# Migration in the Arctic

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People have been migrating to, from, and within the Arctic regions for centuries. Because of the small overall population size and small size of settlements, migration has a significant impact on overall population change and changing human capital in the Arctic. Much of the migration in the Arctic is driven by changing resource availability. This is true of the migration of Arctic indigenous peoples as well as the movements of outsiders. The various booms and busts of resources drive much of the migration in the Arctic, though climate change is having an increasing impact in some settlements. This chapter examines both internal and international migration movements in the Arctic. Internal flows are those within Arctic countries and regions and include movements up the urban hierarchy from smaller to larger settlements which is the predominate trend. International migration are flows to and from the Arctic from other countries. Flows of people from outside the Arctic has also become common resulting in a large Arctic diaspora population. Following discussion of broad migration flows is a disaggregation of those flows by age, gender, and level of education, key factors affecting human capital in Arctic regions and settlements. The focus of the paper is on how migration flows impact human capital in the Arctic both positively and negatively. Policies of Arctic countries and regions towards migration is examined as the state plays a larger role in impacting the spatial distribution of the population than elsewhere.

# Introduction

Since the time when the first humans crossed the Bering land bridge following the retreat of the last ice age, migration has played a large role in shaping the size, distribution, and composition of the Arctic population. The overall population of the Arctic is quite small and the sizes of even the largest settlements are not very large compared to those elsewhere in the world. Thus, the movement of people into or out of the settlements or regions in the Arctic has an enormous impact on the size and composition of the populations. This chapter provides an overview of recent trends and patterns of migration in the Arctic. It begins by examining some of the main factors influencing

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migration in the Arctic, followed by a comparative look at migration across the region, followed by a region-by-region analysis of migration across each Arctic region.

#### **Factors Influencing Migration in the Arctic**

Migration is defined and usually measured as a permanent change in residence. Migration is referred to as an investment in human capital across space - people migrate in order to improve their quality of life. People migrate to, from, and within the Arctic for the same reasons they migrate elsewhere in the world. The neoclassical economic approach is the oldest theory of migration and holds that income differentials between regions are why people migrate from low-income to high-income regions (Weeks, 2008). Among Arctic regions, and between them and the southern regions of the Arctic countries, there are enormous income differences which drive people to migrate to and from the Arctic. The overall gross regional product (GRP) per capita in the Arctic in 2005 was \$30,000 (USD) (Glomsrød & Aslaksen, 2009). In the Khanty-Mansiy okrug of West Siberia and the Northwest Territories of Canada, the GRP was over \$70,000 per capita. Using the example of the Russian Arctic, the Khanty-Mansiy okrug is the main region for the oil extraction in Russia which is driving so much of the country's overall economic growth. The per capita GRP is \$65,000 in the Yamal-Nenets okrug in West Siberia, the main region for natural gas production in Russia. Because of the high incomes in these two West Siberian regions, they are the only two regions in the Russian Arctic which have experienced net in-migration in the post-Soviet period, while the rest of the Russian Arctic has had considerable depopulation from out-migration. The per capita GRP in much of the rest of the Russian Arctic is less than \$15,000, evidence that two divergent northern economies have developed leading to quite different migration patterns.

