Polar Peoples in the Future: Projections of the Arctic Populations

Timothy Heleniak

NORDREGIO WORKING PAPER 2020:3

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ISBN (pdf) 978-91-87295-88-1

ISSN 1403-2511

DOI: doi.org/10.6027/WP2020:3.1403-2511

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Stockholm, Sweden, 2020

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Abstract

Projections of the future size, composition and distribution of the populations of the Arctic states and regions are useful for policymakers for planning purposes. This paper presents and analyses the most recent population projections undertaken for the Arctic states and regions. Global population growth is projected to continue rising, from the current total of 7.4 billion to 10 billion in 2055. The population of the Arctic, as defined here, is predicted to change little, with a projected population increase of just 1%. However, there will be considerable variation in growth rates among the Arctic regions. Among the Arctic regions of Alaska, Yukon, Nunavut, Iceland, Troms, Khanty-Mansi okrug and Chukotka, substantial population increases are projected, amounting to more than 10% over the projection period specified for each. Nordland, Finnmark, Pohjois-Pohjanmaa (North Ostrobothnia) and Nenets autonomous okrug are projected to experience a more modest rate of growth of between 5% and 10%. The population of the Northwest Territories, Greenland, the Faroe Islands, Västerbotten, Norrbotten, Lappi, Yamal-Nenets okrug, Yakutia

and Kamchatka oblast are projected to remain roughly the same, neither growing nor declining by more than 5%. Kainuu in Finland, Karelia, Komi, Arkhangel'sk, Murmansk, and Magadan in Russia are projected to undergo reductions in population of more than 5% each. Common trends identified for nearly all Arctic regions in the future are aging populations, more balanced gender ratios between men and women, increased concentrations of population within larger urban settlements, and the depopulation of smaller settlements.

Research for this article is part of a project entitled *Polar Peoples: Past, Present, and Future*. This is supported by a grant from the U. S. National Science Foundation, Arctic Social Sciences Program (award number PLR-1418272). I would like to thank Olivia Napper, graduate student in the Department of Geography at George Washington University, for creating the maps in this paper and for other research assistance. This project also received funding from the Nunataryuk project which was funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No. 773421.

1. Introduction

Predicting the future is an imprecise endeavour. However, identifying the broad demographic trends and likely future size and distribution of the population of the Arctic is necessary for planning, as well as for possible interventions which governments might wish to make in mitigating various negative socioeconomic consequences. This paper examines the projected size, composition and geo-graphic distribution of the population of the Arctic of the future, by examining the population projections carried out by the national and regional statistical offices of the Arctic regions.

Population policy consists of extra-polating current population trends into the future. If the expected demographic results and socioeconomic consequences deviate from the desired ones, there can be interventions in the form of revised laws, regulations, policies, or incentives. There can

also be deviations from desired population size, growth, composition, location, or other characteristics of the population. Arctic countries and regions have a variety of tools at their disposal to shape demographic outcomes, although these have limitations. However, awareness of possible population trends allows for better planning.

Population projection methodology has certain limitations, but it is useful for examining the broad parameters of the likely size and distribution of the Arctic populations of the future. This paper starts with a brief overview of how population projections are made, and the definition of the Arctic used here. This is followed by an analysis of the population projections for each Arctic region. The paper then concludes with a discussion of common demographic characteristics across the Arctic regions.

*Photo: Leneisja Jungsberg
Greenland*

2. Methods and Data

Nearly all countries in the world carry out population projections regularly. These are used for a variety of planning purposes. There are several methods for projecting the future size of a population (Weeks, 2008). The easiest is simply to extrapolate past population change trends into the future. While simple, this method has limitations, mainly because it does not take into consideration the age structure of the population, nor recent trends in the number of births and deaths, nor net migration. The standard practice for making population projections is the cohort-component method. The components of population change – fertility, mortality and migration – are applied to the cohorts, or the age-sex structure of the population. This is an extension of the population balancing equation, whereby the population at the beginning of a period (usually a year), plus the number of births minus the number of deaths, together with the number of in-migrants minus the number of out-migrants, equals the population at the end of the period or year. The difference between the number of births and deaths is called the natural increase. The difference between the number of in-migrants and out-migrants is called net migration. It is important to distinguish between these two components of population change, because they are influenced by (and influence) populations differently.

Several factors influence population change. One is the age structure. A country or region with a relatively younger population (meaning more people in the child-bearing age bracket) will tend to grow faster than a population with more people in the older age range, in which mortality rates are higher. With some exceptions, most of the Arctic regions have relatively older populations. Another factor is the fertility rate – the number of children per woman. A rate of 2.1 children per woman over the course of her reproductive years is considered replacement-level fertility, the level at which a population will simply replace itself. Deviations either above or below replacement-level have a significant impact on population growth. Again, with some exceptions, most Arctic populations

have fertility rates at or below replacement level and are thus declining slightly because of this. Mortality, or levels of life expectancy, also influence population change, but less so than other factors. Most of the Arctic regions are part of countries with rather high levels of life expectancy, some of which are among the highest in the world.

For any country or region, the most difficult component of population change to project is migration, because of its volatility – which is due to exogenous factors outside the projection model. Migration (either in-migration or out-migration) is subject to a variety of unforeseen factors – such as wars, structural economic change altering the demand for migrant labour, the discovery of new economic resources or the depletion of current resources, technological breakthroughs, border changes (witness the breakup of the Soviet Union and its impact on the Arctic), changes in government policy towards either internal or international migration, or environmental factors. The age structures of these migration flows can vary, depending on the push and pull factors and how they impact different cohorts. Because of their small population sizes and their economies based on natural resources, which are subject to boom-and-bust cycles, projecting future migration trends in Arctic countries and regions is even more difficult.

2.1 Projections of the Arctic populations

All Arctic countries regularly make projections of their populations at both national and regional levels. Additionally, many of the statistical offices of the Arctic regions make population projections, usually providing more detail and nuance than the national projections. The amount of detail involved in the projected population of the Arctic regions differs considerably, as does the length of the projection period. No attempt is made here at harmonising across the Arctic regions. For some Arctic regions, projections are made by a national statistical agency as well as a regional agency. For those Arctic regions which form a unit within a

country (e.g. the state of Alaska within the United States), a brief summary of national population projections has been created, in order to provide context and comparison for projections of the Arctic territories within each of these countries. For each Arctic region, details of the projected population are collected. This includes total population, population change by component – natural increase (births minus deaths) and net migration (in-migrants minus out-migrants), projected total fertility rate and life expectancy, population by gender, age and region, and other characteristics (such as race or ethnicity).

Table 1 shows the population projection parameters for the states and regions of the Arctic. Most Arctic statistical offices use some form of the cohort-component method, while others use a form of linear trend analysis, or more sophisticated probabilistic methods. The number of projection scenarios varies from one to nine for Norway.

The base years vary from 2014 to 2018, depending on how often the statistical agency updates projections. The end year of the projections ranges from 2030 in the Yukon territory and 2035 in the Northwest Territories, Nunavut and Russia, through to 2100 for the world and 2120 for Sweden. Some projections include the components of population change, fertility and mortality. All calculate projections by gender. The level of age detail varies, with some including no age detail and others making their projections by single year up to the age of 100 or older. The level of regional level detail also varies, with some calculating projections at a municipal or even settlement level. Only three do projections by race, ethnicity or indigeneity. Alaska divides according to Alaska Natives and non-natives. The NWT breaks down projections by aboriginal and non-aboriginal, and Greenland by those born in Greenland and those outside Greenland.

Table 1: Population projection parameters for states and regions of the Arctic

Country or region	Methodology	Number of scenarios	Base year	Last projection year	Components of population change	Total fertility rate
United States	Cohort-component	One	2014	2060	Yes	No
Alaska	Cohort-component	Four - low, medium, and high, and a special scenario assuming same migration levels over next thirty years was same as previous thirty years	2015	2045	Yes	Yes
Canada	Cohort-component	Three - low, medium, high	2014	2063	Yes	Yes
Yukon	Trend analyses and segmented regressions based on best-fit of linear segments of the data	Four - high growth, low growth, and medium growth and additional scenario based on economic factors. A preferred projection is a weighted average of the Medium and that based on economic factors.	2016	2030	No	No

Table 1: Population projection parameters for states and regions of the Arctic - continuation

Country or region	Methodology	Number of scenarios	Base year	Last projection year	Components of population change	Total fertility rate
North-west Territories	Not available	One	2016	2035	No	No
Nunavut	Not available	One	2014	2035	No	No
Greenland	Not available	One	2017	2040	No	No
Iceland	Not available	Three - low, medium, high	2016	2065	Yes	Yes
Iceland, regions	Cohort-component	One	2017	2066	No	No
Faroe Islands	Probabilistic forecasting is done by making 10,000 projections based on net-migration, fertility and mortality since 1985.	Seven - lower and upper 80, 90, and 95 percentilesw	2017	2055	No	No
Norway	Cohort-component	Nine	2017	2040	Yes	No
Sweden	Cohort-component	One	2018	2120	Yes	Yes
Sweden, regions	Cohort-component	One	2014	2040	Yes	No
Finland	So-called demographic trend calculations	One	2016	2040	Yes	No
Russia	Not stated but presumably cohort-component	Three - low, medium, high	2018	2036	Yes	Yes

Table 1: Population projection parameters for states and regions of the Arctic - continuation

Country or region	Life expectancy	Age detail	Regional detail	Race, ethnicity, or indigeneity	Responsible agency, sources, and notes
United States	Yes	Five-year age groups to age 100	None. State-level projections are through Federal-State Cooperative for Population Projections	By nativity (native-born versus foreign-born) and by race (5 groups) and Hispanic and non-Hispanic	U.S. Census Bureau, 2014 National Population Projections: Methodology and Assumptions (https://www.census.gov/data/tables/2014/demo/popproj/2014-summary-tables.html).
Alaska	Yes	Five-year age groups to age 90	6 regions and 29 boroughs or census areas	Alaska Natives and non-Natives	Alaska Department of Labor and Workforce Development, Alaska Population Projections 2015 to 2045, April 2016 (http://live.laborstats.alaska.gov/pop/projections.cfm).
Canada	Yes		Provinces and territories		Statistics Canada, Population Projections for Canada (2013 to 2063), Provinces and Territories (2013 to 2038), (http://www.statcan.gc.ca/pub/91-520-x/91-520-x2014001-eng.htm).
Yukon	No	Three groups - 0 to15, 16 to 65, and 65 and older	Limited, only Whitehorse, Dawson City, and Watson Lake are shown separately	No	Yukon Bureau of Statistics, Population Projections: Information sheet no. 66 – February 2017 (http://www.eco.gov.yk.ca/stats/ybs.html).
North-west Territories	No	Six age groups	6 regions and 31 settlements	Aboriginal and non-aboriginal	NWT Bureau of Statistics, Population Projections (https://www.statsnwt.ca/population/community-projections/).
Nunavut	No	None	3 regions and 25 settlements	No	Nunavut Bureau of Statistics, Population Projections (http://www.stats.gov.nu.ca/en/Population%20projections.aspx).
Greenland	No	Single-year to age 99	Two projections, one by municipality and one by groups of settlements, both to the year 2030.	By born in Greenland and outside Greenland	Statistics Greenland (http://bank.stat.gl/pxweb/en/Greenland/Greenland_BE_BE01_BE0150/BEXPROG.px/?rxid=26d75255-5493-414d-a6ca-2a1997c16ee5).

Table 1: Population projection parameters for states and regions of the Arctic - continuation

Country or region	Life expectancy	Age detail	Regional detail	Race, ethnicity, or indigeneity	Responsible agency, sources, and notes
Iceland	Yes	Single-year to age 110	None	No	Statistics Iceland, Statistical database, population projections (https://www.statice.is/).
Iceland, regions	No	Single-year to age 110	Not applicable	No	Regional Development Agency of Iceland (http://www.byggdabrunnur.is/mannfjoldaspa/mannfjoldaspa.html).
Faroe Islands	No	Single-year to age 100	Capital area and outside capital area	No	Statistics Faroe Islands (https://statbank.hagstova.fo/pxweb/en/H2/H2_IB_IB09/framro_fo.px/?rxid=f3c6973b-eb24-49ee-aeed-20e899112dbe).
Norway	No	Single-year to age 105	Regions and municipalities	No	Statistics Norway (https://www.ssb.no/en/statbank/list/folkfram).
Sweden	Yes	Single-year to age 105	None	By foreign and native-born with foreign born divided into seven regions of birth	Statistics Sweden (https://www.scb.se/en/).
Sweden, regions	No	Single-year to age 105	Regions and municipalities	No	Tillväxtverket (Swedish Agency for Growth) (https://tillvaxtverket.se/statistik/regional-utveckling/regionalt-analys-och-prognossystem-raps.html).
Finland	No	Single-year to age 100	Regions and municipalities	No	Statistics Finland, Population projection (http://www.stat.fi/meta/til/vaenn_en.html accessed).
Russia	Yes	Three broad age groups - below, in, and above working ages	Subjects of the federation	No	Rosstat, Projections of the Population of the Russian Federation to 2035. Moscow: 2018 (http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1140095525812).

