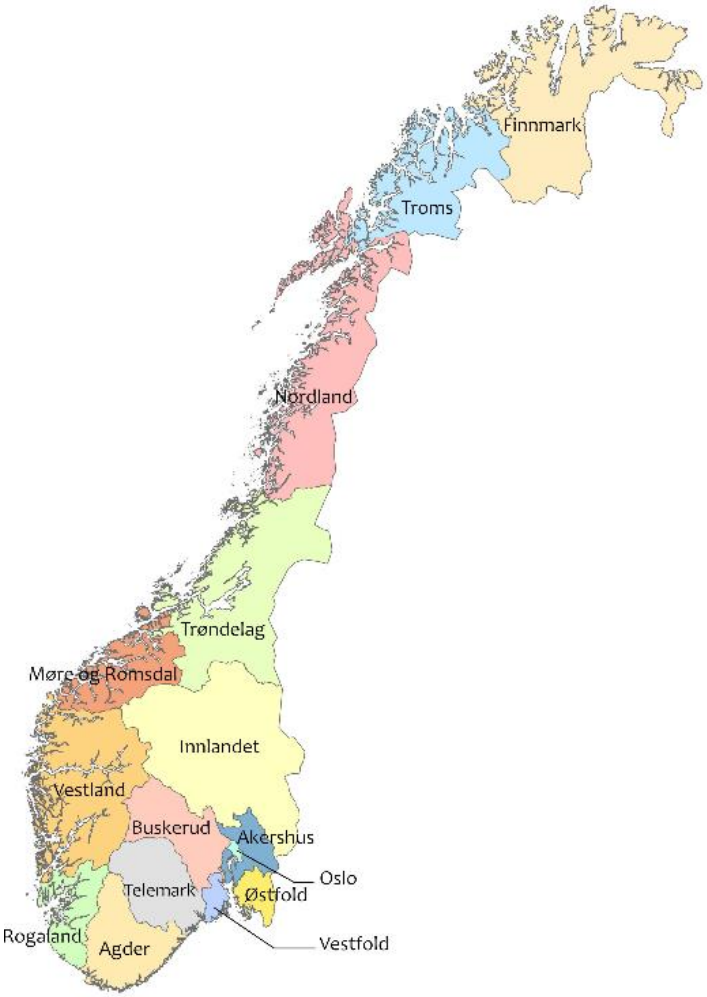
Table 1.2: No. of inhabitants and immigrants in different counties as of 1 January 2020

County	Code for county	No. of inhabitants	No. of immigrants	Share of immigrants[a]
Oslo	03	693,494	234,354	33.8
Rogaland	11	479,892	87,726	18.3
Møre og Romsdal	15	265,238	35,598	13.4
Nordland	18	241,235	25,341	10.5
Viken	30	1,241,165	259,540	20.9
Innlandet	34	371,385	43,239	11.6
Vestfold og Telemark	38	419,396	63,011	15.0
Agder	42	307,231	46,048	15.0
Vestland	46	636,531	93,154	14.6
Trøndelag	50	468,702	59,356	12.7
Troms og Finnmark	54	230,932	29,518	12.8

[a]In percent.

The reform of local government, and in particular some of the county merges, have been controversial. For three of the current counties, Troms og Finnmark, Vestfold og Telemark and Viken, new political decisions have reversed the merges, and the old counties will be re-established. Hence, from 1 January 2024, Troms og Finnmark county will be split into Troms county and Finnmark county, Vestfold og Telemark county will be split into Vestfold county and Telemark county, and Viken county will be split into Østfold county, Akershus county and Buskerud county, resulting in a county map of Norway as shown in Figure 1.3.

Figure 1.3: Counties in Norway from 2024 onwards



Source: Norwegian government, https://www.regjeringen.no/no/tema/kommuner-og-regioner/kommunestruktur/fylkesinndelingen-fra-2024/id2922222/

Centrality

Centrality is an index with value for each municipality.[14] Up to and including 2017, the index was based on the municipality's location in relation to settlements and the size of these settlements. The municipalities with the 'regional center' functions and the municipalities around them had the highest centrality. The centrality then had four main levels, from 0 to 3. As of 2018, a new standard for centrality was introduced, based on proximity to workplaces and service functions, without the use of settlements in the classification. Here the centrality is between 0 (only theoretically possible) and 1000. These values are grouped together into six classes. The most central municipality will always have a value of 1000 (Oslo) and the least central municipality has the value of 295 (Utsira).

For statistical analyses, the municipalities in the two lowest centrality categories (i.e., centrality 5 and 6) are often grouped together and classified as 'rural'. Rural municipalities typically have populations of less than 15,000 and do not fulfil the function of a regional

[14] https://www.ssb.no/en/klass/klassifikasjoner/128/versjon/1427/koder. See also Høydahl (2020)(in Norwegian).

center, whereas urbanized municipalities comprise the remaining four categories (i.e., centrality 1-4). Table 1.3 shows the six centrality levels, their number of habitants and immigrants as well as the share of immigrants as of 1 January 2020. Most of the immigrants live in the three highest central categories (i.e., centrality 1, 2 and 3) and the share of immigrants in the population are also higher for these 3 centrality levels.

Table 1.3: No. of inhabitants and immigrants at different centrality levels as of 1 January 2020

Centrality level	No. of inhabitants	No. of immigrants	Share of immigrants[a]
1	1,026,486	315,501	30,7
2	1,363,366	272,395	20,0
3	1,364,123	207,803	15,2
4	878,734	99,141	11,3
5	488,984	54,529	11,2
6	233,508	27,516	11,8

[a]In percent.

Recoding of muncipalities

To facilitate empirical analysis in the EXITNORWAY project, we have recoded the municipalities such that the classification from 2020 also is used for all the preceding years. This is convenient if we for example wish to use dummy variables for the municipalities when modelling emigration from Norway or domestic migration in Norway. Likewise, we also use the classifications for economic regions and centrality from 2020 for all the preceding years.

Some of the recoding is related to the new classification of counties from 2020. As an example, let us take the municipality of Elverum. Before 2020 it belonged to the county of Hedmark and had the code 0427, the two first digits being the county code. When the two counties Hedmark and Oppland were merged to Innlandet county, Elverum was given the code 3420, the two first digits being the county code for Innlandet. Municipalities that were merged into a new larger municipality, have been assigned the new municipality's code throughout the period.

However, division of municipalities as well as changes in municipality borders is more challenging to account for. In the case of division, the typical case is that parts of a municipality have been allocated to other, larger municipalities. For more basic analyses, a divided municipality can be allocated to only one municipality, where the municipality chosen is the one that have received the largest share of the population from the divided municipality.

In the more detailed analyses in the EXITNORWAY project, we have taken into account both divisions of municipalities and border adjustments to a larger extent:

First, we have taken into account major boundary adjustments, i.e., boundary adjustments which resulted in more than 50 residents changing municipalities, by the following approach: Every person who was registered as a resident of the municipality that transferred area (and inhabitants) at 1 January the year before the border adjustment, and as a resident of the municipality that received area (and inhabitants) in the first year following, has been recoded to have lived in the municipality that received area and residents also in the years before the adjustment (unless they were registered residents in a completely different municipality or abroad). This has been done in connection with border adjustments which implied transfer of area (and inhabitants) from Sande to Vanylven in 2002, from Vestre Toten to Østre Toten in

2003, from Stokke to Tønsberg in 2017, from Rauma to Vestnes in 2021, and the following border adjustments in 2020: From Lillestrøm to Nes, from Tønsberg to Holmestrand, from Midt-Telemark to Notodden, from Kinn to Stad, from Ås to Nordre Follo, from Hjelmeland to Stavanger, from Sandnes to Strand, from Ullensvang to Voss, from Sogndal to Høyanger, from Ørsta to Volda, from Steinkjer to Indre Fosen and from Nærøysund to Namsos.

Second, for the two municipalities that were split and distributed to other municipalities on 1 January 2020, a similar approach is used: Persons who were registered residents of Snillfjord at 1 January 2019, and who in the first year after the split (i.e., 1 January 2020) were registered residents of Orkland, Hitra or Heim, have been recoded as residents in these municipalities even before the split. The same applies to Tysfjord municipality, which was split between Hamarøy and Narvik in 2020.

Flows and stocks at the regional level

In the empirical work of EXITNORWAY, for which this report constitutes a background, we will inter alia be occupied with flows of immigrants and natives out of Norway and by movements of immigrants and natives between domestic regions and how these flows impact for instance the development of the population of a region (defined in various ways) over time. In Appendix C we provide a formal treatment of the relationship between the stock and flow variables.

2 Immigration to and emigration from Norway

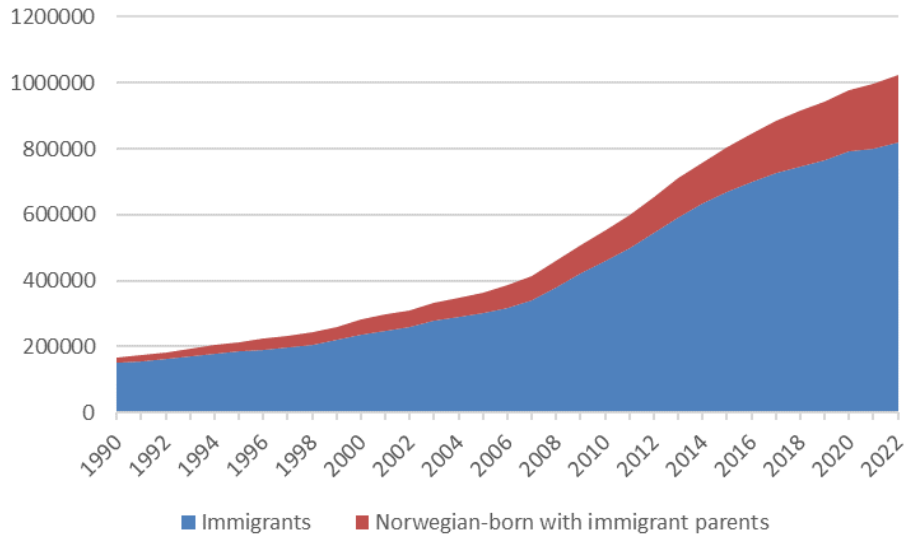
2.1 Norway's immigration history

In 1970, immigrants comprised less than 2 percent of the population in Norway. By 1990 the share had increased to nearly 4 percent, and in 2000 the share was 6 percent. In the decades after 2000 the share increased relatively much, and in 2023 16 percent of the Norwegian population are immigrants.

Norwegian immigration policies were quite liberal in the first decades after World War II, but relatively few immigrants opted to come to Norway. Among those who did, the majority came from the other Nordic countries. In the 1950s also some refugees from Eastern Europe began to migrate to Norway. In the 1960s, migrant workers from other parts of the world started to come to Norway. In 1975, there was a labor immigration freeze, and after this the non-Western immigrants who came were primarily family migrants or refugees from Asia, Africa, South America, and Eastern Europe. After the EU enlargement from 2004 onwards, Norway saw a sharp increase in labor immigration, especially from Poland and Lithuania. Over the past decade there has been a steady influx of labor migrants from Eastern Europe as well as refugees and family migrants from low-income countries. Around 2010, Norway's immigration as percent of the population was among the highest in Europe. Since 2011, however, fewer persons have immigrated to Norway from the most common sending countries of Europe, such as Poland, Sweden and Lithuania. From 2016 the immigration from these countries appears to have stabilized somewhat, accounting for around 5,000, 2,000 and 2,500 annual immigrations, respectively. Other important European origin countries are Germany, Romania, Spain, Denmark, Latvia and the UK. From origin countries outside of Europe, Syrian immigration was especially large in 2016, as many came to Norway as asylum seekers during the autumn of 2015, obtaining asylum and entering the population statistics the following year. Since 2016, fewer Syrians have arrived, but immigrants from Syria still comprise a large share of the immigrants who arrived in 2021, 2,200 in total. At the same time, a substantial number of immigrants from India, Eritrea, Afghanistan, Congo (DRC), Pakistan, Iran and the Philippines arrive in Norway annually. After Russia's invasion in Ukraine in 2022, a substantial number of Ukrainian refugees have come to Norway.

In January 2022, 820,000 immigrants resided in Norway, comprising 15 percent of the total population, see Figure 2.1. The distribution among (non-Nordic) resident immigrants who have arrived from 1990 with a known reason for immigration is 39 percent family, 32 percent labor, 23 percent refugee status, and 5 percent education. If we only look at new arrivals in 2021, the corresponding figures are 30 percent family, 44 percent labor, 11 percent refugees and 12 percent education (Statistics Norway 2022). The higher share of immigrants with labor or education as reason for immigration among the 2021 arrivals compared with in the resident immigrant population, illustrates how labor and educational migrants emigrate again to a larger extent than refugees and family migrants.

Figure 2.1: The number of immigrants and their descendants in Norway, 1990–2022



Source: Statistics Norway (table 05182)

Despite the dramatic rise in immigration, and although annual immigration as a percent of the population has been high since around 2005, Norway is not the first country of choice for many migrants. As has been the case previously, most migrants prefer the UK, Germany and/or Switzerland (IOM 2020). Norway has not been a colonial power, and therefore has no migration from former colonies, as is seen in for instance France, the Netherlands or the UK. Furthermore, Norway was a relatively poor country in Western Europe prior to the oil discovery in the late 1969s. Along with a cold, harsh climate, this may have deterred migration. Lastly, Norway is not the first port of entry to Europe, so migrants must actively choose Norway as their destination to get here. On the other hand, contrary to the situation in several other European countries, immigrants in Norway have generally many of the same legal rights as the host population. However, in many cases legal rights are not sufficient to ensure equitable provisions of services such as health care and education, as is indicated by for instance the Migrant Integration Policy Index (MIPEX). This index provides an overview of migrants' opportunities to participate in societies cross-nationally. In 2015, Norway held fourth place overall, suggesting that the country fared relatively well across many areas of welfare (MIPEX 2015). However, by 2020 Norway had fallen many places, suggesting that recent developments have been less positive (MIPEX 2020).

As shown, immigrants make up a very heterogeneous group as to where they come from and why they come to Norway, and there are important differences in their labor market behavior, education, work experience, marital status and health. Immigrants in Norway are currently on average slightly younger than the host population, in part due to Norway's relatively short history of immigration. Consequently, today's immigration to Norway contributes to decelerate population ageing.

2.1.1 COVID-19 and implications for migration

After the WHO declared a pandemic on 11 March 2020, strict global measures affecting economies and societies across the world were implemented. This affected both immigration and emigration to Norway (Thomas and Tømmerås 2022). On the one hand, since the death tolls in Norway were minor and the hospitals well equipped with enough capacity to handle sick individuals, potential immigrants were not likely to avoid Norway for health reasons, and potential emigrants were not likely to leave for such reasons. On the other hand, unless the

circumstances are dire, people tend to stay put in times of uncertainty, and/or they prefer to stay with their family and close friends.

During the COVID-pandemic and subsequent economic crisis, most borders were closed, making international travel very difficult. This had a major impact on all forms for international migration, from labor migration to refugee, student, and family migration. In addition, quarantine regulations made it difficult to work cross-nationally, and most schools and universities were physically closed. Furthermore, the negative economic consequences, such as increased unemployment, layoffs, and low wage growth, could also impact migration flows to and from Norway. For persons living abroad with a Norwegian background when the pandemic hit, Norway might have appeared relatively more tempting than in the pre-pandemic context, as the relative situation was found to be worse elsewhere, both in terms of death rates and in terms of pandemic restriction measures.

Statistics from 2020 and 2021 show that both immigration and emigration dropped in 2020, while the levels in 2021 were similar to the years before the pandemic (see Figure 2.2). How the pandemic has affected emigration from Norway as well as return-migration to Norway from former residents in a medium-term perspective will be examined towards the end of the EXITNORWAY project period, when we have sufficiently long time-series to examine the time trends in more detail.

2.1.2 Who can migrate to Norway? Rules and regulations

There are two main sets of rules for entering Norway, depending on the nationality of the one who wants to move to Norway. Here the two sets are briefly described. Further information about how to obtain residency in Norway can be found on the web site of The Norwegian Directorate of Immigration (UDI) (https://www.udi.no/en/want-to-apply/). This web site is also the source for the information presented below.