Incorporating climate change and the impact that it could play in migration in the Arctic is rather new and thus less well-studied, though the body of knowledge is increasing rapidly. The diversity of potential impacts of "climigration" across the world have hindered development of a unified theory and has also lead to a wide variety of policy responses. Climate change can make some Arctic regions more accessible while rendering others nearly uninhabitable because of reduced sea ice destroying coastal communities or thawing permafrost ruining the infrastructure of inland settlements. Many of the coastal communities in Alaska are facing threats from increased erosion and will likely be forced to move their entire communities in the near future but rising costs, bureaucratic inertia, and lack of community consensus as to destinations are preventing movements (Schweitzer & Marino, 2005). Eighty-six percent (184 of 213) of all villages in Alaska are experiencing problems related to flooding and erosion (Harwood, Carson, Marino, & McTurk, 2011). Some of these communities are receiving considerable national and international attention and are held up as poster children for climigration (Arctic Council, 2004). Many of the coastal villages probably should not have been selected as the sites of permanent settlement as the ancestors of the current residents only used these sites seasonally (Bronen & Chapin, 2013). However, decisions were made by the U.S. government in the late 19th and early 20th centuries to consolidate populations into these locations in order to build schools and provide schooling to Native children. Barge accessibility to be able to ship in construction materials was a key factor in site selection. There is currently no agency with the authority to relocate all the public and private infrastructure of a community threatened by climate change hazards and to assist with effective relocation in a new location. In large Arctic urban centers such as those in Russia, rapidly thawing permafrost is causing infrastructure to collapse and become unusable at an increased rate (Jaycen, 2014). While this doesn't lead to immediate migration, if a large enough portion of the infrastructure becomes uninhabitable, it could lead to the need for relocation. It should be noted that in both the cases of coastal Alaska and urban centers in Arctic Russia, that the impacts of climate change on migration are more of a future threat and that the populations of some of the most erosion-threatened Alaskan communities are currently stable or are growing in population (Hamilton L. , 2014; Hamilton & Mitiguy, 2009).

The state plays a role in attempting to influence the spatial distribution of the population everywhere but more so in the Arctic, especially vis-à-vis indigenous peoples who have been forcibly moved, consolidated into unfamiliar urban settlements, and had their children placed into boarding schools. Since Arctic regions are peripheral to the main population and economic centers of the Arctic states and costs are high, the subsidization or lack thereof of transportation, consumer goods, and wages plays a role in migration and the distribution of settlements across the Arctic. For example, in the Canadian North, decreases in federal transfers in recent decades and the withdrawal of the state from economic and social planning led to increased hardship in smaller villages, which lead to their abandonment and concentration of the populations into larger communities (Southcott, 2010).

Migration is a rather complex phenomena and there is not one unified theory to explain why people migrate. Different disciplines approach migration differently, have different research questions, and approach the study of migration at different levels of analysis (Brettell & Hollifield, 2000). Thus, in addition to income, climate, and the role of the state explaining migration, there are a variety of non-income factors that need to be considered such as the availability of housing, education, health care, and other social services, the availability of jobs appropriate to one's skill level and preferences, and social and family ties.

### **Comparisons of Migration Across the Arctic**

This section compares migration across the Arctic for several key indicators – net migration and natural increase, place of birth, age and gender.

#### Arctic Regions by Natural Increase and Net Migration

Population growth, or decline, for any settlement, region, or country can be disaggregated into natural increase or decrease and net migration. Natural increase is the difference between the number of births and the number of deaths while net migration is the difference between the number of in-migrants and out-migrants. Whether net migration is positive into a region (more people coming into a region than leaving) or negative (more people leaving the region than coming into it) has primarily to do with economic opportunities in the region versus opportunities elsewhere, as noted above. Because migration tends to be age selective among people in the youngadult ages when mobility is highest, Arctic regions gaining people from migration tend to gain large numbers of people in the young-adult ages, and their children since the young-adult ages are also the prime child-bearing ages. Depending on the nature of economic activity there might be a significant imbalance in the gender ratio among the incomers, which is certainly the case in many Arctic regions and communities. Demographically, this tends to keep the population of a region quite young, in addition to other economic influences such as being a boost to economic growth. On the other hand, regions experiencing population declines from migration are losing large numbers of people in the young adult ages, exacerbating population decline and serving to dampen economic dynamism. As will be illustrated, many Arctic regions and settlements are on the extremes of population change from high rates of in-migration or out-migration.