2.2 Definition of the Arctic

There are different definitions of the Arctic, used in both the natural and the social sciences. The definition in the Arctic Human Development Report (AHDR) is a common one employed when analysing social and economic issues in the Arctic (Larsen and Fondahl, 2015). In this paper, a slightly modified definition of the Arctic is used because of data limitations at smaller geographic levels. The definition of the Arctic used in this paper is as follows (Figure 1). In the United States, the state of Alaska. In Canada, Yukon, the Northwest Territories and Nunavut. All of Greenland, Iceland, and the Faroe Islands. In Norway, Nordland, Troms, and Finnmark and Svalbard. In Sweden, Västerbotten and Norrbotten. In Finland, Lappi, Kainuu, and Pohjois-Pohjanmaa.

In Russia, the following fourteen regions are included: Karelian Republic, Komi Republic, Arkhangel'sk oblast, Nenets autonomous okrug, Murmansk oblast, Khanty-Mansi autonomous okrug, Yamal-Nenets autonomous okrug, Taymyr autonomous okrug, Evenki autonomous okrug, Sakha Republic (Yakutia), Chukotka autonomous okrug, Kamchatka oblast, Koryak autonomous okrug, and Magadan oblast. This definition is used because most demographic data, including population projections, are only presented at this geographic level. In recent statistical publications, the Taymyr autonomous okrug, Evenki autonomous okrug and Koryak autonomous okrug were merged with their parent regions, and population and other totals for them were included with the larger units and not shown separately.

Figure 1: Definition of the Arctic

3. Results

Analysis of the future size and distribution of the Arctic populations begins at the global level, and for the Arctic states, and then moves to the Arctic regions, proceeding from west to east, beginning with Alaska and then proceeding around the Arctic to Russia.

3.1 Global population growth

Global population growth in the past, and into the future, has had (and will continue to have) a profound impact on the Arctic and its population. The past and projected period of rapid population growth is a major contributor to global warming – which, as has often been noted, is occurring much faster in most of the Arctic region than elsewhere. The increased number of people on the planet, combined with their increased affluence, has led to a greater consumption of resources, and to increased greenhouse gas emissions. A period of rapid population growth has taken place concomitantly with an industrial revolution, and the subsequent period of rapid technological

advancement makes the impact of increased population sizes even greater.

It took all of human history until 1804 for the global population to reach one billion (Weeks, 2008). Following this, a period of rapid population growth began, which occurred in tandem with the Industrial Revolution.

The second billion was reached in 1927, the third billion 33 years later (in 1960), the fourth billion only 14 years later (in 1974), the fifth billion just 13 years later (in 1987), the sixth billion 12 years later (in 1999), and the seventh billion in 2011. At the beginning of 2015, the global population stood at 7,383,009,000.

There are several different organisations which carry out population projections for all countries in the world. Here, we use the projections made by the United Nations Population Division (United Nations, 2017). These projections have a base year of 2015 and go through to 2100. Five different scenarios were produced, but the medium variant is analysed here.

Photo: Teo Leguay / unsplash.com

Between 1950 and 2015, the global population increased nearly three times, from 2.5 billion to 7.4 billion (Figure 2). Most this growth took place in the less developed countries of the world, where the population increased from 1.7 billion to 6.1 billion.¹ The more developed countries only increased from 0.8 billion to 1.2 billion. Global population

growth is projected to decline from the rate of the late twentieth century, but the numbers will continue to grow because of the momentum built into the global age structure, especially in the less developed regions. The global population is projected to reach 8 billion in 2023, 9 billion in 2037, 10 billion in 2055, and 11 billion in 2088.

Figure 2: Global population size, 1950 to 2100 (billions). Source: United Nations, Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision, DVD Edition.

¹ What we are defining as the more developed regions comprise Europe, Northern America, Australia/New Zealand and Japan. Less developed regions comprise all regions of Africa, Asia (except Japan), Latin America and the Caribbean plus Melanesia, Micronesia and Polynesia.

3.2 Population growth in Arctic states

Except for Russia, which is an upper-middle income country, all the Arctic states are high-income countries. As such, they have long ago made the demographic transition from high birth and death rates to lower birth and death rates. With some variation, they all have fertility rates at or below replacement level, high levels of life expectancy, and (because of past declines in population growth) older populations. In nearly all, the major source of population increase in recent years has been immigration. The excess of births over deaths is low in many of the Arctic states and has been negative in some for periods of time, meaning that deaths have exceeded births. For most Arctic states, continued net in-migration from both developed and less developed countries can be expected, especially as all population growth in the future is expected to take place in less developed countries.

Table 2 shows population change in the Arctic states between 1950 and 2080, roughly the past two and next two generations. The population of the United States has doubled since 1950, and while that growth will slow, its population is projected to increase further until 2080. The population of Canada has increased two-and-a-half times since 1950, and it is projected to increase by roughly the same rate as the United States until 2080.

The population of Greenland has also more than doubled since 1950, but it is now projected to decline slightly in the future. The population of the Faroe Islands grew more slowly, and is projected to continue to have slow growth to 2080. In Iceland, the population has more than doubled since 1950, but is anticipated to grow more slowly in the future. In the Nordic states of Norway, Sweden and Finland, the populations have grown slowly but steadily since 1950, and they are projected to continue to grow, albeit at lower rates, through to 2080.

Except for Greenland, the only Arctic state which is projected to experience a reduction in population between now and 2080 is Russia. The population of Russia has grown steadily since 1950, before peaking in the early 1990s, around the time of the breakup of the Soviet Union and the beginning of its economic transition towards a market economy. In the 1990s, the country underwent what many refer to as a 'demographic crisis', marked by steep declines in fertility and life expectancy, which led to several years of population decline. While this period seems to be over, and both fertility and life expectancy are increasing, on account of factors built into the age structure of the Russian population, its size is expected to decline further, by 13%, from 143 million in 2015 to 125 million in 2080.

Table 2: Population size and growth in the Arctic states, 1950 to 2080 (thousands)

						Population change (percent)	
	1950	2000	2015	2050	2080	1950 to 2015	2015 to 2080
WORLD	2 536 275	6 145 007	7 383 009	9 771 823	10 848 708	191	47
Russian Federation	102 799	146 397	143 888	132 731	124 675	40	-13
Denmark	4 268	5 341	5 689	6 314	6 686	33	18
Faeroe Islands	32	47	49	55	57	55	17
Finland	4 008	5 188	5 482	5 866	6 075	37	11
Iceland	143	280	330	390	393	131	19
Norway	3 265	4 499	5 200	6 802	7 730	59	49
Sweden	7 010	8 882	9 764	11 626	12 802	39	31
Canada	13 733	30 736	35 950	44 949	49 597	162	38
Greenland	23	56	56	54	48	145	-15
United States of America	158 804	281 983	319 929	389 592	430 964	101	35

Source: United Nations, Department of Economic and Social Affairs, Population Division (2017).

3.3 Alaska

In the United States, the U.S. Census Bureau produces national population projections (U.S. Census Bureau, 2015), and then cooperates with each state in making state-level projections (U.S. Census Bureau, 2018).² In Alaska, the Alaska Department of Labor and Workforce Development is the agency responsible for periodic projections of the population of Alaska. Projections are first presented for the United States, and then for Alaska.

Projections for the United States: The U.S. Census Bureau produces projections of the United States resident population by age, sex, race, Hispanic origin, and nativity (place of birth). The 2014 National Projections are based on the 1 July 2013 population estimates, which are based on the 2010 Census, and provide projections of the population from 1 July 2014 to 1 July 2060. The projections carried out at national level include a considerable amount of information and are based on quite detailed assumptions (U.S. Census

Bureau, 2014a). Because immigration is so crucial for the United States, the projections made include detail on the nativity (place of birth) of the population, and patterns of immigration and emigration by country group. Some of the assumptions about future fertility and mortality levels among American Indians and Alaska Natives (AIAN)³ are particularly important for Alaska, American Indians and Alaska Natives currently have a higher rate of natural increase than all but the Hispanic population. Their rate of natural increase is projected to decline over the projection period, but also to remain higher than for most other racial groups. Life expectancy at birth for this group is somewhat lower than for other groups (77.5 years versus 79.4 years for all groups). Life expectancy for all groups is projected to increase, reaching 84.5 years in 2060 for American Indians and Alaska Natives.

The U.S. population is projected to increase from 321 million in 2015 to 417 million in 2060, a 30% increase overall (Figure 3). Of the projected

Figure 3: United States, projected population 2015 to 2060 (thousands). Source: U.S. Census Bureau, Population Division, Table 1. Projections of the Population and Components of Change for the United States: 2015 to 2060 (NP2014-T1) Release Date: December 2014.

² The designated agency responsible for projections in each state then cooperates with the Population Projections Branch of the Bureau through the Federal-State Cooperative for Population Projections (FSCPP) in producing state-level projections.

³ American Indians and Alaska Natives are a combined category in U.S. government statistics.

increase in the U.S. population, which is 95 million over the projection period, one-third is projected to come from natural increase and two-thirds from net international migration. The U.S. has been a country of net international immigration for all but a few years during its entire history, and it is expected to remain so for the next half century. The foreign-born population is projected to increase from its current level of 13.5% of the total population to 18.8% in 2060, thus approaching the historically high levels seen during the wave of European immigration in the early 1900s. While Alaska has typically had a lower share of foreign-born people than other states, being part of the U.S., it can be expected to absorb some of this increase in the foreign-born population.

Like other developed countries, the population is projected to continue aging over the projection period to 2060, as it has been doing for some time. The percentage of the population 18-years-old and younger is projected to decline from 22.9% to 19.8% of the population (U.S. Census Bureau, 2014b). The working-age population, aged 18 to 64 years, is projected to decline from 62.2% to 56.7% of the population. The decreases in these two age groups will be compensated for by the increase in the elderly population which is projected to increase from 14.9% to 23.6% of the population.

Projections for Alaska: Projections of the population of Alaska are carried out by the Alaska Department of Labor and Workforce Development (Alaska Department of Labor and Workforce Development, 2016a). Projections are made for the population of the entire state, the Alaska Native population, and by region, borough, and census area. The projections have a base of 1 July 2015 and go through to 2045. Three different projection scenarios were produced, plus a fourth special scenario.⁴ In the three main scenarios, the fertility and mortality assumptions were the same, but the net migration rate varied. The high scenario uses an annual net-migration

rate of 1% of the population, the middle scenario uses a rate of 0%, and the low scenario uses a rate of -1%. This was done because fertility and mortality are much more stable components of population change, and migration to and from Alaska is quite variable and less certain.

The cohort-component method is the one used here. The total fertility rate for Alaska has declined somewhat in recent years but was around 2.2 children per woman from 2012 to 2014, which is above the replacement rate of 2.1, and also above the U.S. rate of 1.9. It is assumed that it will stay at this rate through the projection period, thus contributing to positive natural increase. Starting in 1990, life expectancy for people in Alaska has been the same (or slightly higher) than for the U.S. population as a whole. Over this period, male life expectancy is projected to rise from 76.7 to 79.6, an increase of 2.9 years, and for females from 81.1 to 83.0, an increase of 1.9 years.

Between the time Alaska became one of the U.S. states, in 1959, and 1 July 2015, the population of Alaska grew from 224,000 to 737,625. Natural increase has provided rather consistent levels of population growth (Figure 4). As with other Arctic regions, migration has been a much more variable component of population change. The wide swings in net migration into Alaska – and the key events that precipitated these swings – are highlighted. The main factors driving net migration patterns are the discovery and extraction of resources (and their prices), and military build-up or drawdown. Many Arctic regions are dependent upon resource extraction, and some have a significant military presence. The boom and bust of primary production has led to these wild fluctuations in migration. Often, exogenous factors, such as the pricing of raw materials or military spending, impact migration patterns in Arctic regions. Such factors make projecting the migration component of population change in Arctic regions especially uncertain.