Regulations for EU/EEA citizens

For nationals of a country in the European Union (EU) or the European Economic Area (EEA), which in the Norwegian regulations are defined as all EU countries as well as Iceland, Liechtenstein and Switzerland, the EU/EEA regulations give all EU/EEA nationals and their family members the right to live, work and study in Norway. Norway is a member of EEA (but not the EU), and the EU/EEA regulations are a part of the collaboration between Norway and the EU through the EEA agreement.[15] EU/EEA nationals who come to work and live in Norway for more than three months, have to register and get a registration certificate from the police. The purpose of this registration is for Norwegian authorities to have an overview of how many EU/EEA nationals are living in Norway.

Regulations for non-EU/EEA citizens

Most people from countries outside the EU/EEA must apply for permission to come to Norway. Even many non-EU/EEA citizens who come as tourists must apply for a visitor's visa.

To be able to stay for more than 90 days, non-EU/EEA citizens would need some other kind of permission, depending on their reason for moving to Norway:

Family immigration: Persons who want to come and live with family members already residing in Norway, may be eligible for applying for family immigration (also called family reunification or forming a family). Those who apply for family immigration are usually the spouse, cohabitant, or child of someone who lives in Norway. Other types of family members who may apply are parents who have children in Norway, those who are going to marry

[15] The regulations that apply to EU/EEA nationals are regulated through EU Directive 2004/38/EC of 29 April 2004 which is incorporated into the Immigration Act chapter 13.

someone in Norway (fiancées/fiancés), foster children and full siblings. To be granted family immigration, the person living in Norway (the reference person) needs to document that they have a source of income over a certain threshold. The exact threshold has varied over the years (UDI 2023). There are various other requirements involved for the different categories of applications as well. For example, a requirement for family reunification with a parent who lives outside of Norway, is usually that the parent is above the age of 60 and does not have children in the home country. Children above 18 years of age who want to join their parents in Norway, either need to have resided in Norway for several years previously, or they need to be dependent on their parents socially and economically, or they need to have serious health problems.

Labor immigration:

Non-EU/EEA citizens who wish to come to Norway to work, need a residence permit. To get this, the person must normally have got a job offer first. Different types of workers are given different types of residence permits (with varying durations), depending on their competence and the type of work they will be doing in Norway. Norway's labor market needs are the point of departure for the regulation of labor immigration of non-EU/EEA citizens. The main principle is that labor immigration from non-EU/EEA areas should not compete with unemployed individuals who already reside in Norway. There is for example a concern that unskilled labor immigration from non-EU/EEA areas may have negative consequences for the labor market inclusion of people in Norway who have an immigrant background. For this reason, it is difficult for unskilled non-EU/EEA migrants to access the Norwegian labor market, with the exception of seasonal workers (NOU 2022: 52). Seasonal workers are employed in jobs that can only be carried out at a special time of the year, or if they work as a holiday stand-in for a permanent employee. Residence permit may not be needed if the person plans to work in Norway for less than three months.

Persons who have completed higher education or vocational training, or have other skills acquired through long professional experience, can apply for a residence permit as a *skilled worker*. It is a requirement that their competence is relevant in the job they have been offered. After three years in Norway, these skilled workers can apply for a permanent residence permit.

In addition, there are different types of residence permits for people who are going to carry out research or participate in vocational training, as well as for persons going on a working holiday for young adults, persons who are working guests in agriculture, an employee of a humanitarian/non-profit/religious organization, or an artist, musician, or performer. There are also special rules for diplomats, NATO personnel, their employees and family members who are to work in Norway.

Au pairs: Norway also has a scheme for *au-pairs*, where people can come and live with a Norwegian family improve language skills and learn about Norwegian society. In return, they must provide services such as light housework and/or childcare for the host family. Au pair permits can be granted for up to two years, The new Norwegian government as of 2021 has decided to phase out the au-pair scheme, but this has not yet been implemented.

Education: Non-EU/EEA citizens who plan to study or go to school in Norway for more than three months, need a residence permit for studies. This pertains to persons who have been admitted to a Norwegian university college/university or vocational school, upper secondary school, folk high school, or a bible school, or who need additional education for their education to be recognized in Norway. People who are granted a study permit, will also be able to work for up to 20 hours a week while studying and full-time during holidays.

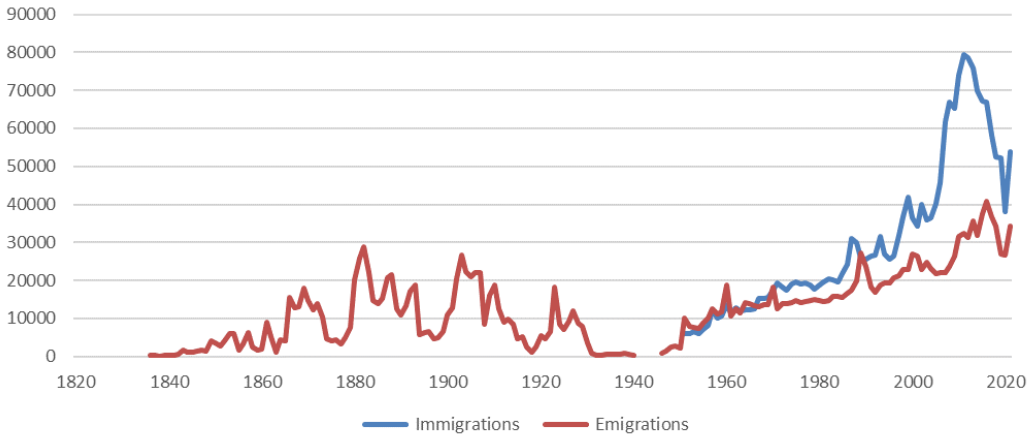
Protection/asylum: As mentioned above, around 23 percent of all (non-Nordic) immigrants in Norway are categorized as refugees. There are two main categories in this group: Asylum seekers who have been accepted as refugees, and so-called resettlement refugees. Resettlement refugees (also known as quota refugees) are usually people who are registered as refugees by the UN High Commissioner for Refugees (UNHCR), but who

cannot be offered a permanent solution in the country they are currently in and who are therefore offered resettlement in a third country. It is the UNHCR that submits the applications for resettlement refugees, and the Norwegian Directorate of Immigration (UDI) decides who gets to come to Norway, organizes the journey for them and decide in advance which municipality they will live in. Asylum seekers, on the other hand, make their own way to Norway and apply for protection at a Norwegian border. While waiting for a decision on their application, they often live in asylum centers. In some cases, Norway has also offered collective protection for groups of people, which means that UDI does not assess the need for protection individually. This has been the case for people fleeing the war in Ukraine from 2022.

2.2 Norway's emigration history

A century ago, Norway was mainly a country of emigration, not immigration. Figure 2.2 shows the long historical lines.

Figure 2.2: Emigration from and immigration to Norway, 1820-2021



Source: Statistics Norway (table 05803)

Although people must have crossed the borders out of what is today Norway throughout history, the first recorded overseas emigration in Norwegian statistics was in 1821. The last half of the 19th century and the beginning of the 20th century saw several large waves of emigration from Norway to the United States of America, when more than 25,000 persons left Norwegian harbors annually. In 1882, emigration was a record high, with almost 29,000 overseas emigrations (Departementet for sociale saker 1921). Only in recent decades has emigration from Norway again passed 25,000 annually.

The emigration to America was seasonal, with most emigrations in the spring, and the overseas emigration in the second quarter of 1882 is still the highest quarterly emigration in Norwegian history with around 18,000 emigrants leaving Norway during April, May and June alone. For comparison, today's emigration is often highest in the third quarter (July, August, and September), but in recent times the quarterly emigration has never exceeded 14,000.

There are also other important differences between current and past emigration from Norway. Firstly, whereas the destination of the overseas emigration of earlier times was mainly USA, today's emigrants have a myriad of different destinations. Secondly, the majority of today's emigrants are people who have previously immigrated to Norway, while the emigrants of earlier times were mostly born and raised in Norway. Third, the availability and access to data about the emigrants is better today than in the 19th and early 20th century. Today, statistics are kept on all emigrations from Norway (not only overseas), and the

Norwegian registers also have information about many characteristics of those who leave (nevertheless, we still have challenges related to the quality of emigration statistics, see Section 1.1.2).

Since the 1950s, emigration from Norway has increased, but not as much as immigration to Norway. In most of the last 50 years, immigration to Norway has been clearly higher than emigration. An exception is 1989, which was a year with financial crisis in Norway, when many Norwegians moved to Sweden to find work.

2.3 Previous research on emigration from Norway

Most of the literature on emigration from Norway revolves around earlier emigration to overseas areas, and especially that to America. For an example cf. Bævre et al. (2001).

When it comes to recent emigration from Norway, an important source of information are the regular statistics from Statistics Norway (in particular the quarterly population data[16] and the annual data on migrations[17]). Some research has also been done to illuminate this more recent emigration (see for example Pettersen, 2013; Tysse and Keilman, 1998; Longva, 2001; Ekhaugen, 2005; Bratsberg, et al. 2005; Lund, 2009; Brunborg and Cappelen, 2010; Friberg, 2012; Texmon and Brunborg, 2013; Stambøl, 2013; Skjerpen et al., 2015; Carling et al., 2015; Kornstad et al., 2016, and Stambøl 2021). Here we will briefly summarize some results from these works that may shed light on driving forces behind the last decades' emigration from Norway.

First, immigrants emigrate more frequently than natives (Pettersen, 2013). Moreover, among immigrants the emigration probabilities are lowest among refugees and highest among education and work immigrants (Tysse and Keilman, 1998; Pettersen, 2013; Stambøl, 2013; Kornstad et al., 2016). Immigrant men generally emigrate to a slightly greater extent than immigrant women (Longva, 2001; Pettersen, 2013; Skjerpen et al., 2015; Kornstad et al., 2016). Carling et al. (2015) argue that the reasons for this gender pattern partly have to do with gendered notions of status and belonging. Also, family seems to matter: Tysse and Keilman (1998) found that being married at immigration clearly slowed emigration, and Longva (2001) found that both married and divorced had lower probabilities of emigrants than others (this particularly applied to immigrants from OECD countries). For some migrant workers, having their family in Norway or not seemed more important for future plans than whether one had work or not (Lund, 2009). Kornstad et al. (2016) found that emigraton rates tend to decrease with the immigrants' family size, and they also conclude that a higher proportion of non-immigrants in the family is associated with reduced emigration.

When it comes to the importance of country of origin, the Norwegian findings are also quite unambiguous: The probabilities of emigrating are highest for immigrants from other OECD countries, such as the Nordic countries, North America and Western Europe, and low for immigrants from poorer parts of the world. Longva (2001) found the highest emigration probabilities among immigrants from North America and lowest among immigrants from Eastern Europe (in the period 1994-97). Bratsberg et al. (2005) summarize that "immigrants from OECD countries often have short stays, while emigration rates are low for non-Western immigrants". Pettersen (2013) shows that the emigration rates since 2005 have been highest for immigrants from North America and Oceania, with immigrants from the Nordic countries close behind, whereas people from Eastern Europe outside the EU have had particularly low emigration rates.

Duration of stay generally seems to make immigrants in Norway more settled: Emigration probabilities are highest in the first two years after immigration, and thereafter the probability

[16] www.ssb.no/en/befolkning/folketall/statistikk/befolkning

[17] https://www.ssb.no/en/befolkning/flytting/statistikk/flyttinger

decreases with increased residence time in Norway (Pettersen, 2013; Longva, 2001 and Texmon and Brunborg, 2013). This tendency is most evident for immigrants from Western Europe and other Western countries but is also found for immigrants from Eastern Europe and from other parts of the world.

The probability of emigrating varies considerably by age: Immigrants aged 18-29 are most likely to leave Norway (Pettersen, 2013; Skjerpen et al., 2015), and emigration is also high among children, especially the very youngest from other Western countries (Texmon and Brunborg, 2013; Skjerpen et al., 2015). After age 30 the emigration probabilities decrease with higher age, with one exception: There seems to be a small increase in emigration around retirement age (60-69 years), but the figures for these age groups are based on few observations (Texmon and Brunborg, 2013). A survey of return plans among immigrants may indicate that this is nevertheless not accidental: 2/3 of those who answered that they planned to return to their country of origin, planned to do so when they got old (Carling and Pettersen, 2014). Longva (2001) found that after controls for duration of stay, the probabilities of emigration actually appear to increase with age. Texmon and Brunborg (2013) also found that the emigration probabilities among immigrants from Western countries with short durations of stay increased with age after age 30 – so that a 65-year-old with a short duration of stay was more likely to emigrate than a 35-year-old with an equally short stay in Norway.

The Norwegian findings are relatively clear when it comes to the importance of labor market attachment: Bratsberg et al. (2005) show that immigrants who emigrate again have, on average, weaker labor market connection than immigrants who stay in Norway. Having a job halves the probability of leaving the country during the following year, according to this study. Brunborg and Cappelen (2010) show that unemployment in Norway affects emigration on an aggregate level – higher unemployment in Norway, all other things being equal, results in an increased emigration both to Sweden, Denmark, Europe/America/Oceania and Africa/Asia. Tysse and Keilman (1998) found that occupational activity appears to inhibit emigration, but they also note that most unemployed immigrants come from Africa, Asia or Latin America, and that many of them are refugees, which indicates that they have a lower probability of emigrating. Skjerpen et al. (2015) found that changes in unemployment rates and income differences between Norway and immigrants' areas of origin seem to bear a certain importance for emigration frequencies, but not as strong as one might expect, and in different ways for different groups. The unemployment rate in Norway seems to affect the emigration of immigrants from the new EU countries in Eastern Europe, while emigration among immigrants from Western Europe, North America, Australia and New Zealand instead seems to be affected by unemployment in their area of origin. Income differences between Norway and other parts of the world do not seem to affect the emigration frequencies among immigrants from the new EU countries, but they seem to affect the emigration of immigrants from other parts of the world. Moreover, Kornstad et al. (2016) conclude that immigrants who are outside the labor force and the educational system are most likely to emigrate, followed by immigrants who have been registered as unemployed. Stambøl (2021) found that for people born in Norway, the probability of emigration is lowest among those registered in employment and/or in education, while the unemployed and especially those outside the labor force show a higher probability of emigration.

The importance of income has not been extensively studied in Norway, but Longva (2001) concludes that emigration is highest among those with the highest and lowest incomes, at least among immigrants from the OECD. Whether there is a welfare-magnet effect that could explain why certain groups leave and others remain in Norway, is however still unexplored.

Connection to Norway and the origin country has to a small extent been researched in connection with emigration from Norway, but Pettersen (2013) shows that the probability to emigrate in general is far higher among those without Norwegian citizenship than among those with. This is connected to the fact that many emigrants have had short duration of stay in Norway, and thus do not meet the requirement of seven years residence that is needed for Norwegian citizenship. Emigration after obtaining Norwegian citizenship is rare. If citizenship

is a sign of connection to Norway, then this connection seems to hamper emigration somewhat. On the other hand, Carling et al. (2015) conclude that “the ultimate form of structural integration in the destination— acquiring citizenship—can facilitate return to the country of origin” and argue that restrictions on dual citizenship can complicate return migration, since dual citizenships make it easier to attempt return migration because an exit option remains intact. Attachment to the country of *origin* can be decisive for whether an immigrant emigrates again. In the study of return plans among immigrants in Norway, Carling and Pettersen (2014) found that the probability that an immigrant planned to return to her/his origin country was highest among those with weak ties to Norway and strong ties to the origin country. But immigrants with strong ties to both Norway as well as the country of origin planned to return about as often as those immigrants with weak ties to both Norway and the country of origin.

Not much research has been done on how education affects emigration from Norway, although several analyzes have shown that immigrants with education as a reason for immigration, to a high degree emigrate again, which is not surprising since these often have only temporal permissions to stay. Apart from this, a person’s level of education is rarely used to explain whether the person emigrates or not. Three exceptions are the study by Longva (2001), which indicate that among immigrants from countries outside the OECD, the probability of emigrating is higher among those with higher education; the study by Kornstad et al. (2016) which found that immigrants with unspecified education show the highest emigration probability followed by those with long tertiary education, while immigrants with primary and secondary education are those who are the least likely to emigrate; and finally the study by Stambøl (2021) which concludes that among the Norwegian-born, the probability of emigration increases with increasing level of education.