Figure 1 shows population change in the Arctic disaggregated into natural increase and net migration for selected Arctic regions since 2000.<sup>1</sup> Nunavut has grown the most of any Arctic region because its young age structure and high fertility have led to high natural increase, which is slightly offset by net out-migration. Alaska, the Khanty-Mansiy okrug, and Iceland have similar patterns of high natural increase and moderate in-migration as all three regions have rather prosperous economies. (It should be noted that Alaska is a large and demographically heterogeneous region with a majority of the population residing in a few large sub-Arctic urban centers. Generally, the North Slope, Nome, and Northwest Arctic boroughs are considered Arctic for analytical purposes. These, along with other rural boroughs generally have high natural increase, combined with net outmigration. See Hamilton, Lammers, Glidden & Saito, 2014.) In Yukon, population growth was due equally to natural increase and net in-migration. These were the only three Arctic regions which grew faster than the global rate, which was all obviously due to natural increase.



The population of the Yamal-Nenets Okrug grew because of natural increase due to its younger age structure. At the same time, there was net out-migration from the region in spite of its strong economy from gas production. The Northwest Territories also had a similar pattern of natural increase combined with out-migration and is actually seeking to attract workers (CBC News, 2014).

Greenland's population stayed about the same over the period because the natural increase of the country's young population was offset by the same amount of net out-migration. Yakutia has a similar pattern to that of Greenland. All other regions of the Russian Arctic had population declines, some quite steep, mostly due to the continued large exodus of peoples from the region. In a few of the smaller homelands of Arctic indigenous peoples such as the Taymyr, Evenki, and Chukotka okrugs, moderate natural increase slightly offset the large out-migration. In addition to overall population decline, the populations of these regions are aging because much of the migration is among the highly mobile young working ages and losing some of its most highly-skilled people.

#### The Arctic as a Region of Outsiders

The populations of the Arctic are made up of large numbers of people who originated from outside the region. This has both positive and negative consequences. On the positive side, migrants tend to be younger, better educated, and more entrepreneurial thus bringing new energy and ideas to the region. On the negative side, people who migrate once tend to use migration as a strategy of adaptation in the face of changing circumstances or declining economies. Of the 1.4 million persons who migrated from the Russian North during the first decade of the economic transition that so transformed the region, 1.3 million were people who were born and had social ties elsewhere (Heleniak, 2009).

In 2010, in the highly mobile United States, 41 percent of the population were born outside the state where they are currently residing, including 13 percent who are foreign born (Ren, 2011). In Alaska, 61 percent of the population were born outside of Alaska, including 7 percent who were born abroad (Figure 2). Among U.S. states, only Arizona, Florida, and Nevada had higher shares born outside of these states. According to data from the 2006 Canadian census, all three Arctic regions have had higher portions of their populations migrate over the previous 5-year period than the national average. Globally, 3 percent of the world's population resides outside their country of birth. The data for Greenland, Iceland, and the Faroe Islands show that percent of the population born outside of these countries are respectively 11, 11, and 15 percent, much higher than the global average.

Like the other Arctic countries, Russia has a large foreign-born population. The 11.2 million foreignborn persons in Russia are the second-largest stock in the world after the United States. The regions of the Russian Arctic have large numbers of people who were born either elsewhere in Russia or outside of Russia.



In 2010, for all of Russia, 31 percent of the population were born outside the region they were living in, of which 8 percent were foreign-born. For all Arctic regions, the percent born outside the region were much higher. The highest shares of outsiders were in the Khanty-Mansiy and Yamal-Nenets okrugs, where 70 percent were born outside the region. All of the Arctic regions also had much higher foreign-born populations. Along with Moscow and St. Petersburg, many of the periphery regions in the Arctic and Siberia have the highest rates of migration turnover. In these regions there are high levels of both in-migration and out-migration and there is a high correlation between the two indicating considerable migration turnover in the Arctic regions, and a quite footloose population.