⁴ A special scenario was considered, which applied the same migration patterns for the past thirty years, 1985 to 2015, to the thirty years of the projected period, 2015 to 2045. This exercise was carried out to show how the actual migration patterns that Alaska has experienced might impact population change in the future. During the period 1980 to 1985, the state gained more than 75,000 people when there was a sharp economic expansion, caused by increased oil revenues after the completion of the Trans-Alaska Oil Pipeline. After oil prices fell, causing an economic recession, more than 40,000 people moved away from the state between 1985 and 1989. Following these two large swings there were smaller swings, but net-migration was typically within 1% of the population each year. Applying the 1985 to 2015 net migration figures to the current projection period would include the substantial drop between 1985 and 1989, but not the preceding high inflows from the first half of the 1980s. According to this special scenario, the state's population would drop to 704,607 in 2019, and then increase by 17% (to 824,654) in 2045. This would be 8% lower than the middle scenario projection.

Figure 4: Components of population change for Alaska, 1947 to 2017.

Source: Recreated from Alaska Department of Labor and Workforce Development, Research and Analysis Section.

Figure 5: Historical and projected population of Alaska, 1945 to 2045.

Source: Alaska Department of Labor and Workforce Development.

The different scenarios, including historical population levels for Alaska, are shown in Figure 5. The low scenario, which assumes an annual net migration of -1%, projects a population of 642,697 in 2045, a 13% decline. The middle scenario, which calls for zero net migration, projects a 22% population increase to 899,825. The high scenario, with an assumed annual net migration of 1%, projects the population to grow to 1,247,887 in 2045, a 69% increase.

Figure 6 shows how the projected components of population change compare to the past (using the middle scenario for these projections). Natural increase (blue bars) in Alaska has fluctuated, based on changes in fertility and mortality, and changes in the age structure of the population. The natural increase rose to a peak of just over 10,000 in the mid-1980s, before declining to around 7,000 currently. It is projected to remain positive, but then to decline to about 4,500 by 2045.

Net migration (red bars) shows the much more significant and volatile impact of population change in the past. Because the middle scenario

is used, which assumes zero net migration in the future, this component is not visible in the figure. Keep in mind that the low scenario assumes net migration of -1% annually, and the high one projects net migration at 1%. Under the low scenario, net migration would be -7,327 people in 2015, and would gradually decline to -6,426 in 2045. In the high scenario, net migration would be 7,327 in 2015, gradually increasing to 12,221 in 2045. To put these figures in perspective, there was net migration of around -6,500 (an 0.9% decline) during the 2013-2014 economic slowdown caused by the drop in oil prices. Net migration reached a low of -19,245 (a 3.6% decline) in 1986, during the oil bust period. Recent highs for net migration were during the great recession in the U.S. in 2009, when 8,564 more people moved to Alaska than away (a 1.2% increase). During the oil boom of the early 1980s, net migration peaked at 24,934 (a huge 5.0% increase). The low and high projection scenarios are therefore well within the bounds of the more extreme migration swings of the 1980s, which Alaska has of course experienced.

Figure 6: Historical and projected components of population change for Alaska, 1945 to 2045.
Source: Alaska Department of Labor and Workforce Development.

Due to the occupational demands of industry, and often high concentrations of the military, many Arctic regions have quite high male sex ratios. Alaska has long had the highest male sex ratio in the country, in fact. At points in Alaska's history, the male sex ratio was significantly higher than it is now. In 1900, during the Gold Rush, there were 260 males per 100 females (Alaska Department of Labor and Workforce Development, 2013). In 1950, just after World War II, there were 162 males per 100 females. In 2010, there were 108.5 males per 100 females. The ratio declined to 106.8 males per 100 females in 2016. This is above the national ratio of 97 males per 100 females. This ratio is projected to decline gradually to 104.8 in 2045, but still to remain higher than the national average.

Like other states and other Arctic regions, the population of Alaska is aging. The population of the state is younger than the national average, but the gap has been narrowing. The median age was 33.8 years at the time of the 2010 census. It rose slightly to 34.5 in 2015, at which time the U.S. median age was 37.8. It is projected to rise to 36.8 in 2045 under the middle scenario. The middle scenario projects a 22% population increase in the total population by 2045. The youth population, those under 20 years-of-age, will increase by 68%. The working-age population (aged 20 to 64 years), will increase by 13%. The elderly population, 65 years and older, will increase the most, by 86%, as the 'baby boomer' proportion of population moves into retirement age. Figure 7 shows the age-sex structure of the population in 2015 and 2045 and illustrates how there will be relatively more people in the older age bracket at the end of the projection period.

The Alaska Native population was 73.4% of the total population in 1890, the time of the last census prior to the Gold Rush (Levin, 1991). It has declined steadily since then, reaching a low of 15.5% in 2000. In the 2000 census, the U.S. Census Bureau reformulated the race question and allowed for people to select more than one race. Starting with these projections, the Alaska Department of Labor and Workforce Development provides projections for the Alaska

Figure 7: Age-sex structure of the population of Alaska, 2015 and 2045.

Source: Alaska Department of Labor and Workforce Development, *Alaska Population Projections 2015 to 2045*, April 2016, p.13 (<http://live.labor-stats.alaska.gov/pop/projections.cfm>, accessed 9 August 2017).

native and American Indian population alone or in combination with one or more other races.⁵ Using this methodology, the Alaska Native population was estimated at 143,868 in 2015, which is 19.5% of the state's population. Alaska Natives have higher fertility and a younger age structure than the total population. They are therefore projected to grow slightly faster than the overall population, to 184,561 in 2045, at which point they are projected to make up 20.5% of the total.

⁵ Native Americans residing in Alaska are included with the category of Alaska Natives and American Indians, but because the majority are Alaska Natives, they will be referred to this way in the text.

Photo: Paxson Woelber / unsplash.com

Alaska is divided into 29 boroughs, census areas and municipalities (Table 3). These are then aggregated into six economic regions for analytical purposes. The boroughs, census areas and municipalities differ considerably in area, population size, age structure, percentage of Alaska Natives, and rates of natural increase and net migration. In Alaska, as with other Arctic regions, there is a trend towards urbanisation, whereby the larger population centres have experienced the highest rates of population growth. In Alaska, the regions with the largest population growth were the Matanuska-Susitna borough, followed by the municipality of Anchorage, the Kenai Peninsula borough and the city and borough of Juneau (Alaska Department of Labor and Workforce

Development, 2016b). In 2014-2015, the five other economic regions had net migration outflows to the Anchorage/ Matanuska-Susitna region. Since 2010, 70% of the population increase in Alaska has been in the Anchorage/ Matanuska-Susitna region.

To project the population of each borough and census area, the 2015 population was divided into age-sex groups, and then projected forward using the cohort-component method. The 2005 to 2015 net migration trends for each region were used as the basis for projecting migration into the future. Proportional fitting was used to eliminate any discrepancies between the sum of the borough and census area projections and the middle state-wide projection.

Table 3: Alaska Population by Area: 2010 to 2045

	Census	July 1, 2015	July 1, 2045	Percent change	
	April 2010	Estimate	Projection	2010 to 2015	2015 to 2045
Alaska	710,231	737,625	899,825	3.9	22.0
Anchorage/Mat-Su Region	380,821	399,086	522,007	4.8	30.8
Anchorage, Municipality of	291,826	298,908	339,171	2.4	13.5
Matanuska-Susitna Borough	88,995	100,178	182,836	12.6	82.5
Gulf Coast Region	78,631	81,111	89,920	3.2	10.9
Kenai Peninsula Borough	55,400	57,763	68,423	4.3	18.5
Kodiak Island Borough	13,592	13,819	13,897	1.7	0.6
Valdez-Cordova Census Area	9,639	9,529	7,600	-1.1	-20.2
Interior Region	112,021	112,818	125,893	0.7	11.6
Denali Borough	1,826	1,781	1,508	-2.5	-15.3
Fairbanks North Star Borough	97,581	98,645	111,562	1.1	13.1
Southeast Fairbanks Census Area	7,026	6,899	8,374	-1.8	21.4
Yukon-Koyukuk Census Area	5,588	5,493	4,449	-1.7	-19.0
Northern Region	26,445	27,802	34,402	5.1	23.7
Nome Census Area	9,492	10,040	13,079	5.8	30.3
North Slope Borough	9,430	9,895	11,765	4.9	18.9
Northwest Arctic Borough	7,523	7,867	9,558	4.6	21.5
Southeast Region	71,664	74,395	74,655	3.8	0.3
Haines Borough	2,508	2,493	2,360	-0.6	-5.3
Hoonah-Angoon Census Area	2,149	2,178	1,879	1.3	-13.7
Juneau, City and Borough of	31,275	33,277	35,036	6.4	5.3
Ketchikan Gateway Borough	13,477	13,778	13,508	2.2	-2.0
Petersburg Borough	3,203	3,199	2,571	-0.1	-19.6
Prince of Wales-Hyder Census Area	6,172	6,446	6,877	4.4	6.7
Sitka, City and Borough of	8,881	8,929	8,081	0.5	-9.5
Skagway Borough, Municipality of	968	1,040	1,305	7.4	25.5
Wrangell, City and Borough of	2,369	2,442	2,592	3.1	6.1
Yakutat, City and Borough of	662	613	446	-7.4	-27.2
Southwest Region	40,649	42,413	52,948	4.3	24.8
Aleutians East Borough	3,141	2,854	2,621	-9.1	-8.2
Aleutians West Census Area	5,561	5,649	5,357	1.6	-5.2
Bethel Census Area	17,013	18,153	23,854	6.7	31.4
Bristol Bay Borough	997	887	581	-11.0	-34.5
Dillingham Census Area	4,847	5,007	5,984	3.3	19.5
Kusilvak Census Area	7,459	8,195	12,800	9.9	56.2
Lake and Peninsula Borough	1,631	1,668	1,751	2.3	5.0

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

Figure 8: Alaska projected population change by borough from 2015 to 2045.

Figure 8 shows projected population change between 2015 and 2045 (colours of the regions) and population size in 2010, 2015 and 2045 (height of bars). According to the medium projection, Alaska is projected to add 162,000 to the population between 2015 and 2045, an increase of 22%, reaching nearly 900,000 people. Three quarters of this increase is projected to be in the Anchorage/Mat-Su region.

The Mat-Su region and Kenai Peninsula are expected to have positive net migration until 2045. Rural boroughs and areas with high fertility, such

as the Kusilvak census area, Nome census area, and the Northwest Arctic borough, are projected to lose people through negative net migration, but to still to grow because of natural increase. The Mat-Su region is projected to increase by 83% over the period. While the municipality of Anchorage is projected to have slower growth than the entire state, the Mat-Su region is projected to increase from 12.5% of the state's population in 2010, up to 20.3% in 2045. The rank ordering of boroughs and census areas, in terms of population size, are projected to remain the same.

3.4 Arctic Canada

In Canada, Statistics Canada and the statistical offices of the three Arctic territories all produce population projections. They differ in assumptions, length of projections, and detail.

Statistics Canada projections: The most recent national projections go up to the year 2063, while the provincial and territorial projections go up to the year 2038 (Statistics Canada, 2015). Under all projection scenarios, the population of Canada is predicted to continue to increase from its current size of 35.2 million in 2013 (the base year for the most recent projections). Under the medium growth scenario, the population would reach 46.9 million in 2050, and 51.0 million in 2063. Fertility has been below replacement level for some time in Canada, and since the mid-1990s net immigration has been the largest component of population increase. The current rate of natural increase in Canada is 3.8 people per thousand. This rate is projected to decline to 0.1 in 2050, before increasing slightly to 0.6 in 2063. As evidence of the higher contribution of immigration to population growth, the current rate of net migration is 7.9 per thousand. It is projected to decline slightly, but still to stay around 6.0 per thousand through the projection period.

According to the territorial projections by Statistics Canada, for Yukon, the population would increase slightly from 36,700 in 2013 to 43,100 in

2038 in the middle scenario (Figure 9). In some of the scenarios, Yukon's population in 2038 would be slightly lower than that observed in 2013, mainly because of inter-provincial migration losses. These are the main driver of future population growth, as natural increase and international migration are both projected to remain positive for Yukon over the projection period.