Nor has the importance of the welfare state for emigration been frequently studied. Although the studies of the connection between occupational activity and emigration (see above) shows that immigrants who have a job generally have a lower probability of emigrating, it is not obvious to conclude that immigrants who receive welfare benefits instead of working, emigrate more. On the contrary, Ekhaugen (2005) suggests that receiving welfare schemes is negative correlated with the probability of emigrating (but this result was not significant at the 5% level).

Return programs for particular groups of immigrants appear to have affected emigration rates in these groups, for example among immigrants from Chile in the first part of the 1990s, among Bosnians in the mid-1990s, among immigrants from Kosovo in 2001 and among Iraqis in 2003 (Pettersen, 2013). Political and economic development in the country of origin also seems to matter, but not many analyzes have been carried out in this area. Brunborg and Cappelen (2010) found that the unemployment trends in Denmark and Sweden were related to the emigration to these areas, but when it came to unemployment elsewhere in the world, they did not find the same.

Some studies also find a general development over time in the emigration probabilities. Pettersen (2013) shows that the emigration rate for immigrants generally decreased from about 80 emigrations per 1,000 immigrants in the early 1970s years to 44 out of 1,000 in 2011. The probabilities of emigrating are thus almost halved in 40 years. One explanation for this is that the immigrants in Norway previously consisted of a larger proportion from the Nordics, Western Europe and USA, which have relatively high emigration probabilities and few refugees (with low emigration probabilities). However, even when we consider the duration of stay and reason for immigration, it appears that the probability of emigrating clearly has decreased in the last decade (Stambøl, 2013). For migrant workers, the emigration rates declined clearly in this period, which can partly be explained by business cycles internationally and in Norway, and the fact that many migrant workers from Eastern Europe tend to have settled more permanently in Norway. This last observation has also been found in a study among Polish immigrants in Oslo (Friberg, 2012).

Whereas most research on recent emigration from Norway has focused on the emigration of immigrants, Stambøl (2021) analyzed the emigration and also the return migration of people born in Norway with different ties to the country (measured by parents' and grandparents' country of birth). He found that the tendency to emigrate from Norway increases with an increasing degree of foreign background. Return migration back to Norway is highest in the first year after emigration, and then decreases gradually with the number of years since the emigration was registered. The Norwegian-born persons with largest extent of foreign generational background show the lowest tendency to return to Norway.

3 Data and relevant variables

Data for the EXITNORWAY project come almost exclusively from Statistics Norway.[18] This chapter outlines some of the important variables that are being used, grouped within various life domains. Furthermore, we describe some classification and coding choices we have made in the EXITNORWAY project that are likely to impact on our results. We also problematize certain data issues we have encountered and describe how we have dealt with these. More detailed information is available in Appendices B (regional information), C (immigration stock and flows), D (housing and labor market regions), E (detailed occupational information and STYRK codes) and F (an outline of variables within the respective life domains). Altogether, til EXITNORWAY project received around 190 separate data sets from Statistics Norway, with a varying number of variables (2-65). All data sets included a project-specific id (an encrypted personal identification number), enabling linkages across the different data sets. The names of the data sets were all in Norwegian but have been translated into English. However, interested researchers may contact us for a correspondence Table with Norwegian and English names. The data sets were delivered via the Services for sensitive data (TSD) system. This system provides a platform where researchers in Norway and their collaborating (international) partners can collect, store, and analyze sensitive research data in a secure environment. The system can be accessed from anywhere in the world.[19]

3.1 Characteristics within various life domains

In short, Statistics Norway classifies emigration, immigration, emigrants, and immigrants as described in Chapter 2. In Sections 3.1.1 and 3.1.2 we include some additional information that might be useful. In Section 3.1.3 we outline some relevant variables and issues related to labor market participation and labor income, either through wages or income related to self-employment. In Section 3.1.4 we provide a brief description of the Norwegian welfare society and outline the variables we have opted to use within this realm. Section 3.1.5 provides information relating to education, whereas Section 3.1.6 comprises information relating to the family situation, including housing. Since the regional issues have been outlined extensively in Section 1.1.3, only a few remaining issues are covered in Section 3.1.7. Section 3.1.8 comprises a 'miscellaneous' category, giving some information on the variables not included in the domains already mentioned.

3.1.1 Immigrant and immigration characteristics

Most variables relevant for immigration and immigrant characteristics have been mentioned already, but are nevertheless listed in Appendix G. An important variable that has not been discussed in detail so far, is a date variable for first entry to Norway (month and year). Based on this variable, one may calculate age at immigration and duration of stay in Norway. It should however be noted that duration of stay actually means 'duration since first immigration to Norway', and possible stays abroad (again) after the first immigration to Norway is not deducted. Hence, this variable is best suited for those with only one immigration episode.

EXITNORWAY has information about immigrants' country of birth, grouped into country groups. The most common origin countries (such as Sweden, Poland, Lithuania) constitute

[18] In the coming years we plan to add data from the Norwegian Labour and Welfare Administration (abbreviated NAV in Norwegian) and Institute of Transport Economics (TØI), and certain classifications related to these anticipated data are thus also included here.

[19] See https://www.uio.no/english/services/it/research/sensitive-data/index.html) for details.

separate groups, whereas less common origin countries for immigrants in Norway have been grouped for privacy reasons. All the country groupings are presented in Appendix F.

Next, reason for immigration (applicable only to 1st generation immigrants) is available for many non-Nordic immigrations from 1990 onwards. This variable shows their reason for immigration at *first* immigration to Norway, even if their reason for staying in Norway changes over time. For example, people who move to Norway for studies will be defined with 'education' as their reason for immigration even if they later get a job in Norway and are granted residence permit for work reasons. For refugees, the EXITNORWAY data also has information on whether the person came as a UNHCR resettlement refugee (also called quota refugee) as an asylum seeker, or as family immigrant to a refugee. For citizens of the other Nordic countries (Denmark, Finland, Iceland and Sweden), reason for migration is not recorded and hence Nordic citizens have missing information for this variable. The same is the case for most immigrants who arrived before 1990, and of native Norwegians returning from abroad.

The citizenship variable shows a person's country of citizenship. Only one country is recorded per person. If a person has both a Norwegian and a foreign citizenship, the Norwegian citizenship is shown. Until quite recently, Norway has not been liberal in accepting dual citizenships, and few were allowed to hold dual citizenships. However, these rules changed in 2020.[20]

In addition to information relating to country of birth, also the country one is arriving *from* when immigrating to Norway is recorded.

3.1.2 Emigrants and emigration characteristics

Even with register data, different data sources may diverge slightly in their information. In the EXITNORWAY project, a separate file with emigrations has been produced to compile as much information as possible from different sources, while also being as useful as possible for the purposes of the project. Two different data sources are used: One which includes all migrations, with both year of registration (official year) and actual year of moving, and another one with information about whether the emigrations were self-notified or administratively deregistered (see Section 1.1.2). Both sources have aggregate data on emigration (official year) that are fairly close to Norway's official emigration statistics, with some exceptions: The data source with self-notified vs. administrative registrations lacked most emigrations in 2020 (i.e., the information was not included). For the other years, however, this source was closest to the official emigration figures.

None of the sources had more emigrants than the official statistics, hence they were merged to get even closer to the official statistics. All merges were done using the personal identifiers (ids). Further, duplicates (i.e., several emigrations during the same calendar year, less than 75 annually) were dropped to make the file convenient for further research (most of the other variables in the project are on an annual basis). The merging showed full match between the two sources for 2016-2020, whereas for other years 1-10 emigrations were not matched in 2006-2015, 24-353 were not matched in 2002-2005, and 1408 emigrations were not matched in 2001. The merging resulted in a list of ids with people recorded as emigrants in one or both of these sources for one or more of the years 2000-2020.

From this file, information about actual emigration year(s) was added, as well as information about whether the emigration was self-reported or administrative, and information about destination country (in cases where this was available). If the same person was recorded with more than 1 destination country the same year, 'missing', 'stateless' or 'unregistered' records were dropped if this was one of the destinations (24 cases). For the remaining 38

[20] https://www.udi.no/en/word-definitions/dual-citizenship/

cases, Nordic destination countries were preferred (assuming Nordic register cooperation is more reliable). For the remaining 19 duplicates with either two non-Nordic destinations (11) or two Nordic destinations (8), one of the destinations was randomly picked. The resulting file (emigrants_2000-2020.dta) is thus a list of all persons having emigrated from Norway 2000-2020, with their year(s) of recorded emigration(s) as well as actual year(s) of emigration(s), destination country, and whether the emigration was administratively or self-notified (cf. Appendix G).

3.1.3 Labor market participation and income

We have multiple sources of information related to labor force participation and work-related income. Importantly, the reporting to Statistics Norway has changed over the period 2000-2020. The main information source for register based annual employment information is different for the years 2015-2020 than for the years 2000-2014. From 2015 the so-called 'a-scheme' was introduced, which provides data on a monthly basis, directly from employers. In the years 2000-2014, the labor market data show persons' status in the labor market collected in particular reference weeks each year.[21] According to Statistics Norway, the introduction of the 'a-scheme' resulted in a breach in the register statistics in that occupational data from 2015 onwards are provided for a higher number of wage earners than before, which has resulted in a different occupational distribution than for previous years (Næsheim 2018). The largest difference is observed for small (few hours) and short-term jobs, and these jobs are unevenly distributed across professional fields. Moreover, changes in the registration of various employments occurred in the period 2000-2020. It is thus difficult to compare the period up until 2014 and the period from 2015 onwards, particularly when it comes to work hours.[22] The transition to the 'a-scheme' also implies that the annual files provide more information than before and that there are more records for each observational unit (a greater number of multiple employment spells).

In terms of variables, we have information on the Statistical classification of economic activities in the European Community (NACE).[23] The classification system has changes somewhat over time, and this has been accounted for in our data cleaning process, based on the previously mentioned information in the KLASS database at Statistics Norway. In short, the original NACE code is a four-digit classification. The Norwegian 'Standard for næringsgruppering' (SN) is based on NACE and was changed in 2002 and again in 2009. Hence, in the EXITNORWAY data we have 3 periods not completely comparable: 2000-2002, 2003-2007 and from 2008 onwards To complete avoid any possible confusion, the safest solution to this is to only use data from 2008. However, we have grouped the industries in each of these standards into 21 main industrial sectors (roughly corresponding to the main categories of the current standard) that are relatively comparable over the three standards.[24]

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[21] The specific week depends on the data source used to obtain the information. The most commonly used data source is the Register of Employers and Employees (replaced by the 'a-scheme' in 2015).

[22] More information regarding these changes may be found online (cf. end of Chapter 3 in www.ssb.no/data-til-forskning/utlan-av-data-til-forskere/variabellister/a-ordningen/om-datagrunnlaget-for-registerbasert-sysselsettingsstatistikk and the section on work hours in www.ssb.no/arbeid-og-lonn/artikler-og-publikasjoner/registerbasert-sysselsettingsstatistikk).

[23] See https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Statistical_classification_of_economic_activities_in_the_European_Community_(NACE) for details. For details regarding the classification systems employed at Statistics Norway, see https://www.ssb.no/en/klass/klassifikasjoner/6. The term NACE is derived from the French Nomenclature statistique des activités économiques dans la Communauté européenne.

[24] The 21 sectors are (*: only from 2008) 0: Missing, unknown, other, 1: Agriculture, forestry and fishing, 2: Mining and quarrying, 3: Manufacturing, 4: Electricity, gas, steam and air conditioning supply (and water supply for the two first standards), 5*: Water supply; sewerage, waste management and remediation activities, 6: Construction, 7: Domestic trade and repair, 8*:

For occupation codes, Statistics Norway uses two versions of STYRK (98 and 08) for the period covered in this project. This coding system is very similar to ISCO,[25] albeit notable exceptions exist (referring primarily to armed forces).[26] In the EXITNORWAY project we utilize a classification used by the Norwegian Labour and Welfare Administration (abbreviated NAV in Norwegian), and an overview of these groupings are shown in Appendix E. The name of the variable used in analyses are occ_group (cf. Appendix G). The data on occupations are available from 2011 onwards.

Multiple records on the employment files

The employment files contain information on labor market status, i.e., whether the individual is an employee, self-employed, unemployed or outside the labor force. Some individuals have multiple employment records during the same year, and some are recorded as both employed and self-employed. To simplify the analyses, we have removed multiple records using the following procedure.[27] First, for persons registered as employees (no records of unemployment, outside labor force or self-employed), we keep the record with most work hours. If the person has two or more observations (employments) with recorded work hours in the same interval, we make a random draw between these observations, using the continuous uniform distribution.[28] The three work hours intervals used are (per week) 30 hours or more, 20-29 hours, and 1-19 hours.

Until 2014, work hours are registered only as intervals. From 2015 on, work hours (according to the labor contract) are also registered on a continuous hourly scale for employees, whereas hours of work are not registered for records in which the individuals are self-employed.

Second, for observational units with multiple records and where self-employment occurs, we use income data to determine whether the individual should be classified as self-employed or an employee in the relevant year. If net business income constitutes 50 percent or more of total labor income (which is given by sum of wages and net business income) the individual is classified as self-employed. If the share constitutes less than 50 percent, we remove the record in which the individual is self-employed and if there still are multiple records, we follow the same procedure as for the individuals who are employee in all records.

Monthly data from the 'a-scheme'

We have access to data from the following period: 2015M1-2020M12. Because of some issues related to data retrievement (at Statistics Norway), the data from the first year are believed to be somewhat weaker than data from the later years. Since all other data in the EXITNORWAY-project are provided at an annual basis and we have access to annual employment files, it is likely that the monthly files will not be extensively exploited in the analyses. We nevertheless provide a description on how the data may be utilized. Below we comment how these data can be transformed to annual data with only one record for all

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Transportation and storage, 9: Accommodation and food service, 10: Information and communication (and transportation and storage for the two first standards), 11: Financial and insurance activities, 12: Real estate activities, 13: Professional, scientific and technical activities, 14: Administrative and support service activities, 15: Public administration and defence; compulsory social security, 16: Education, 17: Human health and social work activities, 18: Arts, entertainment and recreation, 19: Other service activities, 20: Activities of household as employers; undifferentiated goods- and services-producing activities of households for own account and 21: Activities of extraterritorial bodies.

25 See https://www.ilo.org/public/english/bureau/stat/isco/ for details.

26 See https://www.ssb.no/en/klass/klassifikasjoner/7 for details.

27 For the initial years, i.e., 2000-2006 we have used a simpler manual procedure since there are rather few individuals with multiple records these years. In short, we have deleted the very few multiple records that existed, beginning with records with mainly missing information, followed by smaller jobs/short-term work. This is documented in a do-file and available on request.

28 For instance, if we think of a hypothetical case with two records, we make two independent draws from the continuous uniform distribution with lower and upper bounds equal to 1 and 10, respectively, and assign each of them to the two records. The record with the highest value is retained whereas the other one is discarded. A seed is employed facilitating a later replication of the random draws.

individuals in a specific year. For a part of the observational units there are multiple records at the monthly frequency. We need to drop records such that there is only one record for an observation unit (an individual) in a month. As an example, we may look at data from 2015M01. The original data come from a data file delivered directly from Statistics Norway. The program used for generating only one record per observational unit in 2015M1 is located in a project-specific folder within the TSD system and is named *terjes_amelding2015M1.do*. The variables in the original file have Norwegian names so renaming to English has been carried out. For each record one has the labor market status. There are four outcome values relating to whether the individual (i) is an employee, (ii) is unemployed, (iii) is self-employed or outside the labor force. The last outcome, (iv), is related to a missing value. For records in which the individual is an employed person one has information on the relevant NACE- and occupation codes. For employees one has information on whether the individual works full or part time and the number of contracted hours per week. Individuals for whom one has more than five records are dropped.

We now proceed by counting the number of instances of each outcome and retain only the records belonging to the outcome with most instances. If the total number of instances for outcome (i) is the same as for one of the other outcomes, records corresponding to outcome (i) is retained and the other records are discarded. If the number of instances for outcome (i) is lower than the maximum, but there is a tie between outcome (ii) and one of the two other outcomes, records corresponding to outcome (ii) are retained and all other records are discarded. If outcome (iii) has more instances than outcomes (i) and (ii) but the same number of instances as outcome (iv), records corresponding to outcome (iii) are retained and all other records are discarded.