# Age Structure of Migration in the Arctic

People who migrate are quite selective and distinct by age, level of education, level of risk taking and entrepreneurship, and in some cases, gender, from populations who do not migrate. People are most mobile in their young adult ages when they are starting their careers and starting families. This high mobility of migrants to the Arctic can be seen by contrasting the age structures of 'natives' and migrants in two Arctic regions – Alaska and Greenland (Figure 3a & 3b). The two examples are meant to be illustrative and not necessarily comparable. Because of the different ways 'native' is defined in Alaska and Greenland (and elsewhere in the Arctic), a strict comparison cannot be made.

The Alaska Native population has a much younger population as indicated by the much larger cohorts of persons under age 20, 39 percent of all Alaskan Natives against 27 percent of non-natives. Starting at age 20, the non-indigenous population becomes relatively larger in part because these are the most mobile age groups when young people begin to migrate to Alaska in large

numbers. Non-indigenous males also have a higher male sex ratio than indigenous, 110 males per 100 females against 102, as migrants to Alaska remain predominantly male.



who designated themselves to be American Indian or Alaskan Native in the census. Greenland, Statistics Greenland.

There are similar differences in the age and sex compositions in Greenland, between those born in Greenland and migrants who were born outside of Greenland. Thirty-one percent of those born in Greenland are below 20 against only 12 percent of those born outside. For persons not from Greenland, it is obviously a place of work as 80 percent of those born outside Greenland are in the working ages of 20 to 64, versus 61 percent of those born in Greenland. Further demonstrating that Greenland is a place of work for those from outside the country is that the male-female gender ratio is 200 males per 100 females for those born outside Greenland. These differences are especially pronounced from age 38 and older as the gender ratio for those born outside the country is 2 or 3 males per each female.

Arctic regions tend to have higher male sex ratios than the southern regions of the Arctic countries because of gender-specific in- and out-migration trends. Figure 4 shows the gender composition of the population by region in the Arctic (using the regions used in the Arctic Human Development Report and shown relative to the national averages). Regions in blue have higher male sex ratios; the darker the shade of blue, the higher the male sex ratio relative to females. Regions in pink have higher female sex ratios. As can be seen, the majority of regions in the Arctic have significantly higher male sex ratios than the national averages. Only a few of the larger urban settlements, with more diversified economies, have high female sex ratios.

This is due to two gender-specific migration trends. The first is that because of the economic structure of the Arctic, with an emphasis on resource extraction, transportation, construction, and fishing - typically more male occupations - more males tend to migrate to the region than females. In the early days of outsider migration to the Arctic, the flows were significantly more male. According to the 1900 census for Alaska, at the time of Alaska Gold Rush, there were 258 males per 100 females. The male sex ratio steadily declined as more families moved to the area but then increased again to 162 males per 100 females in 1950 with the migration of predominantly-male military personnel during World War II and the onset of the Cold War. Again, a pattern of more permanent settlement followed including wives and children which lower the male sex ratio. A similar pattern of high male gender ratios in the period of initial contact and exploration took place across the Arctic. However, as the economies of Alaska and other Arctic regions have diversified the percent male has declined. The second trend is that many females in the Arctic are becoming more educated than males and seeking jobs in the larger cities or even outside the Arctic (Rasmussen, 2011). Women across many Arctic regions are gaining the necessary skills to compete in the knowledge economy. This allows women in the Arctic to compete in a different and wider labor market, which often takes them out of the Arctic. This outmigration of women can have negative consequences on life in smaller, rural areas in the Arctic where the deficit of women is most pronounced.



Figure 4: Gender composition of the Arctic, 2006

# Major Migration Trends in Each Arctic Region

This section reviews past and current migration trends in each Arctic region.

# Alaska

Between the time of the purchase of Alaska from Russia in 1867 and the Alaska gold rush in 1897, the population grew very little. In the first census conducted in 1880, the population of Alaska was

33,426 of which only 430 were white settlers (Sandberg, 2013). The discovery of gold in Alaska caused the first of many huge influxes of people into the state. Because mining primarily attracted men, this also caused a jump in the male-to-female sex ratio from 150 males per 100 females in 1890 to 258 in 1900. While the male sex ratio has since declined, with the 109 males per 100 females in 2010, this is the highest male sex ratio of any state in the country.