The population of the Northwest Territories was 43,500 in 2013, and it is projected to grow very slightly to 44,300 in 2038. Under several scenarios, the population is projected to decline. Natural increase and net international migration are projected to remain positive in all scenarios for the Northwest Territories. Much of the variation in population change in the Northwest Territories over the course of the next 25 years would depend largely on the nature of migratory exchanges with other parts of Canada. Historically, the Northwest Territories has generally sustained net losses through inter-provincial migration.

The population of Nunavut was 35,600 in 2013, and it is projected to increase under all scenarios. The population is projected to increase to 46,600 in the medium scenario. Fertility and the youngest age-structure in Canada are the key drivers of population growth in Nunavut. Its population would continue to increase, despite losses through migration exchanges with the rest of Canada, and almost no gains from international migration.

Figure 9: Population of Arctic Canada, 1990 to 2035.
Source: regional statistical offices.

Yukon Bureau of Statistics projections: The most recent set of projections have a base year of 2016. They use a newly-developed methodology which employs simple trend analyses and segmented regressions based on the best fit for linear segments of the data (Yukon Bureau of Statistics, 2017a). Three different scenarios have been produced. An additional projection based on economic factors has also been made. Finally, a third projection has been carried out which consists of a weighted average of the medium growth scenario and the projection based on economic factors. The Yukon Bureau of Statistics considers this to be the most likely scenario, and it is therefore labelled as the preferred projection. In addition to total population, projections are also made on the basis of age, gender and community.

Between 2007 and 2017, the population of Yukon grew by 19.5%. This was from a combination of natural increase, which is invariably positive, and net immigration, which fluctuates but is generally positive (Yukon Bureau of Statistics, 2017b). The population in 2016 was 37,860. Under the preferred scenario, it is projected to grow by 19.5% and reach 45,230 in 2030, implying a slightly lower growth rate than in the recent past. Like

other Arctic regions, the somewhat high ratios of males to females of 104.9 males per 100 females in 2016 is projected to decline to 102.6 in 2030.

In 1971, the number of Yukoners residing in Whitehorse exceeded those living elsewhere for the first time, and their share has increased further since then (Yukon Bureau of Statistics, 2017c). According to the 2016 census, 69.9% of Yukon's population resided in Whitehorse. According to the current projections, it will grow to 78.5% of Yukon's population in 2030.⁶

The projected settlement patterns for the three territories in Arctic Canada in 2030 are shown in Figure 10. This includes the population size in 2001, 2016 and 2035. The population of the Canadian Arctic resides in a quite limited number of settlements with large tracts of uninhabited space. Yukon's population resides in 25 settlements, with 70% living in Whitehorse. The population of the NWT resides in 33 communities, with 49% in the capital of Yellowknife. The population of Nunavut resides in 25 communities. Nunavut has a deliberate policy of diffusing public sector jobs towards smaller communities outside the capital, Iqaluit. The capital therefore contains only 21% of the population.

Figure 10: Projected population for settlements in the Canadian Arctic territories.

⁶ Projections were only made for Whitehorse, Dawson City and Watson Lake. To estimate the projected size of the others, the difference between the projected total for the territory and the projected total for these three settlements was distributed proportionally to all other settlements, based on their 2016 populations.

Northwest Territories Bureau of Statistics projections: The most recent set of projections for the Northwest Territories have a base year of 2016 and go through to the year 2035. Projections have been made by age, gender, ethnicity and community (Table 4; NWT Bureau of Statistics, 2018). The Northwest Territories is projected to have the slowest growth of the three territories, increasing by only 3.5% – from 44,469 in 2016 to 46,026 in 2035. The ratio of males to females is projected to decline from 103.7 males per 100 females currently, to 99.8 in 2035. Like other Arctic regions, the population of the Northwest Territories is projected to age over the projection period. All age groups up to the age of 59 years are projected to decline slightly in absolute numbers and percentage terms. The number of people

over the age of 60 years is projected to increase from 5,193 in 2016 to 9,383 in 2035, and from 11.7% to 20.4% of the population. The aboriginal percentage of the population is not projected to change much, going from 49.5% in 2016 to 48.1% in 2035.

Almost all the projected population growth in the Northwest Territories over the next two decades will take place in Yellowknife (Table 5). The territorial population is projected to grow by just 1,557 people over the period, while the Yellowknife region is projected to grow by 2,558. This means that all other regions are projected to lose population or remain roughly the same. Yellowknife's share of the Northwest Territories' total is projected to increase from 48.4% to 52.3% of the population.

Table 4: Northwest Territories, population projections, by age, sex and ethnicity, 2016-2035

	2016*	2020	2025	2030	2035
Northwest Territories	44,469	44,923	45,282	45,524	46,026
0 - 4	3,221	3,326	3,173	2,965	2,868
5 - 14	6,484	6,547	6,251	6,103	5,750
15 - 24	6,222	5,637	5,925	6,506	6,275
25 - 44	14,107	14,360	13,829	12,856	13,095
45 - 59	9,242	8,888	8,207	8,358	8,655
60+	5,193	6,165	7,897	8,736	9,383
Male	22,643	22,800	22,846	22,889	22,986
Female	21,826	22,123	22,436	22,635	23,040
Aboriginal	22,013	22,208	22,320	22,307	22,150
Non-Aboriginal	22,456	22,715	22,962	23,217	23,876

**Population Estimates*

Source: NWT Bureau of Statistics

Table 5: Northwest Territories, population projections, by community, 2016-2035

Community	2016*	2020	2025	2030	2035
Northwest Territories	44,469	44,923	45,282	45,524	46,026
Beaufort Delta Region	6,684	6,615	6,483	6,325	6,195
Aklavik	677	663	630	609	593
Fort McPherson	791	774	763	747	724
Inuvik	3,170	3,158	3,123	3,075	3,061
Paulatuk	327	337	330	319	307
Sachs Harbour	117	112	112	102	97
Tsiigehtchic	178	173	165	151	143
Tuktoyaktuk	996	969	934	897	846
Ulukhaktok	428	429	426	425	424
Dehcho Region	3,450	3,426	3,383	3,325	3,262
Fort Liard	615	608	585	564	549
Fort Providence	797	778	748	725	689
Fort Simpson	1,209	1,220	1,229	1,234	1,225
Hay River Dene 1	331	331	339	332	326
Jean Marie River	84	85	89	88	90
Kakisa	x	x	x	x	x
Nahanni Butte	92	94	92	94	92
Sambaa K'e (Trout Lake)	106	103	106	103	105
Wrigley	153	146	137	128	129
Sahtu Region	2,535	2,511	2,455	2,402	2,362
Colville Lake	160	161	164	164	170
Déline	503	486	466	439	418
Fort Good Hope	569	559	534	516	499
Norman Wells	803	803	795	795	796
Tulita	500	502	496	488	479
South Slave Region	7,176	7,182	7,180	7,176	7,215
Enterprise	102	98	91	79	76
Fort Resolution	499	494	483	477	469
Fort Smith	2,451	2,461	2,483	2,504	2,546
Hay River	3,728	3,742	3,751	3,752	3,778
Łutselk'e	327	323	310	301	289
Tłıcho Region	3,122	3,079	3,039	2,985	2,932
Behchokò	2,154	2,125	2,098	2,070	2,049
Gamètı	271	274	279	279	271
Wekweètı	148	142	132	122	120
Whatı	549	538	530	514	492
Yellowknife Region	21,502	22,110	22,742	23,311	24,060
Detah	248	248	253	259	254
Yellowknife	20,960	21,577	22,222	22,799	23,564

Source: NWT Bureau of Statistics

Photo: Veronica Sux / unsplash.com

Nunavut Bureau of Statistics projections:

Nunavut has the highest rate of population growth in all of Canada. This is due to its younger age structure and higher fertility rate. The population is roughly 85% Inuit. The Inuit are behind the Canadian population in the demographic transition. The total fertility rate for Nunavut has been around 3.0 children per woman since 2000 (Nunavut Bureau of Statistics, 2018a). The population has grown by 34% since 2001, from 28,134 to 37,667 (Nunavut Bureau of Statistics, 2018b). This growth has been driven by high natural increase, which averaged 649 more births than deaths since 2000, while net out-migration has averaged 101. Most of the out-migration has been to other parts of Canada, since international migration exchanges are negligible. There was a relatively high sex ratio of 107.6 males per 100 females in 2014. The sex ratio is projected to decline slightly to 104.2 in 2035.

The population of Nunavut is divided into three regions – Baffin, Kivalliq, and Kitikmeot. The population resides in 25 communities (Table 6). Nunavut has a deliberate policy of diffusing public sector jobs towards smaller communities outside

the capital, Iqaluit. Between 2001 and 2016, all three regions had roughly the same rate of growth, and Iqaluit only grew slightly faster than the territory as a whole. There were considerable differences in rates of growth among communities, and only three saw a reduction in population.

The Nunavut Bureau of Statistics makes projections of the total population, by gender and then by community (Nunavut Bureau of Statistics, 2018c). The most recent set of projections has a base year of 2014 and goes through to 2035. According to those projections, the population will grow by 31%, to 48,042. The sex ratio will decline slightly from the current one of 107.6 males per 100 females, to 104.2 in 2035.

Between 2016 and 2025, the population of Nunavut is projected to grow from 37,667 to 48,042, an increase of 28%. The Kitikmeot region is projected to have the lowest growth through to 2035, amounting to 23%. The Baffin region will grow slightly less than the territorial rate of 28%, while the Kivalliq region is projected to have the highest rate of growth, at 42%. All communities are projected to experience a population increase.

Table 6: Nunavut, population by community, 2001, 2016, and 2035

				Change, 2001 to 2016		Change, 2016 to 2035	
	2001	2016	2035	Absolute	Percent	Absolute	Percent
Nunavut	28,134	37,667	48,042	9,533	34	10,375	28
Baffin Region	15,130	20,035	25,021	4,905	32	4,986	25
Arctic Bay	750	895	1,106	145	19	211	24
Cape Dorset	1,206	1,555	1,909	349	29	354	23
Clyde River	821	1,077	1,392	256	31	315	29
Grise Fiord	170	164	166	-6	-4	3	2
Hall Beach	638	936	1,311	298	47	375	40
Igloolik	1,346	2,075	2,721	729	54	646	31
Iqaluit	5,565	7,697	9,329	2,132	38	1,632	21
Kimmirut	454	489	550	35	8	60	12
Pangnirtung	1,330	1,664	2,075	334	25	411	25
Pond Inlet	1,282	1,727	2,307	445	35	580	34
Qikiqtarjuaq	547	535	583	-12	-2	48	9
Resolute	225	254	278	29	13	25	10
Sanikiluaq	720	962	1,288	242	34	327	34
Keewatin Region	7,942	10,856	14,908	2,914	37	4,053	37
Arviat	1,988	2,737	3,980	749	38	1,243	45
Baker Lake	1,589	2,229	2,861	640	40	632	28
Chesterfield Inlet	361	398	501	37	10	103	26
Coral Harbour	744	998	1,429	254	34	432	43
Nauyasat	641	2,908	3,794	2,267	354	886	30
Rankin Inlet	2,299	1,118	1,736	-1,181	-51	619	55
Whale Cove	320	468	606	148	46	139	30
Kitikmeot Region	5,062	6,776	8,112	1,714	34	1,336	20
Cambridge Bay	1,385	1,718	1,971	333	24	253	15
Gjoa Haven	1,007	1,404	1,735	397	39	331	24
Kugaaruk	634	979	1,233	345	54	254	26
Kugluktuk	1,270	1,623	1,838	353	28	215	13
Taloyoak	753	1,030	1,323	277	37	293	28

Sources and notes: Nunavut Bureau of Statistics. 2016 and 2035 numbers are from population projections tables which have been updated.

Photo: Karen Refsgaard

3.5 Greenland

The population of Greenland has remained remarkably constant over time. In 1990, the total population was 55,558, and in 2016 it was 55,847. This is because any excess of births over deaths is matched by roughly the same amount of net out-migration. The fertility rate in Greenland was about 2.5 children per woman in the early 1990s. It has declined to 2.05 most recently, which is just about at the replacement level. On account of an above-replacement level of past fertility, Greenland has a more youthful age structure, which will keep the natural increase positive well into the future. The country has also experienced significant gains in life expectancy, which contribute to positive natural increase. Life expectancy for men increased from 60.7 years in 1990 to 69.7 years in 2015, and from 68.7 years to 74.1 years for women.