If outcome (i) is the dominating one, the record with the longest contracted work week is chosen. If this criterion is not sufficient to decide on a single record, the first of the remaining records is chosen. If one of the other outcomes is the dominating one and there are more, one uses the first record. After this exercise one is left with only one record for all individuals who occur in 2015M1. The same procedure is followed for all the other 71 months.

The final step is related to temporal aggregation, i.e., the monthly data need to be converted to annual data. It is also based on counting. For each individual one may count the number of months related to each of the four outcomes mentioned above. One retains the most frequent outcome. If outcome (i) and some of the other outcomes are tied, outcome (i) is retained and the monthly records relating to the other outcomes are discarded. If outcome (ii) and outcomes (iii) or (iv) are the most frequent outcomes, on an annual basis, one retains the records related to outcome (ii). If outcomes (iii) and (iv) are equally frequent and more frequent than outcome (i) and (ii), the records corresponding to outcome (iii) are chosen and all other records are disregarded. Thus, now all individuals are characterized by only one outcome each year but are still characterized by multiple records since one for instance can be an employee in several months. To end up with just one record each year the first of the remaining records is picked. This completes the transformation to annual data.

Income variables

Two income variables at the individual level relate to employment and capture wage earnings and net business income, respectively. Hence, they may be used as proxies for being an employee of self-employed. Also, other income variables are available, both at the individual and household level (cf. Appendix G). All the income variables are in nominal values, which requires deflation (or other adjustments) if they are to be used in longitudinal studies. This will be done by either applying the official Norwegian consumer price index or by generating deciles accounting for year, age, and sex.

3.1.4 Welfare uptake

Norway is a welfare state built upon a social democratic model, in which general taxes on income, consumption and fortunes are spent on public services that are more or less free for all. Thus, if you live and pay, or have paid, taxes in Norway, you may be eligible for welfare benefits such as healthcare, free education, and childcare. And people in Norway do use their welfare state: Altogether, around a quarter of Norway's population (5.4 million) use welfare benefits to maintain their livelihood, the vast majority of these (1 million) are old age pensioners (NAV 2022). In fact, more than half the population (54%) received a payment from the Norwegian Labour and Welfare Administration (NAV) at least once in 2021 (ibid).[29] Below, we briefly describe four main categories of welfare in Norway (and corresponding variables). However, we have also opted to include two summary measures of welfare uptake (cf. Appendix G) in a dummy-format (indicated by d_), namely d_publ_transfers (any public transfers, which is a broader encompassing measure than public benefits) and d_publ_benefits (any public benefit, e.g., old-age, disability pension, work assessment allowance, etc.). In addition, we include two variables that are provided at the municipal level, mainly to persons who are less well off (usually quite poor and with few other options of maintaining a livelihood), namely d_soc_ass (social assistance, provided if no other benefits are available) and d_housing_support (housing support).

Main categories of welfare in Norway:

1. Work, pension and social help

If people are unable to work, due to sickness, job loss, being furloughed or struggle to find work, NAV may assist. In addition to providing practical support, courses and training, several cash benefits are available, such as sick pay, work assessment allowance, unemployment benefits, and various pension schemes. The rates have varied over time and are generally calculated based on 'the G-system' with a base amount (roughly €10,000) which usually changes annually. Most benefits are awarded as a percentage based upon your previous income but limited upwards to 6G. While sick pay is usually reimbursed 100 percent (for up to 52 weeks), other benefits such as disability pension and unemployment benefits are usually reimbursed 60 percent. Examples of these benefits include d_unempl (unemployment benefits), d_old_age (old age pension), d_disability (disability pension), d_work_assmt (work assessment allowance), d_sick_leave (sickness absence benefits), and d_ba_health_bf (health-related basic and attendance benefits).

2. Health and medicine

The public healthcare system is strong in Norway, and most hospitals are funded and owned by the state. All Norwegian citizens with a personal identification number are eligible for a general practitioner, which they choose from a public list. Although there is a co-payment fee for services limited upward to around €300 in total per year. Children under age 16 face no charge. The same applies for pregnant and/or nursing women. Undocumented adult immigrants will have access to emergency care, whilst undocumented children will have the same rights to care as Norwegian residents. In this project, we have not opted to use data related to healthcare services uptake.

3. Pregnancy and child welfare

For people expecting a child, several benefits are available. In Norway, mothers and fathers or birth partners have the right to paid leave for up to a year altogether (d_parent_leave). When parents return to work, children can attend daycare where maximum prices are set at around €300 per month (and the coverage is near 100%). Other child benefits also exist. The 'cash for care' benefit is awarded if you opt to not use public daycare in the period your child

[29] NAV paid out a total of €52 billion in benefits and retirement pensions to 3 million people (54 living in Norway and abroad through 2021).

is 12-23 months old and is currently €750 per month (d_child_cash_bf). The size of the universal child benefits (d_child_bf) depends on the age of the child. If your child is under 6 years old, child benefits are currently €170 per month. For children over 6 years old, these benefits are currently €105 per month. Child benefits are paid until the child turns 18. Extended child benefits are available in certain circumstances, for instance for single parents, as are additional tax deductions for single providers (d_maintenance_bf).

4. Schools and universities

As part of the Norwegian welfare system, all public schools in Norway are free, and private schools are relatively uncommon. Children in Norway start school the year they turn 6 years old. There are no university fees for public universities or colleges (except for a small administrative fee of around €100). Private university colleges in Norway do, however, charge tuition fees. To cover living costs (and possibly tuition), students may apply for student loans and stipends. We have included the variable d_stipend, a dummy for educational stipend, in our data. The variable is most useful for ensuring that those registered in education have this as their main activity.

3.1.5 Education information

The register of the population's level of education (Education Register) is one of Statistics Norway's basic registers. It contains educational information about persons aged 16 or older who are registered as Norwegian residents. The Education Register obtains data from various other registers, mainly the study administrative systems at the educational institutions around Norway, as well as various authorization registers.

If the education has been taken abroad with support from the Norwegian State Educational Loan Fund, or as part of an education in Norway, information about the education will be registered. Annually, this pertains to near 20,000 students (less than 10% of the overall number of students receiving such funding), and the number has remained fairly stable from 2000 to 2022. Studies abroad which are financed by private funding are much less likely to be recorded. For Norwegian residents, such studies are likely to comprise a minute share overall.

Persons who work in a profession where Norwegian authorization is required to practice in Norway have their foreign education registered through the authorization registers. For other people who have their education from other countries, and who have not been in contact with Norwegian educational institutions, information is missing if they have not responded to surveys from 1991, 1999 and 2011 (for more information of the surveys, cf. below). Information for refugees is obtained directly from The Norwegian Directorate of Immigration (UDI).

Education at Statistics Norway is recorded according to a slightly modified version of ISCED97's Level and Fields of Education and Training.[30] In Norway, this standard is termed 'NUS', short for Norwegian Classification of Education.[31] Both standards are organized according to level and field of education, and follows the following structure:

- 1st digit: Level
- 2nd digit: Broad field of education
- 3rd digit: Narrow field of education
- 4th digit: Detailed field of education

[30] For details and more information, see https://www.ssb.no/en/klass/klassifikasjoner/66/koder

[31] See http://www.ssb.no/en/utdanning/norwegian-standard-classification-of-education for details.

Table 3.1 presents some differences in the 1-digit level classifications in NUS and ISCED97, respectively. As may be observed, the codes vary, and one must be aware of this in the description and communication of results.

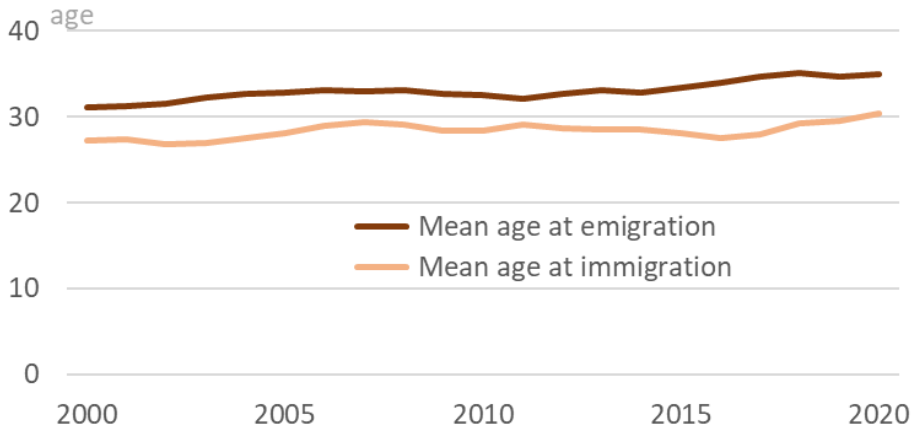
Table 3.1: A comparison of NUS and ISCED97 (1-digit level)

NUS code and description		ISCED97 code and description	
0	No education and pre-school education	0	Pre-primary
1	Primary education	1	Primary
2	Lower secondary education	2	Lower secondary
3	Upper secondary education, basic education	3	Upper secondary
4	Upper secondary, final year		
5	Post-secondary non-tertiary education	4	Post-secondary non-tertiary
6	First stage of tertiary education, undergraduate level	5	First stage of tertiary education
7	First stage of tertiary education, graduate level		
8	Second stage of tertiary education (postgraduate education)	6	Second stage of tertiary education
9	Unspecified	9	Unspecified

In addition to educational level, we also have information about whether people are currently participating in education and/or training (and the years and fields in which they undertook such activities). More details regarding the educational variables are provided in Appendix G.

As is evident from the information above, an important issue that relates to data on education is that the variables are generally very well documented for individuals who undertake their education in Norway. Data on education for immigrants are much less well documented and recorded, primarily since the majority has undertaken some education outside Norway (depending on the age of immigration, the mean age of immigration to Norway is around 28-30 years, cf. Figure 3.1).

Figure 3.1: Mean age at immigration to and emigration from Norway, 2000--2020



Source: Statistics Norway

At an aggregate level, Statistics Norway has employed various imputation techniques over the past 5-10 years to counteract these shortcomings. At an individual level, as is the case for our data, such methods have not been employed by Statistics Norway before delivering data sets to researchers. Thus, in our data we have a fairly large share of immigrants with missing education. The share varies over the time period 2000-2020, in part because Statistics Norway has put efforts into reducing the share of missing by using surveys (1991, 1999, and 2011) to obtain information about immigrants' education (among immigrants with missing information on education), to complement the education register. According to Statistics Norway, four out of ten immigrants had unknown education prior to the 2011/2012

survey (Steinkellner 2012). Table 3.2 shows examples of shares of missing for educational level and participation in education/training among natives and immigrants, for 2000, 2010, and 2019. When further immigrant characteristics are taken into account, the levels of missing changes markedly for certain subgroups.

Table 3.2: Share of missing education for natives and immigrants (in total) age 25 to 69 years for select years

	2000		2010		2019	
	Natives	Immigrants	Natives	Immigrants	Natives	Immigrants
Primary school or no education	23.4	26.5	19	25.6	17.4	24.4
Secondary education	46.9	31.9	44.9	29.7	40.9	25.9
University/college education	29.3	36.2	35.8	35.4	41.4	35.6
Missing information	0.4	5.4	0.3	9.3	0.3	14.1
In education current year	5.1	6.1	4.9	6.1	5.7	6.4
Not in education current year	94.6	89	94.8	85.4	94.1	80.4
Missing	0.3	4.9	0.3	8.5	0.2	13.2
N	2.4 mill	175000	2.5 mill	355000	2.5 mill	606000

There are some publications in Norwegian that assess differences in educational levels and occupations between immigrants and natives, also looking at the influence of various immigrant characteristics.[32] In short, the publications show that immigrants, overall, have lower levels of education than natives on average. They also show that given similar levels of education, wage gaps remain, with immigrants earning less than natives, on average. Furthermore, the publications show that there are marked variations, depending on immigrant characteristics, whether the education was undertaken in Norway or not, and depending on occupation and sector (the differences are generally more pronounced in the private sector).

3.1.6 Family situation

Statistics Norway employs multiple classifications of families, households, and marital status, and these variables may be obtained directly as variables in the data provided.[33] In addition, one may generate family constellations using encrypted family, partner, parent, and/or child numbers. In EXITNORWAY, we have the possibility to use data in all these manners, and depending on the research aim(s), alternative approached will be chosen. Some discrepancies in the information provided by the different variables do exist, but these are in general minor. The discrepancies might in part result from the data being provided at an annual basis, and thus reflect changes in the family status during the year that either are or are not accounted for. One example includes persons having both a marital and cohabiting partner (with different ids), which might result from someone separating and entering a new cohabiting union during the course of one year. Other issues might result from families being more different than the statistical offices are able to relate to; such as persons being registered as partnered (either married or cohabiting) and registered in single households, perhaps because persons are 'living-apart-together', or perhaps because one spouse might have moved to a nursing home. The partnership status is primarily a legal status, and thus

[32] For an example with references to other work, see Bye 2021 (https://www.ssb.no/arbeid-og-lonn/artikler-og-publikasjoner/utdanning-og-lonnsniva-hos-innvandrere). In short, this article might be read using for instance Google translate, but also includes multiple graphs and figures that might be useful.

[33] For a classification of families, see https://www.ssb.no/en/klass/klassifikasjoner/17. For a classification of households, see https://www.ssb.no/en/klass/klassifikasjoner/37. For a classification of marital status, see https://www.ssb.no/en/klass/klassifikasjoner/19.

not necessarily related to the living situation per se, although it for the vast majority will be an overlap. Another example might relate to the number of children and number of underage children living in the household, as the child might be living elsewhere (in Norway or abroad). These are just a few examples, and the manner in which the family and household variables have been handled will be specified in the respective papers.

3.1.7 Remaining regional issues

Institute of Transport Economics – Norwegian Centre for Transport Research (TØI) has their own regional classification in 'housing and labor regions', abbreviated to BA-regions in Norwegian. It is more disaggregated than Statistics Norway's classification of economic regions. Per 1 January 2020 there are 159 BA-regions. The classification is based on a combination of extent of commuting and travelling time between municipalities. It has been considered an important tool for analyses of various district and regional political instruments, as for instance differentiated payroll taxes. This variable has been added to our data and can for instance be used in papers with a regional dimension. In contrast to the classification in economic regions, the municipalities in a BA unit does not have to be a part of the same county. An example of this feature is Os municipality in the northern part of Innlandet county. It belongs to the Røros BA unit, which is centered around the city of Røros which is located in the southern part of Trøndelag county. Appendix Table D provides a complete overview of the municipalities and which BA-region they belong to.

There are several ways to measure residential relocations within Norway. In the EXITNORWAY project, we mainly focus on moves between municipalities, and used changed municipality from 1 January one year to 1 January the next year as an indicator for an inter-municipal move (taking into account the changes in municipality structure described in Section 1.1.3). This implies that moves within the same municipality are not analysed, nor are moves out from and back to the same municipality during the same calendar year.

3.1.8 Remaining miscellaneous information

The remaining variables include information relating to register status and dates for status changes, as well as indicators of residence in Norway.

In all register data, a small percentage of errors commonly occur. You might have persons with a birth date after their death date, or persons who are registered as residents although their death dates are registered as having occurred many years before they are living (happily) in Norway. The Norwegian registers are generally of high quality, and in instances where these types of errors are noted, we have opted to delete the record, as it is impossible for us to guess which information is most trustworthy. Altogether, this resulted in a deletion of <1% of the linked records.

Another issue pertains to the variable 'register status' (regstatus). This variable is coded from 0-8, but only the observations coded 1 (alive), 3 (emigrated) or 5 (dead) are commonly used for research. The remaining codes are very rare (and much missing information is found also in other realms for these records, including a lack of the year/month of exit), and we have thus opted to exclude these cases (N=26,655) in our analyses.[34]

When we applied for data, we opted to ask also for information on non-residents, which include persons who have entered Norway without having gained residence status. Instead of a national, personal identification number (PIN), these individuals are provided with a so-

[34] Other codes in our data include 4 (Disappeared), 6 (Change of PIN), 7 (Only registered at birth) and 8 (No access), cf. https://www.ssb.no/a/metadata/codelist/datadok/1189832/no#. The code 9 is used for individuals with D-numbers and have thus also been excluded in most analyses, and this code comprises a large share of all codes (13.7% out of the 142 million observations).

called D-number. This number is most used while one is waiting for a PIN. Other instances include when asylum seekers are registered (with a D-number) but fail to obtain a legal status in Norway and thus are not awarded a PIN.

3.2 Aspects related to obtaining data

To obtain the data we have described above, there are a few requirements that must be met. Below we briefly summarize the procedures for data obtainment, a few legal aspects to bear in mind, as well as information related to costs. All information may be found summarized here: https://www.ssb.no/en/data-til-forskning/utlan-av-data-til-forskere/soknad

3.2.1 Procedures to obtain data

Statistics Norway can grant access to microdata (data on the individual level) for the preparation of statistical results and analyses, including research, cf. Section 14 of the Statistics Act. Whereas public authorities can apply for access to data for use in statistical results and analyses, approved research institutions can apply for access for research purposes. All the information on how to apply, which forms to use and which attachments to include is available via the abovementioned link. The link also guides you to available databases and variables. In short, the data application must include the following information: 1) A data application form; 2) A description of needs and purpose, i.e., a research protocol; and 3) A variable list. For the latter point, the processing will go a lot smoother if Statistics Norway's own variable lists are used (cf. link). In addition, it must be outlined how privacy issues are taken care of (see below).

3.2.2 Legal issues

Research projects that intend to process personal data must have a legal basis under the new EU General Data Protection Regulation (GDPR). All research institutions should have their own data protection officer, who can assist you in this process. In short, the project must undergo a Data Protection Impact Assessment – DPIA or an assessment of why a DPIA is not necessary (negative DPIA). Information on the basis for processing must be given in the application.

3.2.3 Costs

Statistics Norway does not charge for the data itself. However, the institution charges for the time used to process the application and prepare the data. A 25 percent VAT charge is also added. Much of the time is taken up on clarifying ambiguities, and it is therefore important that the information given in the application and attachments is correct.

The price covers the following activities:

- Coordination, clarification, preparation of quote and agreement
- Creating a population, processing third-party data, and customizing data files
- Data extraction and de-identification
- Archiving, documentation, and delivery

4 Summary

This report has compiled relevant information pertaining to emigration from Norway and helped contextualized the phenomenon of emigration. In summary, emigration from Norway is quite common, and amounts to around 30,000 each year. On average, emigrants are somewhat younger and more likely to be immigrants as compared to other individuals in the Norwegian population.

This report has defined and explained central concepts used in the study of emigration from Norway, such as residential status, emigration, and immigration, as well as different regional divisions.

Further, the report has briefly presented Norway's immigration and emigration history, given some basic information about the rules for immigration to Norway, and provided a short introduction to previous research on emigration from Norway.

Moreover, the report has presented register data useful for quantitative research on emigration from Norway and outlined ways in which to deal with some of the associated issues and problems.

We hope that this report may provide a foundation for useful research on *who* leaves Norway, *why* they leave, and how the emigration affects society – both through the EXITNORWAY project and for other research in this field.

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Appendix A: Notification form about emigration

Norwegian Tax Administration

Notification to the tax office

of a move abroad

Please fill in the white fields only. The grey fields are for internal use by the tax office.

Who shall submit this form?

A PERSON WHO MOVES OUT OF THE COUNTRY to take up residence abroad for at least six months must report the move to a tax office before moving from Norway. See the National Registration Act section 8 paragraph 1. You report a move by completing and sending this form to a tax office. You will find the addresses of the tax offices at www.skatteetaten.no.

If you are moving to one of the other Nordic countries, you do not submit this form. In such case, you are only obliged to report that you are moving to the country in question. Read more about the rules for moving abroad at www.skatteetaten.no/en/international-pages/

A When are you moving from Norway?

Day	Month	Year

B Which municipality are you moving from?

C What is your new home address abroad?

Address abroad (please write clearly)	Country
	Country code

D Do you want the tax office to register a postal address?

Please fill in this field only if the postal address is different from your home address. Please note that this postal address will only be registered in the National Register. You have to report your change of postal address to Posten yourself.

Postal address (P.O. Box etc.)	Country

E What will your future connection to Norway be?

How long do you plan to stay abroad? (Please state the number of years or whether the move is permanent.)

How many weeks do you plan to spend in Norway per year? Number of weeks

Do any of you have a spouse, and/or children under the age of 18 in Norway? ☐ No ☐ Yes

Do you own or rent a residence in Norway? ☐ No ☐ Yes

Is the residence in Norway at your disposal during your stay abroad? ☐ No ☐ Yes

Is the residence let during your stay abroad? ☐ No ☐ Yes ▸ Please enclose documentation (for example a copy of a signed lease.)

Do you own or rent a residence in the country you are moving to? ☐ No ☐ Yes ▸ Please enclose documentation (for example a copy of a signed lease.)

Do any of you still work in Norway? ☐ No ☐ Yes

Do you have residence or work permits in the country you are moving to? ☐ No ☐ Yes ▸ Please enclose documentation

Registration date	The tax office's stamp and signature

RF-1402E

page 1/2 Please turn the page!

F Who is moving?

In this form, you can report a change of home address for yourself, and some or all household members who are moving with you. For children under the age of 18, it is the person or persons with parental responsibility who is/are obliged to report the move and sign the form.

1.	Name (surname, given name and middle name (if any)				
	National identity number	Marital status	Occupation after moving	Employer	Place of work
2.	Name (surname, given name and middle name (if any)				
	National identity number	Marital status	Occupation after moving	Employer	Place of work
3.	Name (surname, given name and middle name (if any)				
	National identity number	Marital status	Occupation after moving	Employer	Place of work
4.	Name (surname, given name and middle name (if any)				
	National identity number	Marital status	Occupation after moving	Employer	Place of work
5.	Name (surname, given name and middle name (if any)				
	National identity number	Marital status	Occupation after moving	Employer	Place of work
6.	Name (surname, given name and middle name (if any)				
	National identity number	Marital status	Occupation after moving	Employer	Place of work

G How can the tax office get in touch with you?

E-mail	Telephone

H Date and signature

The person who has a duty to report the move abroad must sign the form. You can also sign on behalf of your spouse, co-habitant, partner and children under the age of 18 if the family is moving together. If parents have shared parental responsibility for children under the age of 18 and one of the parents is not covered by the notification, both parents must sign it. The same applies if the child moves alone.

I confirm that the information stated in this form is correct. It is a criminal offence to supply incorrect information or to withhold information.

Date	Signature(s)

Appendix B: Municipality information

Table B1: Municipalities, population, and immigrants as of 1 January 2020

Municipality	Municipality code	Population	Immigrants	Share of immigrants[a]
Halden	3001	31373	4932	15.7
Moss	3002	49273	10077	20.5
Sarpsborg	3003	56732	11594	20.4
Fredrikstad	3004	82385	15616	19.0
Drammen	3005	101386	28153	27.8
Kongsberg	3006	27723	4720	17.0
Ringerike	3007	30641	5003	16.3
Hvaler	3011	4668	296	6.3
Aremark	3012	1325	62	4.7
Marker	3013	3595	351	9.8
Indre Østfold	3014	44792	8587	19.2
Skiptvet	3015	3805	450	11.8
Rakkestad	3016	8255	1260	15.3
Råde	3017	7508	1094	14.6
Våler (Viken)	3018	5736	902	15.7
Vestby	3019	18042	3299	18.3
Nordre Follo	3020	59288	11385	19.2
Ås	3021	20439	4882	23.9
Frogn	3022	15877	2160	13.6
Nesodden	3023	19616	3069	15.6
Bærum	3024	127731	28799	22.5
Asker	3025	94441	19260	20.4
Aurskog-Høland	3026	17390	2665	15.3
Rælingen	3027	18530	4883	26.4
Enebakk	3028	11110	2152	19.4
Lørenskog	3029	41460	13037	31.4
Lillestrøm	3030	85983	23043	26.8
Nittedal	3031	24249	4633	19.1
Gjerdrum	3032	6890	1173	17.0
Ullensaker	3033	39625	11335	28.6
Nes	3034	23092	3664	15.9
Eidsvoll	3035	25436	4630	18.2
Nannestad	3036	14139	3478	24.6
Hurdal	3037	2854	313	11.0
Hole	3038	6799	1057	15.5
Flå	3039	1050	172	16.4
Nesbyen	3040	3273	409	12.5
Gol	3041	4608	804	17.4
Hemsedal	3042	2486	644	25.9
Ål	3043	4674	523	11.2
Hol	3044	4441	782	17.6
Sigdal	3045	3467	351	10.1
Krødsherad	3046	2212	307	13.9
Modum	3047	14115	1832	13.0
Øvre Eiker	3048	19423	3057	15.7
Lier	3049	26811	6000	22.4
Flesberg	3050	2688	298	11.1
Rollag	3051	1390	127	9.1
Nore og Uvdal	3052	2439	263	10.8
Jevnaker	3053	6852	813	11.9
Lunner	3054	9048	1144	12.6

Table B1 (continued)

Municipality	Municipality code	Population	Immigrants	Share of immigrants
Oslo	0301	693494	234354	33.8
Kongsvinger	3401	17829	2518	14.1
Hamar	3403	31369	4575	14.6
Lillehammer	3405	28345	3933	13.9
Gjøvik	3407	30560	4775	15.6
Ringsaker	3411	34768	3859	11.1
Løten	3412	7674	774	10.1
Stange	3413	21064	2553	12.1
Nord-Odal	3414	5016	264	5.3
Sør-Odal	3415	7905	754	9.5
Eidskog	3416	6106	556	9.1
Grue	3417	4612	438	9.5
Åsnes	3418	7203	559	7.8
Våler (Innlandet)	3419	3662	328	9.0
Elverum	3420	21254	2565	12.1
Trysil	3421	6627	855	12.9
Åmot	3422	4356	378	8.7
Stor-Elvdal	3423	2419	304	12.6
Rendalen	3424	1780	149	8.4
Engerdal	3425	1268	121	9.5
Tolga	3426	1562	230	14.7
Tynset	3427	5578	730	13.1
Alvdal	3428	2432	211	8.7
Folldal	3429	1545	101	6.5
Os	3430	1891	241	12.7
Dovre	3431	2553	240	9.4
Lesja	3432	1975	161	8.2
Skjåk	3433	2197	149	6.8
Lom	3434	2228	139	6.2
Vågå	3435	3570	218	6.1
Nord-Fron	3436	5723	467	8.2
Sel	3437	5739	437	7.6
Sør-Fron	3438	3119	361	11.6
Ringebu	3439	4392	496	11.3
Øyer	3440	5100	734	14.4
Gausdal	3441	6106	464	7.6
Østre Toten	3442	14973	1567	10.5
Vestre Toten	3443	13427	1418	10.6
Gran	3446	13630	1547	11.3
Søndre Land	3447	5617	544	9.7
Nordre Land	3448	6633	572	8.6
Sør-Aurdal	3449	2954	245	8.3
Etnedal	3450	1279	117	9.1
Nord-Aurdal	3451	6413	704	11.0
Vestre Slidre	3452	2125	205	9.6
Øystre Slidre	3453	3229	408	12.6
Vang	3454	1578	275	17.4

Table B1 (continued)

Municipality	Municipality code	Population	Immigrants	Share of immigrants
Horten	3801	27351	4507	16.5
Holmestrand	3802	24699	3516	14.2
Tønsberg	3803	56293	8286	14.7
Sandefjord	3804	63764	11832	18.6
Larvik	3805	47204	6917	14.7
Porsgrunn	3806	36397	4969	13.7
Skien	3807	54942	9566	17.4
Notodden	3808	13049	1741	13.3
Færder	3811	26730	3613	13.5
Siljan	3812	2340	202	8.6
Bamble	3813	14061	1379	9.8
Kragerø	3814	10380	1266	12.2
Drangedal	3815	4060	397	9.8
Nome	3816	6515	919	14.1
Midt-Telemark	3817	10444	1565	15.0
Tinn	3818	5691	769	13.5
Hjartdal	3819	1573	133	8.5
Seljord	3820	2888	287	9.9
Kviteseid	3821	2403	203	8.4
Nissedal	3822	1448	178	12.3
Fyresdal	3823	1287	160	12.4
Tokke	3824	2201	204	9.3
Vinje	3825	3676	402	10.9
Risør	4201	6809	836	12.3
Grimstad	4202	23544	3630	15.4
Arendal	4203	44999	6638	14.8
Kristiansand	4204	111633	20030	17.9
Lindesnes	4205	23046	2879	12.5
Farsund	4206	9691	1082	11.2
Flekkefjord	4207	9028	1336	14.8
Gjerstad	4211	2428	274	11.3
Vegårshei	4212	2097	218	10.4
Tvedestrand	4213	6053	722	11.9
Froland	4214	5951	597	10.0
Lillesand	4215	11074	1358	12.3
Birkenes	4216	5226	660	12.6
Åmli	4217	1836	301	16.4
Iveland	4218	1331	188	14.1
Evje og Hornnes	4219	3634	494	13.6
Bygland	4220	1162	91	7.8
Valle	4221	1164	124	10.7
Bykle	4222	965	195	20.2
Vennesla	4223	14774	1892	12.8
Åseral	4224	932	104	11.2
Lyngdal	4225	10365	1405	13.6
Hægebostad	4226	1680	126	7.5
Kvinesdal	4227	5987	649	10.8
Sirdal	4228	1822	219	12.0

Table B1 (continued)

Municipality	Municipality code	Population	Immigrants	Share of immigrants
Eigersund	1101	14811	1931	13.0
Stavanger	1103	143574	33047	23.0
Haugesund	1106	37357	6745	18.1
Sandnes	1108	79537	18262	23.0
Sokndal	1111	3280	241	7.3
Lund	1112	3202	328	10.2
Bjerkreim	1114	2787	293	10.5
Hå	1119	18991	2890	15.2
Klepp	1120	19588	2998	15.3
Time	1121	18916	2361	12.5
Gjesdal	1122	12002	1866	15.5
Sola	1124	27153	5541	20.4
Randaberg	1127	11221	1532	13.7
Strand	1130	12968	1551	12.0
Hjelmeland	1133	2574	446	17.3
Suldal	1134	3804	453	11.9
Sauda	1135	4595	441	9.6
Kvitsøy	1144	517	53	10.3
Bokn	1145	852	81	9.5
Tysvær	1146	11065	1012	9.1
Karmøy	1149	42186	4407	10.4
Utsira	1151	198	31	15.7
Vindafjord	1160	8714	1216	14.0
Bergen	4601	283929	52116	18.4
Kinn	4602	17207	2454	14.3
Etne	4611	4062	437	10.8
Sveio	4612	5766	682	11.8
Bømlo	4613	11957	1444	12.1
Stord	4614	18759	2326	12.4
Fitjar	4615	3189	290	9.1
Tysnes	4616	2869	302	10.5
Kvinnherad	4617	13071	1095	8.4
Ullensvang	4618	11048	1327	12.0
Eidfjord	4619	906	105	11.6
Ulvik	4620	1080	183	16.9
Voss	4621	15740	1617	10.3
Kvam	4622	8457	990	11.7
Samnanger	4623	2485	231	9.3

Table B1 (continued)

Municipality	Municipality code	Population	Immigrants	Share of immigrants
Bjørnafjorden	4624	24908	3275	13.1
Austevoll	4625	5236	664	12.7
Øygarden	4626	38316	4616	12.0
Askøy	4627	29553	3144	10.6
Vaksdal	4628	3977	447	11.2
Modalen	4629	388	35	9.0
Osterøy	4630	8098	867	10.7
Alver	4631	29224	2951	10.1
Austrheim	4632	2870	415	14.5
Fedje	4633	548	58	10.6
Masfjorden	4634	1691	154	9.1
Gulen	4635	2297	296	12.9
Solund	4636	802	127	15.8
Hyllestad	4637	1328	182	13.7
Høyanger	4638	4101	437	10.7
Vik	4639	2635	326	12.4
Sogndal	4640	11847	1510	12.7
Aurland	4641	1781	300	16.8
Lærdal	4642	2126	293	13.8
Årdal	4643	5193	514	9.9
Luster	4644	5174	443	8.6
Askvoll	4645	3011	242	8.0
Fjaler	4646	2802	376	13.4
Sunnfjord	4647	22030	2350	10.7
Bremanger	4648	3629	584	16.1
Stad	4649	9457	1016	10.7
Gloppen	4650	5854	659	11.3
Stryn	4651	7130	1274	17.9
Kristiansund	1505	24179	3154	13.0
Molde	1506	31967	4201	13.1
Ålesund	1507	66258	10500	15.8
Vanylven	1511	3117	236	7.6
Sande	1514	2461	494	20.1
Herøy (Møre og Romsdal)	1515	8900	1240	13.9
Ulstein	1516	8571	1406	16.4
Hareid	1517	5175	978	18.9
Ørsta	1520	10825	1068	9.9
Stranda	1525	4523	918	20.3
Sykkylven	1528	7625	1110	14.6
Sula	1531	9310	1224	13.1
Giske	1532	8462	1058	12.5
Vestnes	1535	6532	825	12.6
Rauma	1539	7468	765	10.2
Aukra	1547	3509	505	14.4
Averøy	1554	5788	662	11.4
Gjemnes	1557	2629	263	10.0
Tingvoll	1560	3025	329	10.9
Sunndal	1563	7036	752	10.7
Surnadal	1566	5920	394	6.7
Smøla	1573	2150	279	13.0
Aure	1576	3507	406	11.6
Volda	1577	10473	1182	11.3
Fjord	1578	2549	357	14.0
Hustadvika	1579	13279	1292	9.7