Since 1990 there has been a clear trend towards net emigration from Greenland – something which, as noted above, has been roughly equal to the degree of natural increase, resulting in a rather stable population size. Since

1993, an average of 2,400 people per year have migrated to Greenland, and another 2,800 have left the country. Because of Greenland's small population size, these flows represent a larger proportion of the total population, and they are evidence of considerable churn. Each year, nearly 5% of the population leaves Greenland, mostly to go to Denmark, and a flow proportionate to 4% of the population move to Greenland. A large portion of this return migration comprises people born in Greenland.

Statistics Greenland updates projections of population each year. This includes forecasts of the total population by gender and age, by foreign born, and by region. There are different demographic parameters for those born in Greenland and those born outside Greenland. The most recent set of projections are based on the population count as of 1 January 2017, and go through to 2040 (Statistics Greenland, 2017).⁷ According to these latest projections, the population of Greenland is expected to decline slightly, to 52,207 by 2040 (Figure 11).⁸

⁷ In these projections, the total fertility rate is expected to rise to 2,133 over 10 years. Then the level is assumed to remain constant. The mortality level is expected to fall steadily over the next 25 years, since life expectancy for men is projected to rise to 74.78, and for women to 78.77. Net migration projections were based on the patterns observed for the ten-year period from 2006 to 2015. Until 2040, it was assumed that there would be average annual net migration of -460, including a continued trend towards higher female out-migration. Male net migration is projected to be -218, and female net migration -243. This set of projections was less ambitious than previous ones, because the projection model is being re-written. Updated results were due to be published on 5 October 2017.

⁸ This is smaller than U.N. projections which call for a very slight decline to 55,942 in 2040.

Figure 11: Greenland, total population and percent foreign-born, 1977 to 2040.
Source: Statistics Greenland.

Most of the foreign-born population were born in Denmark, since Greenland is part of the Danish realm. As the native Greenland population gains increased autonomy and education, fewer Danes move to Greenland to take up positions in government or industry. Foreign-born people comprised 18.3% of the population in 1977. That has declined to 10.3% currently. This appears to be a low point, since the percentage of foreign-born people is projected to increase slightly, to 11.8% by 2040.

Greenland has long had a high male sex ratio, in part because of higher levels of female out-migration. In 1977, there were 118 males per 100 females. This ratio has declined to 112 males per 100 females currently, and is projected to decline slightly until 2040, when the ratio will be 109 males per 100 females.

Like other Arctic regions and other countries, the population of Greenland is projected to age over the projection period. The relative share of those under 18 years-of-age is projected to remain the same between 2017 and 2040, at about one quarter of the population. The young adult population (aged 18 to 24 years) is projected to

decline from 10.7% to 9.3%, and the working age population (aged 25 to 59 years) is projected to decline from 51.1% to 46.7% of the total population. The largest increase will be among those aged 67 years and over, who are projected to increase from 6.5% to 12.5% of the total.

The birth cohorts in Greenland in the early 1960s were rather large, because of high fertility. These larger cohorts, now in their 50s, can clearly be seen in Figure 12, which compares the age-and-sex structure of the Greenlandic population in 2050 and in 2040. By the late 1960s, the fertility rate had declined significantly, and birth cohorts were half what they had been. By 2040, most of this large cohort will have died. As can be seen, with declines to roughly replacement-level fertility since then, subsequent cohorts born after the late 1960s have been roughly the same size.

Regional projections for Greenland go through to 2030. There are two different regional divisions shown. One for the current four municipalities, one for groups of the largest towns, and then the rest.⁹ As is the case in other Arctic regions, there is a clear trend towards urbanisation, with more growth in the larger settlements at the expense of smaller ones.

⁹ They will be revised to take into consideration the division of the Qaasuitsup municipality.

Figure 12: Age-sex structure of the population of Greenland, 2015 and 2040
Source: Statistics Greenland

Photo: Leneisja Jungsberg

At the municipal level, Kommune Kujalleq, the commune covering south Greenland, has declined from 16% to 12% of the total population of Greenland between 1977 and 2016 (Figure 13). There has also been a relative decline in the Qaasuitsup Kommunia, which covers the northwest portion, from 35% to 31%. The Kommuneqarfik Sermersooq, which contains the capital and largest town of Nuuk, has been the region with the largest population growth, increasing its share of the total population from 30% to 40% since 1977. The percentage of the population in the Qeqqata Kommunia, just north of the Kommuneqarfik Sermersooq, has stayed the same, comprising 17% of the total population. These trends are projected to continue into the future, when the Kommuneqarfik Sermersooq is projected to contain nearly half (46%) of Greenland's population in 2030.

At the level of towns and settlements, four groups are made consisting of the largest: Nuuk; Sisimiut, Aasiaat, and Tasiilaq; Qaqortoq, Maniitsoq, and Ilulissat; and other towns and settlements (Figure 14). In 1977, each of the three groups Nuuk, Sisimiut, Aasiaat, and Tasiilaq, Qaqortoq, Maniitsoq, and Ilulissat were of roughly equal size, each containing around 17% of Greenland's population, with 46% of the population in other smaller towns and settlements. Since then, Sisimiut, Aasiaat, and Tasiilaq and Qaqortoq, Maniitsoq, and Ilulissat have grown slightly, but stayed relatively the same in their respective proportions of Greenland's population. Since 1977, Nuuk has more than doubled in size, from 8,545 to 17,572, and the share of Greenland's population living in Nuuk has increased from 17% to 32%. This growth in Nuuk has come from smaller towns and settlements, which have declined from 46% to 31% of the total population. These same regional growth patterns are projected to continue into the future, with Nuuk projected to contain 40% of Greenland's total population.

Figure 13: Population in Greenland by municipality, 1977 to 2030.
Source: Statistics Greenland.

Figure 14: Population in Greenland by groups of settlements, 1977 to 2030.
Source: Statistics Greenland.

3.6 Iceland

Iceland has had continuous population increases in recent decades, and this is expected to continue into the future (Figure 15). Since 2000, the population has increased by 18%. The most recent set of population projections for Iceland have a base year of 2016 and go through to 2065 (Statistics Iceland, 2017a). Three sets of projections were made – low, medium, and high. At the beginning of 2016, the population of Iceland was 332,529. Under the medium scenario, the population of Iceland is projected to grow to 443,309, a 33% increase over the next half century. The low scenario projects an increase to 368,700 in 2066, and the high scenario projects an increase to 525,541.

Until recently, Iceland had among the highest fertility rates in Europe, and was one of the few with a total fertility rate above replacement. However, in recent years the fertility rate has declined rather significantly, from a peak of 2.221 children per woman in 2009 to 1.745 per woman in 2016, a decline of nearly half a child on average (Statistics Iceland, 2017b). The fertility rate used in the projections did not reflect this recent decline, and rested at 2.01 in 2016. The fertility rate is

projected to decline slightly to 1.92 in 2066. This is a little below the replacement rate, and thus will have only a minimal impact on population change.

Iceland has also had levels of life expectancy which are among the highest in Europe, and indeed the world. In 2016, life expectancy at birth for men was 80.7 years, and for women was 83.7 years (Statistics Iceland, 2017c). The gap between male and female life expectancy (3.0 years) is lower than the average for high-income countries, and it contributes to a high overall life expectancy for the population. Life expectancy is projected to rise gradually to 84.3 years for men and 88.6 years for women in 2065.

As a result of having a fertility rate above or close to the replacement rate, as well as a high life expectancy and a relatively young age structure compared to other European countries, natural increase has been the primary factor driving population growth in Iceland. Between 2000 and 2016, there were 39,565 more births than deaths, and 13,665 more immigrants than emigrants. Natural increase therefore contributed three quarters of the total population increase.

Figure 15: Iceland, historical and projected population by scenario, 2000 to 2065.
Source: Statistics Iceland, Population Projections.

Figure 16: Iceland, natural increase and net migration, 2000 to 2065.
Sources and notes: Statistics Iceland. Historical data from 2000 to 2015, projected data from 2016 to 2065.

Net migration into Iceland fluctuates, based on the economic situation in the country. It rose sharply in the early 2000s, and then fell significantly after the banking crisis of 2008. However, the general trend is towards positive net migration, which is having a significant impact on the Icelandic economy and on society. In the 20 years since 1996, the foreign-born population of Iceland has increased from 4.9% of the population to 14.9% (Heleniak and Sigurjonsdottir, 2018). More so than in the past, net immigration to Iceland is projected to contribute significantly to population growth. Between 2000 and 2015,

the natural increase averaged at 2,473 people annually. Because the Icelandic population is ageing, the natural increase is projected to decline from this level, reducing to just 200 in 2065 (Figure 16). Net migration averaged to 854 people annually over the same period, and it is projected to rise slightly to 2,020, and then decline gradually over the projection period. By 2065 it is due to be the largest contributor to population increase. Net migration into Iceland is projected as positive under any of the three scenarios, ranging from 400 more immigrants than emigrants per year in the low scenario, to 1,200 in the high scenario and 800 in the medium one.

*Figure 17: Iceland, age-sex structure of the population, 2016 and 2066.
Source: Statistics Iceland, Population projection by age and sex 2016-2065.*

Like other Arctic regions, as well as most countries in the world, the population of Iceland is projected to age rather significantly in the future. Using the medium projection scenario, the total population is projected to increase by 33% between 2016 and 2066. The youth population (under the age of 20 years) is projected to increase by just 10%. The working-age population (aged 20 to 64 years) is projected to increase by 15%. The largest increase will be among those in the retirement age of 65 years and older, who are

projected to increase by 150%. The retirement-age population will therefore increase from 14% to 26% of the population. This shift in the age structure of the Icelandic population is graphically illustrated in Figure 17. Comparing the two age-sex pyramids, it can clearly be seen that, in 2066, a much higher share of the population will be older, since the largest cohorts are found in the higher ages, and the base of the pyramid, representing the younger cohorts, correspondingly narrows.

Figure 17 - continuity: Iceland, age-sex structure of the population, 2016 and 2066.
Source: Statistics Iceland, Population projection by age and sex 2016-2065.

For much of Iceland's history, there was a deficit of men, due to the higher male mortality rate in the fishing industry. From 1840 through to 1900, there were around 90 males per 100 females. The number of males steadily increased, and in 1949, for the first time, the number of men and women in the country was roughly equal. Men continued to outnumber women by a small number until 2008, when there was a large rise in immigration. This was disproportionately male, resulting in a rise in the sex ratio to 104 males per 100 females. This occurred because many of the growing sectors in the economy, like construction, were those which employed more men than women. The male sex ratio fell following the banking crisis, but in 2018 it increased again to 104 males per 100 females.

According to current projections, the sex ratio is predicted gradually to even out, and to be 101 males per 100 females in 2065.

Regionally, at the NUTS3 level, Iceland is divided into two regions or Hagskyrsluvardi, essentially Reykjavik and outside Reykjavik. These are further divided into eight Landsvedi at the LAU1 level, and into 79 Sveitarfelag at the LAU2, or municipal, level. Statistics Iceland does not produce population projects at the regional level. Instead these are carried out by the Icelandic Regional Development Agency. They are based on the Statistics Iceland national projections (Icelandic Regional Development Agency, 2018). The most recent projections have a base year of 2017, and go through to 2066.

Photo: Johannes Lidmo

There has been a long-term trend of migration into (and population concentration within) the Reykjavik capital region (Höfuðborgarsvæðið). This has happened as the economy has modernised and moved away from agriculture towards services. There is also an increasing foreign-born population, which is concentrated within the capital area. Between 1998 and 2017, the percentage of the population residing in the

capital area increased from 60.4% to 64.1% (Figure 18). Over the projection period, the population of the capital region will increase by 136,000 to 353,000 in 2066. If projections hold, at that time 78% of Icelanders (nearly four in five) will reside in the capital area. The number of people living outside the capital region is projected to decline from 121,000 currently to fewer than 100,000 in 2066 (Figure 19).

Figure 18: Population of Iceland and Reykjavik capital area, 1998 to 2066.

Source: Regional Development Agency of Iceland

(<http://www.byggdabrunnur.is/mannfjoldaspa/mannfjoldaspa.html>).

Figure 19: Population of Iceland by region in 1998, 2017, 2040 and 2066.

3.7 Faroe Islands

The Faroe Islands have had slow population growth over the past 25 years, with the population increasing by only 3% between 1990 and 2016; that is, from 47,773 to 49,188 people. With a relatively high fertility rate, which has been around 2.5 children per woman since 1990, there has been a positive natural increase in population, which has amounted 16.4% growth. This has combined with swings in net migration, featuring some periods of quite high in-migration and others of out-migration, depending on economic factors – especially within the fishing industry in the Faroes. On balance, there has been out-migration since 1990, resulting in a 13.3% reduction in the population.