Table B1 (continued)

Municipality	Municipality code	Population	Immigrants	Share of immigrants
Trondheim	5001	205163	33420	16.3
Steinkjer	5006	24357	2316	9.5
Namsos	5007	15230	1433	9.4
Frøya	5014	5151	1417	27.5
Osen	5020	948	54	5.7
Oppdal	5021	7001	741	10.6
Rennebu	5022	2486	206	8.3
Røros	5025	5581	534	9.6
Holtålen	5026	1981	118	6.0
Midtre Gauldal	5027	6238	870	13.9
Melhus	5028	16733	1562	9.3
Skaun	5029	8325	582	7.0
Malvik	5031	14148	1572	11.1
Selbu	5032	4062	273	6.7
Tydal	5033	769	41	5.3
Meråker	5034	2422	281	11.6
Stjørdal	5035	24145	2351	9.7
Frosta	5036	2627	293	11.2
Levanger	5037	20164	1942	9.6
Verdal	5038	14948	1135	7.6
Snåsa	5041	2063	145	7.0
Lierne	5042	1355	131	9.7
Røyrvik	5043	461	45	9.8
Namsskogan	5044	843	79	9.4
Grong	5045	2359	288	12.2
Høylandet	5046	1231	67	5.4
Overhalla	5047	3884	375	9.7
Flatanger	5049	1103	143	13.0
Leka	5052	557	57	10.2
Inderøy	5053	6816	440	6.5
Indre Fosen	5054	10084	895	8.9
Heim	5055	5963	452	7.6
Hitra	5056	5050	1038	20.6
Ørland	5057	10323	806	7.8
Åfjord	5058	4288	350	8.2
Orkland	5059	18217	1777	9.8
Nærøysund	5060	9623	1067	11.1
Rindal	5061	2003	60	3.0

Table B1 (continued)

Municipality	Municipality code	Population	Immigrants	Share of immigrants
Bodø	1804	52357	5661	10.8
Narvik	1806	21845	2555	11.7
Bindal	1811	1426	66	4.6
Sømna	1812	1975	156	7.9
Brønnøy	1813	7917	709	9.0
Vega	1815	1200	79	6.6
Vevelstad	1816	462	35	7.6
Herøy (Nordland)	1818	1777	314	17.7
Alstahaug	1820	7447	896	12.0
Leirfjord	1822	2294	300	13.1
Vefsn	1824	13278	1011	7.6
Grane	1825	1482	185	12.5
Hattfjelldal	1826	1297	94	7.2
Dønna	1827	1371	133	9.7
Nesna	1828	1761	309	17.5
Hemnes	1832	4454	290	6.5
Rana	1833	26184	2164	8.3
Lurøy	1834	1890	171	9.0
Træna	1835	435	97	22.3
Rødøy	1836	1213	74	6.1
Meløy	1837	6288	511	8.1
Gildeskål	1838	1950	283	14.5
Beiarn	1839	1017	56	5.5
Saltdal	1840	4671	437	9.4
Fauske	1841	9739	828	8.5
Sørfold	1845	1926	154	8.0
Steigen	1848	2608	299	11.5
Lødingen	1851	2034	281	13.8
Evenes	1853	1348	149	11.1
Røst	1856	498	41	8.2
Værøy	1857	728	120	16.5
Flakstad	1859	1272	125	9.8
Vestvågøy	1860	11433	1261	11.0
Vågan	1865	9608	1505	15.7
Hadsel	1866	8061	1064	13.2
Bø	1867	2569	289	11.2
Øksnes	1868	4410	575	13.0
Sortland	1870	10566	1009	9.5
Andøy	1871	4663	506	10.9
Moskenes	1874	1015	202	19.9
Hamarøy	1875	2766	347	12.5

Table B1 (continued)

Municipality	Municipality code	Population	Immigrants	Share of immigrants
Tromsø	5401	76974	11633	15.1
Harstad	5402	24703	2599	10.5
Alta	5403	20789	2149	10.3
Vardø	5404	2029	373	18.4
Vadsø	5405	5788	903	15.6
Hammerfest	5406	11448	2159	18.9
Kvæfjord	5411	2839	282	9.9
Tjeldsund	5412	4216	361	8.6
Ibestad	5413	1361	154	11.3
Gratangen	5414	1091	156	14.3
Lavangen	5415	1034	85	8.2
Bardu	5416	4005	328	8.2
Salangen	5417	2146	271	12.6
Målselv	5418	6640	494	7.4
Sørreisa	5419	3464	318	9.2
Dyrøy	5420	1083	74	6.8
Senja	5421	14851	1765	11.9
Balsfjord	5422	5559	497	8.9
Karlsøy	5423	2200	312	14.2
Lyngen	5424	2794	195	7.0
Storfjord	5425	1829	166	9.1
Kåfjord	5426	2071	142	6.9
Skjervøy	5427	2927	494	16.9
Nordreisa	5428	4861	387	8.0
Kvænangen	5429	1191	87	7.3
Kautokeino	5430	2910	218	7.5
Loppa	5432	888	136	15.3
Hasvik	5433	1005	236	23.5
Måsøy	5434	1225	246	20.1
Nordkapp	5435	3162	555	17.6
Porsanger	5436	3998	347	8.7
Karasjok	5437	2628	191	7.3
Lebesby	5438	1290	236	18.3
Gamvik	5439	1132	335	29.6
Berlevåg	5440	957	172	18.0
Tana	5441	2918	349	12.0
Nesseby	5442	926	113	12.2
Båtsfjord	5443	2221	669	30.1
Sør-Varanger	5444	10158	1700	16.7

[a]In percent.

Appendix C: The development of the population stock over time for a regional unit

The development of the population stock of municipality *m* obeys the following equation:

$$P_{mt} = P_{m,t-1} + B_{m,t-1} - D_{m,t-1} + I_{m,t-1} - E_{m,t-1} + \sum_{n \in S_m} DI_{nm,t-1} - \sum_{n \in S_m} DO_{mn,t-1}. \quad \text{(B1)}$$

In Eq. (B1) the subscript *t* denotes time (most typically year), whereas the subscripts *m* and *n* denote municipalities. Let *S* denote the set with all the municipalities and S_m the set with all municipalities except municipality *m.* The symbol P_{mt}, occurring at the left-hand side of Eq. (B1), denotes the population stock at the beginning of period *t*. All other variables than P_m are flow variables. The symbols $B_{m,t-1}$ and $D_{m,t-1}$ denote, respectively, the number of births and the number of deaths in municipality *m* in period *t-1*, whereas $I_{m,t-1}$ and $E_{m,t-1}$ denote, respectively, the number of immigrants from abroad and the number of emigrants to abroad in municipality *m* in period *t-1*. The two last terms in Eq. (B1) are related to domestic migration. The symbol $DI_{nm,t-1}$ denotes the inwards migration from municipality *n* to municipality *m* in period *t-1*. Hence, the interpretation of the term $\sum_{n \in S_m} DI_{nm,t-1}$, is the total number of individuals that have come from other municipalities to municipality *m* in year *t-1*. The symbol $DO_{mn,t-1}$ denotes the number of individuals that has moved from municipality *m* to municipality *n* in period *t-1*. Hence, the interpretation of the term $\sum_{n \in S_m} DO_{mn,t-1}$, is the total number of individuals that have moved from municipality *m* to other municipalities in year *t-1*. Note that, typically, many of the DI_{nm} − and DO_{mn} − variables will be zero, as there are no inwards migration to municipality *m* from municipality *n* and/or no outwards migration from municipality *m* to municipality *n*. Let

$$DN_{mt} = DI_{nmt} - DO_{mnt}. \quad \text{(B2)}$$

Thus DN_{mt} is the net domestic immigration to municipality *m* from municipality *n*. Inserting from Eq. (B2) in Eq. (B1) one obtains

$$P_{mt} = P_{m,t-1} + B_{m,t-1} - D_{m,t-1} + I_{m,t-1} - E_{m,t-1} + \sum_{n \in S_m} DN_{nm,t-1}. \quad \text{(B3)}$$

Note that the following property holds

$$\sum_{m \in S} \sum_{n \in S_m} DN_{nmt} = 0. \quad \text{(B4)}$$

Eq. (B4) says that the sum of net domestic migration over all municipalities is zero. An accumulation equation of the same type as Eq. (B1) can also be set up at the county level.

$$P_{ct} = P_{c,t-1} + B_{c,t-1} - D_{c,t-1} + I_{c,t-1} - E_{c,t-1} + \sum_{d \in U_c} DI_{dc,t-1} - \sum_{d \in U_c} DO_{cd,t-1}. \quad \text{(B5)}$$

In Eq. (B5) the subscripts *c* and *d* denote county. Corresponding to the sets *S* and S_m, we now introduce the two sets *U* and U_c , where *U* denotes the set with all counties and U_c a set with all counties except county *c*. In conjunction with the two last terms there is of course no contribution from domestic migration within counties, as there was no contribution from domestic migration within municipalities in connection with Eq. (B1). Since all municipalities are member of one specific county Eq. (B5) can be derived from Eq. (B1) by aggregating it over the municipalities that belong to the specific county. It should also be noted that Eqs. (B1) and (B5) can be disaggregated further by for instance bringing in the sex and age dimensions, and by disaggregating international migration according to geographical areas.

Appendix D: BA (housing and labor market) regions

Table D1. An overview of BA codes

Municipality code	Municipality	BA-code	BA-region
1525	Stranda	82	Stranda
1528	Sykkylven	79	Ålesund
1531	Sula	79	Ålesund
1532	Giske	79	Ålesund
1535	Vestnes	83	Vestnes
1539	Rauma	84	Rauma
1547	Aukra	78	Molde
1554	Averøy	77	Kristiansund
1557	Gjemnes	78	Molde
1560	Tingvoll	77	Kristiansund
1563	Sunndal	85	Sunndal
1566	Surnadal	86	Surnadal
1567	Rindal	86	Surnadal
1573	Smøla	87	Smøla
1576	Aure	88	Aure
1577	Volda	89	Volda
1578	Fjord	79	Ålesund
1579	Hustadvika	78	Molde
1804	Bodø	106	Bodø
1806	Narvik	107	Narvik
1811	Bindal	105	Nærøysund
1812	Sømna	108	Brønnøy
1813	Brønnøy	108	Brønnøy
1815	Vega	109	Vega
1816	Vevelstad	108	Brønnøy
1818	Herøy	110	Herøy
1820	Alstahaug	111	Alstahaug
1822	Leirfjord	111	Alstahaug
1824	Vefsn	112	Vefsn
1825	Grane	112	Vefsn
1826	Hattfjelldal	112	Vefsn
1827	Dønna	111	Alstahaug
1828	Nesna	113	Nesna
1832	Hemnes	114	Rana
1833	Rana	114	Rana
1834	Lurøy	115	Lurøy
1835	Træna	116	Træna
1836	Rødøy	117	Rødøy
1837	Meløy	118	Meløy
1838	Gildeskål	106	Bodø
1839	Beiarn	119	Beiarn
1840	Saltdal	120	Fauske – Fuosko[a]
1841	Fauske – Fuosko[a]	120	Fauske – Fuosko[a]
1845	Sørfold	120	Fauske – Fuosko[a]
1848	Steigen	121	Steigen
1851	Lødingen	122	Lødingen
1853	Evenes	133	Harstad – Hárstták[b]
1856	Røst	123	Røst
1857	Værøy	124	Værøy
1859	Flakstad	125	Vestvågøy
1860	Vestvågøy	125	Vestvågøy
1865	Vågan	126	Vågan
1866	Hadsel	128	Sortland – Sortá[b]
1867	Bø	127	Bø
1868	Øksnes	128	Sortland – Sortá[b]
1870	Sortland – Sortá[b]	128	Sortland – Sortá[b]
1871	Andøy	129	Andøy
1874	Moskenes	130	Moskenes
1875	Hamarøy – Hábmer[b]	131	Hamarøy – Hábmer[b]

Table D1 (continued)

Municipality code	Municipality	BA-code	BA-region
3001	Halden	1	Halden
3002	Moss og Rygge	2	Moss
3003	Sarpsborg	3	Fredrikstad/Sarpsborg
3004	Fredrikstad	3	Fredrikstad/Sarpsborg
3005	Drammen	6	Drammen
3006	Kongsberg	7	Kongsberg
3007	Ringerike	8	Ringerike
3011	Hvaler	3	Fredrikstad/Sarpsborg
3012	Aremark	1	Halden
3013	Marker	4	Indre Østfold
3014	Indre Østfold	4	Indre Østfold
3015	Skiptvet	4	Indre Østfold
3016	Rakkestad	4	Indre Østfold
3017	Råde	3	Fredrikstad/Sarpsborg
3018	Våler (Østfold)	2	Moss
3019	Vestby	5	Oslo/Bærum
3020	Nordre Follo	5	Oslo/Bærum
3021	Ås	5	Oslo/Bærum
3022	Frogn	5	Oslo/Bærum
3023	Nesodden	5	Oslo/Bærum
3024	Bærum	5	Oslo/Bærum
3025	Asker	5	Oslo/Bærum
3026	Aurskog-Høland	5	Oslo/Bærum
3027	Rælingen	5	Oslo/Bærum
3028	Enebakk	5	Oslo/Bærum
3029	Lørenskog	5	Oslo/Bærum
3030	Lillestrøm	5	Oslo/Bærum
3031	Nittedal	5	Oslo/Bærum
3032	Gjerdrum	5	Oslo/Bærum
3033	Ullensaker	9	Ullensaker
3034	Nes (Akershus)	5	Oslo/Bærum
3035	Eidsvoll	9	Ullensaker
3036	Nannestad	9	Ullensaker
3037	Hurdal	9	Ullensaker
3038	Hole	5	Oslo/Bærum
3039	Flå	10	Flå
3040	Nes (Buskerud)	11	Gol
3041	Gol	11	Gol
3042	Hemsedal	11	Gol
3043	Ål	11	Gol
3044	Hol	12	Hol
3045	Sigdal	13	Sigdal
3046	Krødsherad	8	Ringerike
3047	Modum	6	Drammen
3048	Øvre Eiker	6	Drammen
3049	Lier	5	Oslo/Bærum
3050	Flesberg	7	Kongsberg
3051	Rollag	7	Kongsberg
3052	Nore og Uvdal	14	Nore og Uvdal

Table D1 (continued)