The most recent set of projections have a base year of 2016 and go through to 2055. Projections have been made for the entire country, inside and outside the capital area, by sex, and by age in single years up to the age of 100. These projections were completed using probabilistic forecasting, by making 10,000 projections based on the patterns of net migration, fertility and mortality experienced in the period from 1985 to

2015. From these projections, projection intervals are extracted, defining 95%, 90% and 80% probability intervals.

According to the middle value, the population is projected to increase slowly towards a peak of 50,941 in 2029, which is an increase of less than 2% (Figure 20). It will then gradually decline through to 2055, when it is projected to be 48,549 – a decrease of 3% since 2016. Overall, over the course of the period between 1990 and 2055, the population size of the Faroes is expected to change very little. The upper end of the confidence interval, 95%, projects a population of 69,966, a 34% increase over the present, while the lower end projects a population of 26,841, a decline of 44%.

As with other Arctic regions, it is expected that more of the population will be concentrated into the capital region, which is projected to increase in size, from 42.0% of the population in 2016 to 47.4% in 2055. By then, nearly half of the Faroese population are expected to reside in the capital, Tórshavn. The sex ratio is also projected to be more balanced, declining from the current 106.5 males per 100 females to 102 males per 100 females in 2055.

Figure 20: Population size in the Faroe Islands, 1990 to 2055.
Source: Statistics Faroe Islands.

Photo: Lynn Fae / unsplash.com

Like other Arctic regions, the population of the Faroes is projected to age, with the largest relative change being among the elderly population (Figure 21). The youth population (up to 19 years) is projected to decline from 27.9% of the population currently, to 26.3% in 2055. The working-age population (aged 20 to 65 years) is projected to decline from its present 55.8%

to 47.0% in 2055. The decline in these two age groups will be compensated for by an increase in the older population (those over 65 years of age), which will increase from 16.2% of the population now to 26.7% in 2055. This elderly age group is the only one projected to grow, increasing from 8,114 people currently to 12,949 in 2055.

Figure 21: Faroe Islands, age-sex structure of the population, 2016 and 2055.
Source: Statistics Faroe Islands (<http://www.hagstova.fo/en>).

3.8 Arctic Norway

In Norway, four regions are considered Arctic – Nordland, Troms, and Finnmark and the offshore archipelago of Svalbard. The population of Arctic Norway was 487,000 in 2018. It includes several large cities, including Tromsø (with a population of 65,000), and Bodø (51,000). Alta (with a population of 20,097) has the largest population in Finnmark, although Vadsø (6,160) is the administrative centre.

Since 1990, the population of Norway has increased by over one million people, which is nearly 25%. Natural increase accounted for 40% of this growth, and net migration for the other 60%. The populations of the three Arctic regions increased much less: Nordland by 1.4%, Troms by 13.0%, and Finnmark by 2.%. The populations of the Norwegian settlements in Svalbard have actually declined over this period,

from 3,544 in 1990 to 2,583 in 2017. Much of this is attributable to out-migration.

Statistics Norway carries out population projections at national, regional and municipal levels. Regional and municipal projections go through to 2040, and national projections to 2100. The population of Norway is projected to increase by 21% between now and 2040.¹⁰ The Arctic regions are projected to increase, but by less – with Troms growing by 11% and Nordland and Finnmark by 7% each (Figure 22).¹¹

All three Arctic regions of Norway had higher male sex ratios than the national average. In 2018, there were 101.6 males per 100 females in Norway. In Nordland, the ratio was 103.0, in Troms it was 103.7, and in Finnmark it was 106.1. These sex ratios are predicted to remain the same over the whole projection period.

Figure 22: Population in the Arctic regions of Norway, 1990 to 2040.

Source: Statistics Norway (data for 1990 to 2015 are actual and data for 2016 to 2040 are projections).

¹⁰ There are national projections that go to 2100, but these are not included here because there are not comparable regional projections.

¹¹ No projections were done for Svalbard.

Photo: Henk Jan Geel / unsplash.com

In contrast to other Arctic regions, those of Norway actually have older age structures than the rest of the country. In 2018, 23.8% of the population was younger than 20 years-of-age, while all three Arctic regions had smaller shares of less than 20% (Figure 23). In the same year, 16.9% of the population was 65 years or older, whereas in the Arctic regions the proportions of those who

were 65 years and older were 19.9% in Nordland, 17.6% in Troms and 17.5% in Finnmark. Over the projection period through to 2040, Norway and all three Arctic regions are projected to age significantly, with the proportion of people who are 65 years and older being 23.7% in Norway, 27.3% in Nordland, 25.2% in Troms, and 25.9% in Finnmark.

Figure 23: Percent of the population 65 and older in northern Norway, 2018 to 2040. Source: Statistics Norway.

3.9 Arctic Sweden

Here, the two most northern regions in Sweden, Norrbotten and Västerbotten, are considered Arctic. In 2018, the population of Västerbotten was 268,465 and the population of Norrbotten was 251,295. The population of Arctic Sweden was 520,000 in 2018, including two large regional centres, Umeå (with a population of 85,000) and Luleå (77,000) located along the coast, where increasingly large proportions of the population reside.

Both the Arctic regions of Sweden have higher male sex ratios than the country as a whole. In 2017, there were 100.9 males per 100 females across the country, while in Västerbotten the ratio was 102.5, and in Norrbotten, 104.5.

Similar to other regions in the Nordic Arctic, Västerbotten and Norrbotten have older populations than the national average. In 2017, 19.8% of the population of Sweden was 65 years or older, while 20.9% were in that age bracket in Västerbotten, and 23.6% in Norrbotten.

Since 1990, the population of Sweden has grown considerably, from 8.5 million to 10.1 million (19%). Three-quarters of this growth was due to net immigration. Västerbotten has grown by 7% since 1990, with net migration being the major component of this growth, while Norrbotten has declined by 4%. This is due to a combination of having more deaths than births and net out-migration (Figure 24).

There are two agencies which carry out population projections for Sweden. Statistics Sweden makes projections at the national level, and Tillväxtverket (Swedish Agency for Growth) at the regional and municipal levels.¹² Through to 2040, the population of Sweden is projected to grow by 13%, to 11.6 million, with net immigration contributing much of this growth. Västerbotten is projected to grow by 2.6%, to 276,309, in 2040. Meanwhile, Norrbotten's population is projected to decrease by 4.6%, to 241,647.

Figure 24: Population in the Arctic regions of Sweden, 1990 to 2040.
Source: Statistics Sweden.

¹² The data are presented in a rather difficult-to-use format, and therefore only the totals are presented.

3.10 Arctic Finland

Arctic Finland differs from many other Arctic regions, in that it has a large manufacturing centre based on electronics and other high-tech activities, and also several larger universities and research centres. The population of Arctic Finland was 660,000 in 2018, and consisted of several large cities – such as Oulu (with a population of 201,000) and Rovaniemi (62,000). Since 1990, the population of Finland has increased by 10%, growing from just under 5 million to 5.5 million in 2017. Natural increase and net immigration each contributed 50% this increase. However, since 2010, net immigration has been by far the largest contributor to population growth, and in 2016 there were more deaths than births. Of the three Arctic regions of Finland, only Pohjois-Pohjanmaa (North Ostrobothnia) grew over this period, increasing by 18% – all from natural increase, as there was close to zero net migration. Kainuu declined by 19% and Lappi by 10%. In both cases, nearly all the decline was attributable to out-migration.

Statistics Finland produces a new set of projections at national, regional, and municipal levels every three years. The most recent set was completed in 2016, and goes through to the

year 2040. At the regional and municipal levels, projections are done by sex, and by age up to 100 years. Until 2040, the population of Finland is projected to grow by 6%, to 5.9 million. Most of this will be the result of net immigration, since natural increase is projected to be negative over much of this period. Pohjois-Pohjanmaa (North Ostrobothnia) is projected to continue growing, by 7% to 2040, mostly from natural increase (Figure 25). Kainuu is projected to continue to decline, by 11% through to 2040, mostly from out-migration. Lappi is projected to have a moderate decline in population of 3%, again mostly from out-migration.

In 2014, all three Arctic regions in Finland had higher male sex ratios than the rest of the country – these being North Ostrobothnia (101.7 males per 100 females), Kainuu (100.6), and Lapland (100.6). The comparable national average that year was 96.8 males per 100 females. Nationally, the number of males per 100 females is projected to increase slightly, to 98.3 males per 100 females in 2040. In North Ostrobothnia and Lapland, the male sex ratio is projected to remain the same, while in Kainuu it is projected to increase to 104.5 males per 100 females in 2040.

Figure 25: Population in the Arctic regions of Finland, 1990 to 2040.

Source: Statistics Finland (data for 1990 to 2016 are actual and data for 2017 to 2040 are projections).

Photo: Joakim Honkasalo / unsplash.com

In 2014, 19.9% of the total population of Finland was 65 years or older (Figure 26). North Ostrobothnia had a relatively younger population overall, with 16.8% being 65 years or older. Lapland had a slightly older population than the national average, with 21.9% being 65 years or older, while Kainuu had a significantly older population with 24.4% being 65 years or older in 2014. As in other Arctic countries and regions, these populations will age significantly. For Finland as a whole, the percentage of the population which is 65 years or older is projected to increase to 26.3% of the

total in 2040. For the three Arctic regions, the percentage of elderly people relative to national levels is projected to remain roughly the same. The percentage who are 65 years or older in North Ostrobothnia is projected to increase to 24.2% of the population. In Lapland, the equivalent proportion is projected to increase to 29.9 %. In Kainuu in 2040, fully one-third of the population, 33.3%, will be 65 years or older. Kainuu then will have among the highest old-age dependency ratios in the Nordic region (Grunfelder, Rispling, and Norlén, 2018).

Figure 26: Percent of the population 65 and older in northern Finland, 2014 to 2040.
Source: Statistics Finland.

Collectively, the eight Arctic regions of Norway, Sweden and Finland had a combined population of 1,613,969 in 1990 (Figure 27). Since then, the population of these regions has grown slowly, by 4%, to 1,680,221. It is projected to continue growing slowly, by just 3%, to 1,724,499 by the year 2040. In these three Nordic countries, the rather substantial population growth in the past, and the projected increase in the future, has been (and is expected to be) concentrated within the capital regions and other large metropolitan regions in the south.

This pattern of slow population increase is uneven across the eight Arctic regions. The larger regions, and those with an urban centre, grew the most, while the more northern, smaller, and more remote regions declined. North Ostrobothnia with Oulo, Troms with Tromso, and Västerbotten with Umeå, grew the most. Norrbotten, Lappi and Kainuu declined in population size. These same relative differences in population change are projected to stay the same until 2040.

Figure 27: Population in the Nordic Arctic 1990, 201 and 2040.

3.11 Arctic Russia

The manner in which the Soviet Union went about developing its Arctic and Siberian regions stands in sharp contrast to the other Arctic countries, which developed under market economy conditions (Heleniak, 2009; Heleniak, 2010). Economic planning decisions were made centrally by Gosplan (the State Planning Committee), rather than by the market. This resulted in a non-market distribution of labour and economic activity (Hill and Gaddy, 2003). Because labour was relatively undervalued, the centrally-planned Soviet economy put many more people into the Arctic and Siberia, and created much larger cities, than would have been the case if the region had developed under market conditions.¹³ At the end of the Soviet period, there were many quite sizable Arctic and Siberian cities, including Arkhangel'sk (with a population of 417,000 in 1989), Murmansk (472,000), Petropavlovsk-Kamchatskiy (273,000), Noril'sk (180,000), Magadan (152,000) and Vorkuta (115,000) (Heleniak, 2017). The population of many of these cities declined significantly after the breakup of the Soviet Union and the transition to a market economy.

When the Soviet Union broke apart, Russia made the transition to a market economy, which included the liberalisation of prices. Under these conditions, the cost of the previous northern development system became burdensome, and wages and incentives for working in the Arctic became worthless. In post-Soviet Russia, two types of Arctic region developed, the oil and gas regions of the Khanty-Mansi and Yamal-Nenets okrugs, and all the rest. It is these two regions which are growing in population size, while most of the rest continue to decline slowly. Petroleum and other mining activities from these two regions makes up more than half the Arctic economy (Glomsrød, Duhaime and Aslaksen, 2017).