Municipality code	Municipality	BA-code	BA-region
3401	Kongsvinger	15	Kongsvinger
3403	Hamar	16	Hamar
3405	Lillehammer	17	Lillehammer
3407	Gjøvik	18	Gjøvik
3411	Ringsaker	16	Hamar
3412	Løten	16	Hamar
3413	Stange	16	Hamar
3414	Nord-Odal	15	Kongsvinger
3415	Sør-Odal	15	Kongsvinger
3416	Eidskog	15	Kongsvinger
3417	Grue	15	Kongsvinger
3418	Åsnes	19	Åsnes
3419	Våler (Hedmark)	20	Elverum
3420	Elverum	20	Elverum
3421	Trysil	21	Trysil
3422	Åmot	20	Elverum
3423	Stor-Elvdal	22	Stor-Elvdal
3424	Rendalen	23	Tynset
3425	Engerdal	21	Trysil
3426	Tolga	23	Tynset
3427	Tynset	23	Tynset
3428	Alvdal	23	Tynset
3429	Folldal	23	Tynset
3430	Os (Hedmark)	94	Røros
3431	Dovre	24	Dovre
3432	Lesja	24	Dovre
3433	Skjåk	25	Lom
3434	Lom	25	Lom
3435	Vågå	27	Sel
3436	Nord-Fron	26	Nord-Fron
3437	Sel	27	Sel
3438	Sør-Fron	26	Nord-Fron
3439	Ringebu	26	Nord-Fron
3440	Øyer	17	Lillehammer
3441	Gausdal	17	Lillehammer
3442	Østre Toten	18	Gjøvik
3443	Vestre Toten	18	Gjøvik
3444	Jevnaker	8	Ringerike
3445	Lunner	5	Oslo/Bærum
3446	Gran	5	Oslo/Bærum
3447	Søndre Land	18	Gjøvik
3448	Nordre Land	18	Gjøvik
3449	Sør-Aurdal	28	Nord-Aurdal
3450	Etnedal	28	Nord-Aurdal
3451	Nord-Aurdal	28	Nord-Aurdal
3452	Vestre Slidre	28	Nord-Aurdal
3453	Øystre Slidre	28	Nord-Aurdal
3454	Vang	28	Nord-Aurdal

Table D1 (continued)

Municipality code	Municipality	BA-code	BA-region
3801	Horten	29	Tønsberg
3802	Holmestrand	6	Drammen
3803	Tønsberg	29	Tønsberg
3804	Sandefjord	29	Tønsberg
3805	Larvik	30	Larvik
3806	Porsgrunn	31	Skien/Porsgrunn
3807	Skien	31	Skien/Porsgrunn
3808	Notodden	32	Notodden
3811	Færder	29	Tønsberg
3812	Siljan	31	Skien/Porsgrunn
3813	Bamble	31	Skien/Porsgrunn
3814	Kragerø	33	Kragerø
3815	Drangedal	31	Skien/Porsgrunn
3816	Nome	31	Skien/Porsgrunn
3817	Midt-Telemark	32	Notodden
3818	Tinn	34	Tinn
3819	Hjartdal	32	Notodden
3820	Seljord	35	Seljord
3821	Kviteseid	35	Seljord
3822	Nissedal	36	Nissedal
3823	Fyresdal	37	Fyresdal
3824	Tokke	38	Vinje
3825	Vinje	38	Vinje
4201	Risør	39	Risør
4202	Grimstad	40	Arendal
4203	Arendal	40	Arendal
4204	Kristiansand	41	Kristiansand
4205	Lindesnes	41	Kristiansand
4206	Farsund	46	Lyngdal
4207	Flekkefjord	42	Flekkefjord
4211	Gjerstad	39	Risør
4212	Vegårshei	40	Arendal
4213	Tvedestrand	40	Arendal
4214	Froland	40	Arendal
4215	Lillesand	41	Kristiansand
4216	Birkenes	41	Kristiansand
4217	Åmli	43	Åmli
4218	Iveland	41	Kristiansand
4219	Evje og Hornnes	44	Evje og Hornnes
4220	Bygland	44	Evje og Hornnes
4221	Valle	45	Bykle
4222	Bykle	45	Bykle
4223	Vennesla	41	Kristiansand
4224	Åseral	44	Evje og Hornnes
4225	Lyngdal	46	Lyngdal
4226	Hægebostad	46	Lyngdal
4227	Kvinesdal	42	Flekkefjord
4228	Sirdal	47	Sirdal

Table D1 (continued)

Municipality code	Municipality	BA-code	BA-region
4601	Bergen	56	Bergen
4602	Kinn	57	Kinn
4611	Etne	55	Vindafjord
4612	Sveio	50	Haugesund
4613	Bømlo	58	Stord
4614	Stord	58	Stord
4615	Fitjar	58	Stord
4616	Tysnes	59	Tysnes
4617	Kvinnherad	60	Kvinnherad
4618	Ullensvang	61	Ullensvang
4619	Eidfjord	61	Ullensvang
4620	Ulvik	62	Voss
4621	Voss	62	Voss
4622	Kvam	63	Kvam
4623	Samnanger	56	Bergen
4624	Os og Fusa	56	Bergen
4625	Austevoll	64	Austevoll
4626	Øygarden	56	Bergen
4627	Askøy	56	Bergen
4628	Vaksdal	56	Bergen
4629	Modalen	65	Alver
4630	Osterøy	56	Bergen
4631	Alver	65	Alver
4632	Austrheim	65	Alver
4633	Fedje	66	Fedje
4634	Masfjorden	67	Gulen
4635	Gulen	67	Gulen
4636	Solund	68	Solund
4637	Hyllestad	73	Fjaler
4638	Høyanger	74	Sunnfjord
4639	Vik	69	Vik
4640	Sogndal	70	Sogndal
4641	Aurland	71	Aurland
4642	Lærdal	72	Årdal
4643	Årdal	72	Årdal
4644	Luster	70	Sogndal
4645	Askvoll	74	Sunnfjord
4646	Fjaler	73	Fjaler
4647	Sunnfjord	74	Sunnfjord
4648	Bremanger	57	Kinn
4649	Stad	57	Kinn
4650	Gloppen	75	Gloppen
4651	Stryn	76	Stryn

Table D1 (continued)

Municipality code	Municipality	BA-code	BA-region
5001	Trondheim	90	Trondheim
5006	Steinkjer	91	Steinkjer
5007	Namsos	92	Namsos
5014	Frøya	102	Hitra
5020	Osen	104	Åfjord
5021	Oppdal	93	Oppdal
5022	Rennebu	93	Oppdal
5025	Røros	94	Røros
5026	Holtålen	94	Røros
5027	Midtre Gauldal	90	Trondheim
5028	Melhus	90	Trondheim
5029	Skaun	90	Trondheim
5031	Malvik	90	Trondheim
5032	Selbu	90	Trondheim
5033	Tydal	95	Tydal
5034	Meråker	96	Meråker
5035	Stjørdal	90	Trondheim
5036	Frosta	97	Levanger
5037	Levanger	97	Levanger
5038	Verdal	97	Levanger
5041	Snåase[c] - Snåsa	100	Grong
5042	Lierne	98	Lierne
5043	Raarvihke[c] - Røyrvik	99	Namsskogan
5044	Namsskogan	99	Namsskogan
5045	Grong	100	Grong
5046	Høylandet	100	Grong
5047	Overhalla	92	Namsos
5049	Flatanger	92	Namsos
5052	Leka	105	Nærøysund
5053	Inderøy	91	Steinkjer
5054	Indre Fosen	90	Trondheim
5055	Heim	101	Heim
5056	Hitra	102	Hitra
5057	Ørland	103	Ørland
5058	Åfjord	104	Åfjord
5059	Orkland	90	Trondheim
5060	Nærøysund	105	Nærøysund

Table D1 (continued)

Municipality code	Municipality	BA-code	BA-region
5401	Tromsø	132	Tromsø
5402	Harstad – Hárstták[b]	133	Harstad – Hárstták[b]
5403	Alta	134	Alta
5404	Vardø	135	Vardø
5405	Vadsø	136	Vadsø
5406	Hammerfest	137	Hammerfest
5411	Kvæfjord	133	Harstad – Hárstták[b]
5412	Tjeldsund	133	Harstad – Hárstták[b]
5413	Ibestad	138	Ibestad
5414	Gratangen	139	Gratangen
5415	Loabák[b] - Lavangen	140	Salangen
5416	Bardu	141	Målselv
5417	Salangen	140	Salangen
5418	Målselv	141	Målselv
5419	Sørreisa	142	Senja
5420	Dyrøy	142	Senja
5421	Senja	142	Senja
5422	Balsfjord	132	Tromsø
5423	Karlsøy	132	Tromsø
5424	Lyngen	132	Tromsø
5425	Storfjord – Omasvuotna[b] – Omasvuono[d]	143	Storfjord – Omasvuotna[b] – Omasvuono[d]
5426	Gáivuotna[b] - Kåfjord – Kaivuono[d]	144	Gáivuotna[b] - Kåfjord – Kaivuono[d]
5427	Skjervøy	145	Skjervøy
5428	Nordreisa	146	Nordreisa
5429	Kvænangen	147	Kvænangen
5430	Guovdageaidnu[b] - Kautokeino	148	Guovdageaidnu[b] – Kautokeino
5432	Loppa	149	Loppa
5433	Hasvik	150	Hasvik
5434	Måsøy	151	Måsøy
5435	Nordkapp	152	Nordkapp
5436	Porsanger – Porsáŋgu[b] – Porsanki[d]	153	Porsanger – Porsáŋgu[b] – Porsanki[d]
5437	Kárášjohka[b] - Karasjok	154	Kárášjohka[b] – Karasjok
5438	Lebesby	155	Lebesby
5439	Gamvik	155	Lebesby
5440	Berlevåg	156	Berlevåg
5441	Deatnu[b] - Tana	157	Deatnu[b] – Tana
5442	Unjárga[b] - Nesseby	136	Vadsø
5443	Båtsfjord	158	Båtsfjord
5444	Sør-Varanger	159	Sør-Varanger

[a]Lule Sami.
[b]Northern sami.
[c]Southern Sami.
[d]Kven.

Appendix E: Occupational groups from NAV

Table E1. Occupational groups from NAV

Own code	Description	Occupation code (STYRK[a])
1	Politicians and top leaders	1111; 1112; 1114; 1120
2	Administrative and mercantile leaders	1211; 1212; 1213; 1219; 1220; 1221; 1222; 1223;
3	Other natural science professions	2111; 2112; 2113; 2114; 2120; 2131; 2132; 2133
4	ICT professions	1330; 2166; 2511; 2512; 2513; 2514; 2519; 2521; 2513; 2514; 2519; 2521; 2522; 2523; 2529; 3511; 3512; 3513; 3514; 3521; 3522
5	Civil engineers and civil architects	2141; 2142; 2143; 2144; 2145; 2146; 2149; 2151; 2152; 2153; 2161; 2162; 2164; 2165
6	Engineers and technicians	3112; 3113; 3114; 3115; 3116; 3117; 3118; 3119; 3141; 3142; 3143; 3155; 3212
7	Preschool teachers	2342
8	Primary school teachers	2341
9	High school teachers	2320; 2330
10	Teachers at universities and colleges and specialists	2310; 2351; 2352
11	Other teaching staff	2353; 2354; 2355; 2356; 2359; 5165
12	Leaders in education and child welfare	1341; 1345
13	Executive officers in public sector	2422
14	Journalists and information staff	2432; 2622; 2642
15	Social sciences professions	2631; 2632
16	Legal professions	2611; 2612; 2619
17	Academic professions in the private sector	2421; 2423; 2424
18	Other academic professions	2621; 2633; 2634; 2636
19	Medical professions (doctors, dentists, veterinarians, pharmacists)	2211; 2212; 2250; 2261 2262; 2265
20	Nurses and midwives	2221; 2222; 2223; 2224
21	Social workers and child welfare educators	2635; 3353; 3412
22	Care and nursing workers	5321; 5322; 5329
23	Other healthcare professionals	2263; 2264; 2266; 2267; 2269; 3211; 3213; 3230; 3240; 3251; 3254; 3256; 3257; 3258; 3259
24	Middle managers in health, nursing and care	1342; 1343; 1344
25	School assistants	5312
26	Kindergarten and school leisure assistants	5311
27	Sales consultants etc.	1346; 2431; 2433; 2434; 3321; 3323; 3333
28	Brokers	3311; 3315; 3324; 3331; 3334
29	Economists and accountants	2411; 2412; 2413; 3312; 3313
30	Lower executive officials in public administration	3354; 3359
31	Secretaries	3342; 3343
32	Finance and office workers	3352; 4110; 4214; 4311; 4312; 4313; 4413; 4415; 4416
33	Warehouse and transport staff	4321; 4322; 4323
34	Receptionists and switchboard operators	4222; 4223; 4224; 4225 ; 4226
35	Other officials	3332; 3339; 3341; 4131; 4132; 4211; 4213; 4227; 4229; 4411; 4412
36	Shop work	5221; 5222; 5223; 9334
37	Other sales work	1420; 3322; 5211; 5212; 5230; 5242; 5243; 5244; 5245; 5246; 5249
38	Agriculture, forestry and fishing	1311; 1312; 6111; 6112; 6113; 6114; 6121; 6122; 6123; 6129; 6130; 6210; 6221; 6222; 6224; 8341; 9211; 9212; 9213; 9214; 9215; 9216
39	Plumbers	7126

Table E1. (Continued)

Own code	Description	Education code
40	Carpenters and joiners	7115
41	Electricians	7411
42	Other construction workers	3123; 7112; 7114; 7119 ; 7121; 7122; 7123; 7124; 7125; 7127; 7131; 7132; 7133
43	Construction workers	7542; 8342; 8343; 8344
44	Auxiliary workers in construction	9312; 9313
45	Middle managers in construction	1323
46	Mechanics	7231; 7232; 7233; 7234
47	Process and machine operators	3121; 3122; 3131; 3132; 3133; 3134; 3135; 3139; 8111; 8112; 8113; 8114; 8121; 8122; 8131; 8132; 8141; 8142; 8143; 8151; 8152; 8153; 8154; 8155 ; 8156; 8157; 8159; 8171; 8172; 8181; 8182; 8189
48	Food work	7511; 7512; 7513; 7514 ; 7515; 8160; 8183
49	Automators and electrical fitters	7412; 7413; 7421; 7422; 8211; 8212; 8219
50	Other craftsmen	3214; 7113; 7221; 7222; 7311; 7312; 7313; 7314; 7315; 7316; 7317; 7318; 7319; 7321; 7322; 7323; 7522; 7531; 7532; 7534; 7535; 7536; 7543; 7544; 7549
51	Auxiliary work in industry	9311; 9321; 9329; 9333
52	Casters, welders, sheet metal workers	7211; 7212; 7213; 7214; 7215; 7223; 7224
53	Middle managers in industrial work	1321; 1322
54	Maritime professions	3151; 3152; 8350
55	Drivers of means of transport	3153; 3154; 8322; 8311; 8312; 8331; 8332
56	Tour guides, guides and travel agency staff	4221; 5113
57	Conductors and cabin crew	5111; 5112
58	Chefs	3434; 5120
59	Foremen, waiters and auxiliary staff	5131; 5132; 9412
60	Middle managers in tourism and transport	1324; 1411; 1412
61	Professions in police, fire, customs and defense	110; 210; 310; 3351; 3355; 5411; 5413
62	Wellness	5141; 5142
63	Cleaning	5151; 5152; 9111; 9112; 9122; 9123; 9129
64	Guards and caretakers	5153; 5414; 5419
65	Other work	1349; 1439; 2163; 3411; 3413; 4212; 5161; 5163; 5164; 5169; 7541; 9331; 9510; 9611; 9612; 9613; 9621; 9622; 9623; 9629
66	Professions in art, sports and culture	1431; 2641; 2643; 2651; 2652; 2653; 2654; 2655; 2656; 2659; 3421; 3422; 3423; 3431; 3432; 3433; 3439; 5241
67	No professional background or undisclosed	0

[a]This standard is based on International Standard Classification of Occupations - ISCO 08.