The breakup of the Soviet Union, the transition to a market economy, and the liberalisation of society resulted in significant demographic upheavals in Russia and in the Russian Arctic.

For Russia, life expectancy plunged as a result of the psycho-social stress caused by the transition. This impacted males much more than females and it impacted the Arctic regions more than the rest of the country. Fertility fell to extremely low levels. Also, there was a major redistribution of the population across the post-Soviet space (Figure 28).

The population of the Russian Arctic adjusted to these new economic conditions, declining by 20%. This happened through a combination of a slight natural increase and a large-scale out-migration amounting to nearly a quarter of the population. There was also a reduction in the population size and in the settlement structure, when a number of settlements across the Russian Arctic were either closed or abandoned after they became depopulated. Out-migration and population decline were greater in regions further to the east, and in some smaller regions, particularly in some of the ethnic homelands of the Arctic indigenous peoples. In the Far East, the population of Kamchatka declined by one-third, Koryak okrug in the northern portion of the Kamchatka peninsula declined by half, the Magadan oblast declined by nearly two-thirds, and Chukotka okrug by nearly 70%. In all of these regions, out-migration of sizeable portions of the population was the driving factor behind steep reductions in population size.

Rosstat, the Federal State Statistics Service of Russia, periodically makes population projections for the country as a whole, and for the regions (but not for cities or municipalities).¹⁴ The most recent projections were issued in June 2018. They have a base year of 2018, and go through to the year 2036. There are three variants, and the median variant is analysed here.

The population of Russia declined by 6.5 million between 1993 and 2008, before starting to rise again. The main reason for the decline was the large excess of deaths over births caused by a steep decline in fertility. This has since recovered. The population reduction would have been even larger if there had not been such a large in-migration of people from the other states of the former Soviet Union.

¹³ During the Soviet and post-Soviet periods, the development of the northern, Siberian, and Arctic regions in Russia were collectively referred to as northern (sever in Russian). There was a changing definition of those regions classified as belonging to the North or the Far North. More recently, a new definition of the Arctic has been adopted; one which is narrower than either of these two. To be consistent with the other countries, the term Arctic is used here for Russia.

¹⁴ The Taymyr, Evenki and the Koryak autonomous okrugs have been merged with the larger units to which they were subordinated. and projections for them are not shown separately.

*Figure 28: Net migration by region, 1989 to 2008 (percent).
Source: Rosstat, Demographic Yearbook (selected edition).*

At the beginning of 2018, the population of Russia was 146.9 million, and it is projected to decline slightly to 145.9 million at the end of the projection period, which is 2036.¹⁵ This will come about as a result of an excess of deaths over births amounting to 6.0 million, and continued net immigration into the country of about 5.0 million.

Overall, the population of the Russian Arctic is projected to decline slightly, by 2.5%, as a result of a moderate natural increase and continued out-migration. The population of the Russian Arctic was 9.4 million in 1989, but it had declined to 7.0 million by 2018. It is projected to decline to 6.9 million in 2036. Only three of the eleven Arctic regions are expected to have population increases – the Nenets, Khanty-Mansi, and the Chukotka autonomous okrugs. The largest percentage increase is expected to be in Chukotka. Any increase in the population of the Khanty-Mansi okrug will be more than offset by reductions in other regions. The larger and older regions in the

west (Karelia, Komi, Arkhangel'sk and Murmansk) are projected to have the largest decline, all by roughly 10%, through a combination of natural decrease and continued out-migration. Figure 29 graphically illustrates the past, present and future population size of the Arctic regions of Russia in 1989, 2018 and 2036.

Rosstat projects data by age for broad age groups only – that is, younger than working age (15 years-of-age and younger), working age (males 16 to 59 years, and females 16 to 54 years) and older-than-working-age (males 60 years or over, and females 55 years and older) (Table 7). The Russian Arctic has long had a younger age structure than the rest of the country, and that for two reasons. First, the Arctic is a region of in-migration which tends to be age-selective among people in the working age bracket, especially among the younger working ages. Second, people tend not to retire in the Arctic, but rather to migrate to the 'mainland' after their working careers have ended.

¹⁵ The national total now includes Crimea and the city of Sevastopol, which have a combined population of 2.4 million.

Figure 29: Population in Northern Russia 1989, 2018 and 2036.

Table 7: The projected age structure of the Russian North, 2019-2036 (percent of total population)

Region	Younger than working ages			Working ages			Older than working ages		
	2019	2036	Percentage point change	2019	2036	Percentage point change	2019	2036	Percentage point change
RUSSIAN FEDERATION	18.7	15.8	-2.9	55.4	54.2	-1.2	25.9	30.0	4.1
The North	21.4	17.5	-3.9	57.9	58.3	0.4	20.7	24.3	3.6
Karelian Republic	18.4	14.3	-4.1	54.0	53.1	-0.9	27.6	32.5	4.9
Komi Republic	20.4	16.0	-4.4	56.4	56.3	-0.2	23.2	27.7	4.5
Arkhangel'sk Oblast	18.8	15.0	-3.8	53.9	54.9	1.0	27.4	30.1	2.7
Nenets Autonomous Okrug	24.9	17.3	-7.6	56.1	56.6	0.5	19.1	26.1	7.1
Murmansk Oblast	18.8	15.3	-3.5	58.5	59.3	0.8	22.7	25.4	2.7
Khanty-Mansi Aut. Okrug	23.3	19.0	-4.2	60.5	60.0	-0.5	16.3	21.0	4.7
Yamal-Nenets Aut. Okrug	24.6	21.7	-2.9	63.5	65.8	2.3	11.9	12.5	0.6
Sakha Republic (Yakutia)	25.0	19.8	-5.2	57.4	57.1	-0.3	17.6	23.0	5.5
Kamchatka Oblast	19.1	16.6	-2.5	59.8	59.5	-0.3	21.1	23.9	2.8
Magadan Oblast	19.0	15.5	-3.4	59.2	59.8	0.7	21.8	24.6	2.8
Chukotka Autonomous Okrug	22.9	18.0	-4.9	62.3	66.0	3.7	14.8	15.9	1.1

Source: Rosstat, Projections of the Population of the Russian Federation to 2035. Moscow: 2018.

In 2019, 18.7% of the population of Russia comprised young people (below working age). By comparison, a slightly larger share of the population of the Arctic, 21.4%, were young people. All but one region in the Russia Arctic had a higher share of young people than the national average. The highest youth shares were in the ethnic homelands of Yakutia and the Nenets, Yamal-Nenets, Khanty-Mansiy and the Chukotka autonomous okrugs.

The Russian Arctic has a higher working-age population, 57.9%, than the rest of Russia, 55.4%. Every Arctic region except one has a higher proportion of its population within working age. The highest in the Arctic, and in the country, are in the Khanty-Mansiy and Yamal-Nenets autonomous okrugs where more than 60% of the respective populations are within working age. These are regions of work where a large number of people migrate from elsewhere in Russia, from the other FSU states, and from outside the FSU.

The largest differences in age structure between the Arctic and the rest of Russia are in the retirement age populations. For Russia, 25.9% of the population is in the retirement age bracket, whereas in the Arctic only 20.7% are of retirement age. Only two Arctic regions have proportions of retirees higher than the Russian average. The same five ethnic homelands which have a larger proportion of young people also have a smaller proportion of their population within the retirement age bracket.

The population of Russia and the regions of the Russian Arctic are projected to age considerably over the projection period. For Russia, the percentage of young people is projected to decline from 18.7% to 15.8% of the population. In the Arctic, the proportion of young people is projected to decline from 21.4% to 17.5%. The working-age population is projected to decline slightly in Russia, from 55.4% to 54.2% of the population. On the other hand, it is projected to increase slightly in the Arctic from 57.9% to 58.3%. The largest change in age structure in both Russia and in the Arctic will

be the increase in retirement age populations. The percentage of the population of retirement age in Russia is projected to increase to 30.0% from 25.9%, and in the Russian Arctic to 24.3% from 20.7%.

Due to long-term gaps in life expectancy between males and females in Russia – close to the largest female advantage in the world – Russia has long had a much higher female sex ratio than other countries. In 1989, there were just 87.7 males per 100 females. As with the Arctic periphery regions of other northern countries, the Russian Arctic has a higher male-female sex ratio than the rest of the country. In 1989, there were 100.9 males per 100 females in the Arctic. During the two decades since the breakup of the Soviet Union and the start of the economic transition, the male sex ratio in the Russian Arctic declined considerably. Only a quarter of the decline in the male sex ratio in the Russian Arctic may be attributed to higher male out-migration, and three-quarters are the result of significantly higher and widening gaps between females and males in terms of life expectancy. Men in the Russian Arctic therefore responded to the social and economic upheavals which impacted the region not by migrating, but by dying prematurely (Heleniak, 2018). The leading causes of death were external ones such as murder, suicide, accidents and cardiovascular disease. Peripheral northern and Arctic regions in Russia have much lower life expectancies than rest of country, and perhaps the widest sex gaps of any region in the world.

According to recent projections, the male sex ratio is expected to increase slowly to 88.6 males per 100 females for Russia, and to 94.3 males per 100 females for the Arctic. But these ratios will still remain far below parity. Chukotka has long had among the highest male sex ratios in the country. However, one peculiarity of these projections, which almost look like an error, is the projected rise in the sex ratio for Chukotka. This is projected to increase from the current 104.2 to 121.6 in 2035.

4. Discussion

While the populations of some Arctic regions are projected to grow and others are projected to decline, there are some common demographic trends which are expected to be reflected in nearly all of these regions.

Aging: As with many countries and regions in the developed world, the populations of the Arctic regions are projected to age in the future. The largest absolute growth is typically projected to be among elderly and retired people. The relative percentage of such populations will increase in all Arctic regions that include age data as part of their projections.

Sex ratios: Arctic regions have typically had rather high male sex ratios, and these are projected to decline. For instance, in Alaska, the ratio was 108.5 males to 100 females in 2010, and this is projected to decline to 104.8 in 2045. Greenland has long had a high male sex ratio, in part because of higher levels of female out-migration. In 1977, there were 118 males per 100 females. This ratio has declined to 112 males per 100 females currently, and it is projected to decline slightly through to 2040, when the ratio will be 109 males per 100 females.

Urbanisation: Urbanisation can be defined in several different ways. One definition is concentration of people in larger urban settlements within a country or region. This is certainly a trend that has been taking place across the Arctic, as people move from smaller settlements up the urban hierarchy and into larger settlements. They do this because of educational and job opportunities in larger settlements, and because of the presence of amenities which the smaller settlements lack. In many smaller Arctic settlements, there is a paucity of transport links, for example. The larger settlements are correspondingly better connected to the outside world.

The population of Alaska passed a threshold recently whereby more than half the state's

population resides in Anchorage and the nearby suburb of the Matanuska-Susitna valley. In 2015, this rose to 54%, and in 2045 it is projected to increase again to 58%. By that year, 70% of the state's population will be concentrated in the Anchorage/Mat-Su region and in Fairbanks, both of which have larger universities and are well-connected, with flights to the lower 48 states.

The populations of the three Northern Territories of Canada reside in a quite limited number of settlements, with large tracts of uninhabited land. As far back as 1971, more than half the population of Yukon was living in the capital, Whitehorse. This share has since risen to the current 70%, and it is projected to increase to 78.5% in 2030. As stated above, all the projected population growth in the Northwest Territories over the next two decades will take place in Yellowknife, when the city's share of the Northwest Territories' total is projected to increase from 48.4% to 52.3% of the population. Nunavut has a more diffuse population, with the capital, Iqaluit, containing only 21% of Nunavut's population. This is one of the few instances where there is projected to be a de-concentration of the population, with 19.4% of Nunavut's population projected to reside in Iqaluit by 2035. However, according to statements made by the Mayor of Iqaluit, there are currently more than 300 people a year moving into the city, which indicates that the projection figures are likely to be too low.¹⁶

The percentage of Greenland's population residing in Nuuk has been steadily increasing, growing from 18% in 1977 to 32% presently. This share is projected to increase to 39% in 2030. It is politically dangerous to mention closing or downsizing smaller settlements in Greenland, but if there was more housing available in Nuuk, it is likely that the population would increase even more. The construction of a new international airport in Nuuk will likely increase its attractiveness, too (Kommuneqarfiik Sermersooq (2016).

¹⁶ Statement made by Mayor Madeleine Redfern at the Arctic Circle Assembly, October 2018.