Appendix F: Country grouping

Country	Land code	EXITNORWAY country group
Norway	0	1
Denmark	101	2
Faroes	104	2
Greenland	102	2
Finland	103	3
Iceland	105	4
Sweden	106	5
Bosnia-Herzegovina	155	6
Kosovo	161	6
Croatia	122	6
Montenegro	160	6
North-Makedonia	156	6
Serbia	159	6
Slovenia	146	6
Belgium	112	7
France	117	7
Luxembourg	129	7
Monaco	130	7
Bulgaria	113	8
Andorra	114	9
Gibraltar	118	9
Portugal	132	9
Spain	137	9
Estonia	115	10
Greece	119	11
Cyprus	500	11
Belarus	120	12
Moldova	138	12
Ukraine	148	12
Guernsey	162	13
Jersey	163	13
Man	164	13
Great Britain	139	13
Ireland	121	14
Italy	123	15
Malta	126	15
San Marino	134	15
Vatikan	154	15
Latvia	124	16
Netherlands	127	17
Germany	144	18
Liechtenstein	128	19
Switzerland	141	19
Austria	153	19
Poland	131	20
Romania	133	21
Lithuania	136	22
Russia	140	23
Turkey	143	24
Slovakia	157	25
Czechia	158	25
Hungary	152	25
Algeria	203	26
Egypt	249	26
Libya	286	26
Morocco	303	26
Tunisia	379	26
Angola	204	27
Benin	229	27
Botswana	205	27
Burkina Faso	393	27
Burundi	216	27

Central African Republic	337	27
British territory in the Indian ocean	213	27
Equatorial Guinea	235	27
Ivory Coast	239	27
Eswatini	357	27
Gabon	254	27
Gambia	256	27
Ghana	260	27
Guinea	264	27
Guinea-Bissau	266	27
Camerun	270	27
Cabo Verde	273	27
Kenya	276	27
Comoros	220	27
Congo	279	27
Congo-Brazzaville	278	27
Lesotho	281	27
Liberia	283	27
Madagascar	289	27
Malawi	296	27
Mali	299	27
Mauritania	306	27
Mauritius	307	27
Mayotte	322	27
Mozambique	319	27
Namibia	308	27
Niger	309	27
Nigeria	313	27
Réunion	323	27
Rwanda	329	27
São Tomé and Príncipe	333	27
Senegal	336	27
Seychelles	338	27
Sierra Leone	339	27
St. Helena	209	27
Sudan	356	27
South Afrika	359	27
South Sudan	355	27
Tanzania	369	27
Togo	376	27
Chad	373	27
Uganda	386	27
West Sahara	304	27
Zambia	389	27
Zimbabwe	326	27
Eritrea	241	28
Ethiopia	246	28
Djibouti	250	29
Somalia	346	29
Afghanistan	404	30
Armenia	406	31
Azerbaijan	407	31
Georgia	430	31
Kazakhstan	480	31
Kyrgyzstan	502	31
Tajikistan	550	31
Turkmenistan	552	31
Uzbekistan	554	31
Bahrain	409	32
UAE	426	32
Yemen	578	32
Jordan	476	32
Kuwait	496	32
Lebanon	508	32
Oman	520	32
Palestine	524	32

Qatar	540	32
Saudi Arabia	544	32
Bangladesh	410	33
Pakistan	534	34
Bhutan	412	35
Maldives	513	35
Nepal	528	35
American Samoa	802	36
Brunei	416	35
Christmas island	807	35
Cook islands	809	35
Fiji	811	35
Philippines	428	35
French Polynesia	814	35
Guam	817	35
Indonesia	448	35
Kambodja	478	35
Kiribati	815	35
Cocos islands	808	35
Laos	504	35
Malaysia	512	35
Marshall islands	835	35
Micronesia	826	35
Myanmar	420	35
Nauru	818	35
Niue	821	35
North Mariana	840	35
Norfolk	822	35
New Caledonia	833	35
Palau	839	35
Papua New Guinea	827	35
Pitcairn	828	35
Salomon islands	806	35
Samoa	830	35
Thailand	568	35
Tokelau	829	35
Tonga	813	35
Tuvalu	816	35
USAs outlying islands	819	35
Vanuatu	812	35
Vietnam	575	35
Wallis- and Futuna	832	35
East Timor	537	35
Sri Lanka	424	36
Hong Kong	436	37
Japan	464	37
Macao	510	37
North Korea	488	37
Singapore	548	37
South Korea	492	37
Taiwan	432	37
India	444	38
Iraq	452	39
Iran	456	40
Albania	111	41
Israel	460	41
Mongolia	516	41
China	484	42
Syria	564	43
Anguilla	660	44
Antigua and Barbuda	603	44
Aruba	657	44
Bahamas	605	44
Barbados	602	44
Belize	604	44
Bermuda	606	44

Bonaire, Sint Eustatius and Saba	659	44
Cayman islands	613	44
Costa Rica	616	44
Cuba	620	44
Curaçao	661	44
American Virgin Islands	601	44
British Virgin Islands	608	44
Dominican republic	624	44
Dominica	622	44
El Salvador	672	44
Grenada	629	44
Guadeloupe	631	44
Guatemala	632	44
Haiti	636	44
Honduras	644	44
Jamaica	648	44
Martinique	650	44
Mexico	652	44
Montserrat	654	44
Nicaragua	664	44
Panama	668	44
Puerto Rico	685	44
Saint Kitts and Nevis	677	44
Saint Lucia	678	44
Saint Vincent and Grenadinene	679	44
Saint-Barthélemy	687	44
Saint-Martin	686	44
Saint-Pierre-et-Miquelon	676	44
Sint Maarten	658	44
Trinidad and Tobago	680	44
Turks- and Caicos	681	44
Canada	612	46
USA	684	46
Argentina	705	47
Bolivia	710	47
Chile	725	47
Colombia	730	47
Ecuador	735	47
Falkland islands	740	47
French Guyana	745	47
Guyana	720	47
Paraguay	755	47
Peru	760	47
Surinam	765	47
Uruguay	770	47
Venezuela	775	47
Australia	805	49
Brazil	715	48
New Zealand	820	49
Stateless	980	50
Unknown	990	50

Appendix G: Overview of data used in EXITNORWAY

Data set	Data info	Variable name	Variable description
Sect. 3.1.1 (Immigration)			
fixed_info	Wide data, N=8,727,783	id[a]	Individual id (1 or multiple ids in each data set)
fixed_info		id_mother	Id of mother
fixed_info		id_father	Id of father
fixed_info		male	Sex, 1=men
fixed_info		byr	Birth year
fixed_info		dyr	Death year
fixed_info		birth_municipality	Municipality of birth
fixed_info		yr1	1st year in Norway
fixed_info		mo1	1st month in Norway
fixed_info		imm_cat	0=native, 1=1st gen, 2=2nd gen
fixed_info		imm_reason	Reason for immigration (1st gen). Mostly from 1990
fixed_info		immcat_detailed	More detailed categorization (see KLASS)
fixed_info		refugee_det	Type of refugee, not perfectly correlated w other variables
fixed_info		imm_bckgr_detailed	More detailed categorization of 3 generations (see KLASS)
fixed_info		birth_ctr_3gen	Country group of origin, based on 3 generations
citizenship	Wide data, N=8,727,783	citizenship	Current citizenship (see KLASS)
citizenship_YYYY	Wide data, N~9 mill in each. Years: 2000-2022	citizenship	3-digit citizenship (see KLASS), around 50% are blank
Sect. 3.1.2 (Emigration)			
emigrants_2000-2020	Wide data, N=562,473. All emigrants who left Norway, either once or multiple times	emyr_off_YYYY	Year(s) of emigration (official)
emigrants_2000-2020		emyr_act_YYYY	Year(s) of emigration ('actual', may be <2000)
emigrants_2000-2020		emtype_YYYY	Emigration type, self-notified (1) or adm. (2) Corresponds with official emigration year(s)
emigrants_2000-2020		destination_YYYY	Destination country (grouped). Corresponds with official emigration year(s)
emtype_YYYY	Wide data, N varies from 619,000-807,000. Years: 2000-2020	emtype_YYYY	Emigration type, self-notified (1) or adm. (2)
emtype_YYYY		emtype_YYYYMM	Emigration type (string 1), with actual yearly (str 2-5) and monthly (str 6-7) info
emtype_YYYY		Emyr	Emigration year (actual year, some < current year)
emtype_YYYY		Emmo	Emigration month (actual month, some pertain to a year different from current year
emtype_long_data	Long data, not uniq ids, N=599,087. Accurate emigration information	emtype_YYYYMM	Emigration type (string 1), with actual yearly (str 2-5) and monthly (str 6-7) info
emtype_long_data		Emtype	Emigration type, self-notified (1) or adm. (2). Given the year/month of the current record
emtype_long_data		Yr	Emigration year, accurate
emtype_long_data		Mo	Emigration month, accurate

Data set	Data info	Variable name	Variable description
Sect. 3.1.3 (Labor market)			
employmt_YYYY	Annual files, the info varies a bit across time. N varies across years, N~3 mill in each file. Multiple ids, cf. Section 3.1.3 for how this is handled. Years: 2000-2020, unless otherwise noted	employmt_YYYY	Employment status
employmt_YYYY		work_hours_YYYY	Agreed work hours, grouped
employmt_YYYY		nace_YYYY[b]	NACE-code of the employer
employmt_YYYY		nace_short_YYYY[b]	2-digit NACE, changes over time accounted for
employmt_YYYY		ind_sector_YYYY	Sector codes, changes over time accounted for
		whrs_lin_YYYY	Agreed work hours per week (linear), 2015-2020
employmt_YYYY		occupation_YYYY[c]	Detailed occupational group, NAV-equivalent, 2011-
employmt_YYYY		occ_group_YYYY[c]	Broader occupational group, NAV-equivalent, 2011-
ind_labor_YYYYMM[d]	Monthly data. Not uniq ids.[e]	est_occupation2	2-digit occupation code, ISCO
ind_labor_YYYYMM		workhours	Hours/week according to contract in select record
ind_labor_YYYYMM		tothours	Total hours/week according to all contracts
ind_labor_YYYYMM		est_NACE2	2-digit NACE-code
ind_labor_YYYYMM		labstate	Labor market status. 4 levels: 1=Employee, 3=Unemployed, 4=Selfemployed/outside labor force, 9=residual group
ind_labor_YYYYMM		labfullpart	2 levels (and missing). 1=full time; 2=part time
ind_income	Long data (id/yr), not uniq id/yr. N~98 mill	yr	Year
ind_income		lab_inc	Labor income (in 10,000 NOK)
ind_income		wages	Wages from employment (in 10,000 NOK)
ind_income		bus_inc	Net business income (in 10,000 NOK)
ind_income		cap_inc	Capital gains (in 10,000 NOK)
ind_income		total_inc	Total income (in 10,000 NOK)
ind_income		inc_post_tax	Total income after tax (in 10,000 NOK)
hh_income	Long data (id/yr), N~80 mill	yr	Year of household income, Jan 1
hh_income		hh_inc_after_tax	Household income after tax, Jan 1
hh_income		hh_inc_eu	Same, but adjusted for household composition (EU std., 1st adult=1, next=0.5, each child=0.3)
labor_union	Long data (id/yr), N~30 mill	yr	Year
labor_union		lu_member	Labor union membership, 1=membership

Data set	Data info	Variable name	Variable description
Sect. 3.1.4 (Welfare)			
pubben_YYYY	Annual data, uniq ids, N~4-5 mill. Years: 2008-2018	lm_YYYY	Detailed main income support (string)
pubben_YYYY		pubben_YYYY[e]	Grouped, main income support (employment, education, welfare benefits etc.)
pubben_2008_2018	Wide date, uniq ids, N=5.4 mill. Years: 2008-2018	pubben_YYYY	Grouped, main income support in relevant year
ind_income	Long data, not uniq ids. N~98 mill	yr	Year
ind_income		d_publ_transfers	Dummy for any public transfers (more encompassing than public benefits) - this includes all the dummies below
ind_income		d_publ_benefits	Dummy for any public benefits (old age and disability pension/work assessment allowance)
ind_income		d_old_age	Dummy for old age pension
ind_income		d_disability	Dummy for disability pension
ind_income		d_work_assmt	Dummy for work assessment allowance (after sick leave, before disability), 2010-
ind_income		d_sick_leave	Dummy for sickness absence benefits (16+ days), 2006-
ind_income		d_ba_health_bf	Dummy for basic and attendance benefits (health related)
ind_income		d_maintenance_bf	Dummy for tax deduction for single providers, only 2000
ind_income		d_parent_leave	Dummy for parental leave benefits, 2006-
ind_income		d_child_bf	Dummy for child benefits (all children <18)
ind_income		d_child_cash_bf	Dummy for child cash for care
ind_income		d_stipend	Dummy for educational stipend
ind_income		d_soc_ass	Dummy for social assistance (quite poor)
ind_income		d_housing_support	Dummy for housing support (quite poor)
ind_income		d_unempl	Dummy for unemployment benefits
Sect. 3.1.5 (Education)			
education	Wide data, N=5,364,050. Years: 2000-2020	ed_YYYY	Highest ed. relevant yr, 6-digit NUS
education		highest_ed_YYYY	Highest ed. relevant yr, 1-digit NUS
education		highest_ed_ever	Highest ed. ever, 1-digit NUS
education		ed_gr_YYYY	Grouped ed. level, relevant yr
education		highest ed_gr	Highest ed. ever, grouped
education		in_ed_YYYY	In ed./training, relevant yr, 6-digit NUS
education		in_ed_d_YYYY	Indicator for currently in ed. (any)
ed_abroad_lim	Long data (id yr), N=499,411	yr	Year
ed_abroad_lim		ed_abroad	Dummy, 1=education abroad

Data set	Data info	Variable name	Variable description
Sect. 3.1.6 (Family)			
children	Wide data, N=6,755,186	no_of_children	Detailed number of children
children		gr_children	Number of children, 4+ grouped
children		child	Dummy for having a child or not
children		byr_child_XX	Birth year, child XX (01-)
famtype_2000_2004	Wide data, N=5.8 mill	famtype_YYYY	Family type, relevant year
famtype_YYYY	Annual data, uniq ids, N varies, 5-7 mill. Years: 2005-2021	famtype_YYYY	Family type, relevant year
famtype_YYYY		hh_children_YYYY	Number of children 0-17 year in household, relevant year
famtype_YYYY		hh_child_YYYY	Presence of child(ren) 0-17 in household, relevant year
partners	Wide data, N=6,673,183. Years: 2000-2021	id_maritalpart_YYYY	Id for marital partner, Jan 1
partners		id_cohabpart_YYYY	Id for cohabiting partner, Jan 1
partnerships	Wide data, N=6,673,518. Years: 2000-2021	partnership_YYYY[f]	Marital status, Jan 1
homeown_YYYY	Annual data, N varies ~5 mill. Years: 2015-2020	homeown_YYYY	Homeownership, Jan 1
Sect. 3.1.7 (Regional)			
municipality	Wide data, uniq ids, many missing. N=8,727,783. Years: 2000-2021	mun_01_01_YYYY	Resident municipality relevant date
relocations[g]	Wide data, not uniq ids, N=9,223,148	n_reloc_YYYY	Number of moves this year
relocations		n_reloc_2000_2020	Number of moves over the period
migration_info[h]	Long data, N=12,8 mill. Not uniq id/yr	rec_type	Type of move, 1=betw munic, 2=emigr, 3=immigr, 4=within munic
migration_info		yr	Year of move
migration_info		from_municipality	Municipality of origin (moved from)
migration_info		to municipality	Municipality of destination (moved to)
migration_info		gr_from_ctr[i]	Origin country group (when coming to Norway)
migration_info		gr_to_ctr[j]	Destination country group (when leaving Norway)
migration_info		dup	Indicator of multiple moves within same year

Data set	Data info	Variable name	Variable description
Sect. 3.1.8 (Misc.)			
regstatus	Long data (id/yr), N~142 mill. Status per Jan 1	yr	Year, regstatus per Jan 1 each year
regstatus		regstatus	Register status
regstatus		regyr	Register year
regstatus		regmo	Register month
resident	Wide data, N=8,677,335	resident	Indicator for residency, 1=registered in the Norwegian population register, 0=only D-number (non-resident)

[a]The variable **id** is included in all data sets (but not shown here). The extent to which id uniquely identifies an observation varies. In long data, the combination of id/year often results in unique observations. [b]The NACE-codes have changed over time, but harmonized time-series have been made, cf. Section 3.1.3. [c]The variables are also present 2003-2010, but the time-series are not comparable to those from 2011 onwards. [d]Ranges from 2015M1 to 2020M12 (monthly data). [e]We have coded only the main activity now, but multiple employments and/or activities may be coded, see SSB's DOK NOT 28/2020, point 4.1. [f]Only marital status, cohabiting information is not provided here. [g]Orignal file name from SSB: ant_flyttinger_ut. [h]Original name from SSB: flyttinger-ny. Recoding needs to be careful here to account for same-year migrations (around 53,000 concerning emigration and immigration). For now, multiple internal moves have been deleted. Need to go back to original file if want something else. [i]Origin country group, i.e., where emigrated from, when coming to Norway. [j]Destination country group, i.e., where emigrated to, when leaving Norway.