The government of the Faroe Islands has long had a policy of linking all its settlements through the national road system, via a series of bridges and undersea tunnels. The aim is to connect the entire population and to halt and reduce population decline in the remote villages. In spite of this effort, the proportion of the population living in the capital, Torshavn, has been increasing, and currently 42.0% of the population reside in the capital region. This is a share which is projected to increase to 47.4% in 2055.

Between 1998 and 2017, the percentage of the population residing in the capital area of Iceland increased from 60.4% to 64.1%, due to the long-term trend of migration into (and population concentration within) the Reykjavik capital region (Höfuðborgarsvæðið). This has happened as the economy has modernised, moving away from agriculture and towards services. Over the

projection period, the share of the population in the capital region will increase to 78% (four in five) of the Icelandic population. Over the same period, there will be a decline in the population in the rest of the country.

Within the Arctic regions in Norway, Sweden and Finland, there has been (and will continue to be) a clear trend towards the centralisation of the populations into the largest urban settlements in each (Figure 30). In 1990, between 16% and 42% of the population lived in the largest settlement. Currently, between 21% and 50% now reside in the largest settlement. By 2040, these shares are projected to be between 24% and 55%, with the largest settlements in the three regions (Umeå in Västerbotten, Oulu in Norra Österbotten and Kajaani in Kainuu) containing more than half the region's populations.

Figure 30: Percent of the population in the largest settlement in the Arctic regions of Norway, Sweden, and Finland, 1990 to 2040.

Projections are not available at the municipal level for Russia, but they would likely show the same trend. Since 1990, there has been a significant centralisation of the population within the larger settlements across Russia, especially in the Arctic regions, where it became difficult to maintain smaller settlements and where many were closed or became depopulated.

It therefore appears that overall population size in many smaller Arctic settlements will decline, and that some may even be abandoned. At the same time, much of the growth will be concentrated in larger settlements, and in some cases just one large settlement. Government officials at national and regional levels in the Arctic need to be aware of these centralising trends, and to be able to plan for them.

Identity: Only three regions make projections according to identity – Alaska for Alaska Natives and non-natives, the Northwest Territories for aboriginal and non-aboriginal populations, and in Greenland both for people born inside and outside of Greenland. The percentage of Alaska Natives is projected to increase very slightly, from 19.5% of the state's population currently to 20.5% in 2045. The percentage of aboriginal people in the NWT is projected to decline slightly, from the current 50% down to 48% in 2035. The percentage of foreign-born people in Greenland is projected to increase slightly, from 10.3% currently to 11.8% in 2040. At least as far as these three Arctic regions are concerned, it appears as if the demographic growth rates of native and non-native populations are converging, and that changes in their overall proportion of the population will not change much.

5. Summary

The Megatrends report identified nine trends which impact on Polar peoples (Nordic Council of Ministers, 2011). These include increased urbanisation, the demographic challenge of aging, continued dependency on natural resources, the impact of pollution and climate change on the Arctic environment, the need to transition the Arctic towards the knowledge economy, changing public-private interactions in the sphere of development, the increased use of renewable energy, easier ocean transport across the Arctic brought on by less sea ice, and increased global interest in the Arctic. These trends will impact the future size and distribution of the Arctic populations in different ways.

According to the definition of the Arctic used here (adapted from the AHDR definition – see above), the total population is just over 10 million and will remain at about that level in the future. However, there will be considerable variation in growth rates among the Arctic regions, which is more crucial. Among the Arctic regions, Alaska, Yukon, Nunavut, Iceland, Troms, the Khanty-Mansi okrug, and Chukotka are all projected to experience substantial population increases of more than 10% over the projection period of each. Nordland, Finnmark, Pohjois-Pohjanmaa (North Ostrobothnia) and Nenets autonomous okrug are projected to experience more modest growth of between 5% and 10%. The population of the Northwest Territories, Greenland, the Faroe Islands, Västerbotten, Norrbotten, Lappi, Yamal-Nenets okrug, Yakutia, and Kamchatka oblast are projected to remain roughly the same, neither growing nor declining by more than 5%. Kainuu in

Finland, Karelia, Komi, Arkhangel'sk, Murmansk, and Magadan in Russia are projected to experience a decline in population of more than 5% each.

For the Arctic regions at the national level, Alaska in the United States and the three territories that make up the Canadian Arctic are projected to increase by roughly 20%. The population sizes of Greenland and the Faroe Islands seem to have reached some sort of carrying capacity limit, due to physical and economic factors. These are not projected to change substantially. Though it is being viewed over a longer projection period, the population of Iceland is projected to grow by one-third during its specified projection period, the most of any Arctic region. The overall size of the eight regions which make up the Arctic in Norway, Sweden and Finland are projected to increase modestly, by 2.6% from the current 1.7 million. The size of the Russian Arctic is projected to decline slightly by 2.5%, from the present 7.0 million to 6.9 million in 2035.

This paper has examined population projections for the Arctic states and regions and has come to several conclusions. The global population will continue to increase significantly, which will indirectly impact the Arctic. The populations of the Arctic states (with the exceptions of Greenland and Russia) are projected to have significant population increases. The overall size of the population of the Arctic will stay about the same, with some regions increasing considerably while others are expected to have large declines in their populations. Policy makers need to be aware of these demographic trends when planning for the future.

References

- Alaska Department of Labor and Workforce Development (2016a), *Alaska Population Projections 2015 to 2045*, April 2016 (<http://live.laborstats.alaska.gov/pop/projections.cfm> accessed 9 August 2017).
- Alaska Department of Labor and Workforce Development (2016b). *Alaska Population Overview: 2015 Estimates*, November 2016, p. 39 (<http://live.laborstats.alaska.gov/pop/popestpub.cfm> accessed 9 August 2017).
- Alaska Department of Labor and Workforce Development (2013). *A History of Alaska Population Settlement*, April 2013 (<http://live.laborstats.alaska.gov/pop/estimates/pub/pophistory.pdf>).
- Glomsrød, Solveig Gérard Duhaime and Iulie Aslaksen (eds.) (2017). *The Economy of the North 2015*. Statistics Norway, Oslo-Kongsvinger.
- Grunfelder, Julien, Linus Rispling, and Gustaf Norlén, eds. (2018). *State of the Nordic Region 2018*. Copenhagen: Nordisk Ministerråd, 2018.
- Heleniak, Timothy (2018). "Population, Health, and Migration", Understanding Contemporary Russia, second edition in series "Understanding: Introduction to the States and Regions of the Contemporary World", edited by Mike Bressler, Lynne Rienner Publishers: Boulder, Colorado and London, pp. 237-273.
- Heleniak, Timothy (2017). "Boom and Bust: Population Change in Russia's Arctic Cities", Sustaining Russia's Arctic Cities: Resource Politics, Migration, and Climate Change, chapter 4, pp. 67-87, edited by Robert Orttung, Berghahn Books: New York and Oxford, 2017.
- Heleniak, Timothy (2010). "Migration and Population Change in the Russian Far North during the 1990s", Migration in the Circumpolar North: Issues and Contexts, edited by Chris Southcott and Lee Huskey, Canadian Circumpolar Institute Press, University of Alberta: Edmonton, Alberta, Canada, pp. 57-91.
- Heleniak, Timothy (2009). "Growth Poles and Ghost Towns in the Russian Far North", Russia and the North, edited by Elana Wilson Rowe, University of Ottawa Press: Ottawa, pp. 129-163.
- Heleniak, Timothy and Hjördis Rut Sigurjonsdottir, "Once Homogenous, Tiny Iceland Opens its Doors to Immigrants", Migration Policy Institute, April 18, 2018 (<https://www.migrationpolicy.org/article/once-homogenous-tiny-iceland-opens-its-doors-immigrants>).
- Hill, F. and Gaddy, C. G., 2003. *The Siberian Curse: How Communist Planners Left Russia Out in the Cold*. Washington, DC: Brookings Institution Press.
- Icelandic Regional Development Agency (2018) (<http://www.byggdabrunnur.is/mannfjoldaspa/mannfjoldaspa.html> accessed 10 October 2018).
- Kommuneqarfik Sermersooq (2016), *Nuuk – Arctic Capital: Capital strategy for Nuuk*.
- Larsen, Joan Nymand and Gail Fondahl, eds. (2015), *Arctic Human Development Report: Regional Processes and Global Linkages*, Nordic Council of Ministers, Copenhagen.
- Levin, Michael J. (1991), *Alaska Natives in a Century of Change*, Anthropological Papers of the University of Alaska, Vol. 23, Nos. 1-2, Fairbanks, Alaska.
- Nordic Council of Ministers (2011). *Megatrends*, Copenhagen.
- NWT Bureau of Statistics, Population Projections (<https://www.statsnwt.ca/population/community-projections/> accessed 29 January 2018).
- Nunavut Bureau of Statistics (2018a), Births (<http://www.stats.gov.nu.ca/en/Population%20births.aspx> accessed 1 February 2018).
- Nunavut Bureau of Statistics (2018b), Population Estimates (<http://www.stats.gov.nu.ca/en/Population%20estimate.aspx> accessed 1 February 2018).

- Nunavut Bureau of Statistics (2018c), Population Projections (<http://www.stats.gov.nu.ca/en/Population%20projections.aspx> accessed 1 February 2018).
- Statistics Canada (2015). Population Projections for Canada (2013 to 2063), Provinces and Territories (2013 to 2038), (<http://www.statcan.gc.ca/pub/91-520-x/91-520-x2014001-eng.htm> accessed 24 January 2018).
- Statistics Greenland (2017) (<http://www.stat.gl/dialog/main.asp?lang=en&sc=BE&version=201702> accessed 21 August 2017).
- Statistics Iceland (2017a), Population Projections (<http://www.statice.is/statistics/population/population-projections/population-projections/> accessed 7 August 2017).
- Statistics Iceland (2017b), Fertility and reproduction rates 1853-2016 (http://px.hagstofa.is/pxen/pxweb/en/lbuar/lbuar__Faeddirdanir__faeddir__faedingar/MAN05202.px/table/tableViewLayout1/?rxid=e91870a2-8627-4a67-9f82-16e71a407d2e accessed 7 August 2017).
- Statistics Iceland (2017c), Life expectancy and number of survivors 1971-2016 (http://px.hagstofa.is/pxen/pxweb/en/lbuar/lbuar__Faeddirdanir__danir__danir/MAN05401.px/table/tableViewLayout1/?rxid=5174b2a8-a84c-4a03-8a0d-dd827b3135f3 accessed 7 August 2017).
- United Nations, Department of Economic and Social Affairs, *Population Division* (2017). World Population Prospects: The 2017 Revision, DVD Edition (<http://www.un.org/en/development/desa/population/> accessed 16 August 2017).
- U.S. Census Bureau (2018). *Federal-State Cooperative for Population Projections* (FSCPP) (<https://www.census.gov/programs-surveys/popproj/about/fscpp.html> accessed 5 March 2018).
- U.S. Census Bureau (2015). *2014 National Population Projections Tables* (<https://www.census.gov/programs-surveys/popproj.html>).
- U.S. Census Bureau (2014a). *2014 National Population Projections: Methodology and Assumptions* (<https://www.census.gov/data/tables/2014/demo/popproj/2014-summary-tables.html> accessed 8 August 2017).
- U.S. Census Bureau, *Population Division* (2014b). Table 6. Percent Distribution of the Projected Population by Sex and Selected Age Groups for the United States: 2015 to 2060 (NP2014-T6), Release Date: December 2014 (<https://www.census.gov/data/tables/2014/demo/popproj/2014-summary-tables.html> accessed 8 August 2017).
- Weeks, John. R. (2008), *Population: An Introduction to Concepts and Issues, Tenth Edition*, Thomson-Wadsworth, pp. 340-345.
- Yukon Bureau of Statistics (2017a)., Population Projections 2016 (accessed 29 August 2017 <http://www.eco.gov.yk.ca/stats/pdf/Projections2016R.pdf>).
- Yukon Bureau of Statistics (2017b). Population Report: First quarter 2017 (http://www.eco.gov.yk.ca/stats/pdf/populationMar_2017.pdf accessed 22 August 2017).
- Yukon Bureau of Statistics (2017c). Census 2016: Population and Dwellings (<http://www.eco.gov.yk.ca/stats/pdf/2016PopulationDwellings.pdf> accessed 29 August 2017).

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ISBN (pdf) 978-91-87295-88-1
ISSN 1403-2511
DOI: doi.org/10.6207/WP2020:3.1403-2511