The influx of outsiders starting with the gold rush would cause a steady decline in the percent Alaskan Native (Figure 5). The percent Alaskan Native was 93 percent in 1819 and steadily declined to 73 percent in 1890 (Levin, 1991). It dropped considerably in 1900 to 46 percent with the influx of outsiders following the gold rush, when the population more than doubled. There would be another large decline from 45 to 26 percent between 1940 and 1950 when the population increased from 72,000 to 129,000 with the influx of military during WW II and the start of the Cold War. Many soldiers sent to Alaska during the war decided to stay. The population has steadily increased to currently 710,000 as a result of the oil pipeline in the 1970s and other factors. The percent Alaskan Native currently stands at 17 percent, which while low by historical standards, is a slight increase over recent decades.



Figure 6 illustrates the importance of migration as a component of population change for Alaska. Even with a relatively larger population than many other Arctic regions, migration is a much larger and more volatile component of population change than natural increase. A number of trends in the economy of Alaska and the rest of the United States drive patterns of migration in the state. Historically, Alaska has gained from migration from the rest of the United States when unemployment in the rest of the country is high. The economy of Alaska tends to be counter-cyclical to that of the U.S. as a whole. After World War II, there was a build-up military personnel in

the state. There was another buildup during the Vietnam War followed by a high influx during the construction of the Alaska pipeline in the 1970s, followed by a large outflow when construction was completed. The state had another large influx of migrants during the oil boom of the 1980s when prices were high, followed again by an outflow when prices fell. There was a smaller outflow from military base closures during the 1990s. Alaska experienced a small inflow during the Great Recession of the late 2000s.

Figure 6: Components of Population Change for Alaska, 1947-2012



# Components of Population Change for Alaska, 1947-2012

Like other Arctic regions, there has been increased concentration of the population into the largest urban settlements. In 1960, 36 percent of the population of Alaska lived in Anchorage. This share has steadily increased to about 42 percent currently. Anchorage's share has leveled off as there has been increased population growth in the Matanuska-Susitina Valley, which is basically a suburb of Anchorage. Combined with Fairbanks, 55 percent of Alaska's population resides in these two settlements. There has been a long-term trend of depopulation of rural areas in Alaska from a combination of high energy prices, high living costs and large Permanent Fund dividend payouts (annual payments to all residents of Alaska from oil tax revenues). The share of Alaskan Natives who reside in the five most-populous boroughs increased sharply from 42 to 49 percent between 2000 and 2010 (Sandberg, 2013). This is not to say that Alaskan Natives are completely abandoning subsistence lifestyles and villages for wage jobs in urban centers but with improvements in transport and communications, there are certainly becoming more aware of opportunities elsewhere. Similar to other Arctic regions, it is women who are moving out of the villages in large numbers, a trend which continues (Hamilton L. C., 2010; Martin, 2009; Howe, Huskey, & Berman, 2014). According to both survey and census data, young women in villages tend to view their future career paths leading them towards larger urban centers in Alaska and elsewhere. They tend to gain more education, which many young men view as a more female activity. In four regions of rural Alaska – Bethel, Nome, the North Slope, and Northwest Arctic – the bulk of settlements of less than 1,000 people have less than 50 percent female among those ages 20 to 39 years. In the hub towns in each of these regions – Bethel, Nome, Barrow, and Kotzebue – women outnumber men in this age group as young women take advantage of job and educational opportunities more than young men.

In a trend seen elsewhere in the Arctic, there are growing numbers of Alaskan Natives residing outside of Alaska. In 2010, more than a quarter or persons who identified as Alaskan Native lived outside of Alaska, with 9 percent of the national total residing in Washington State, the closest state and the first stop of many flights to and from Alaska (Hunsinger & Sandberg, 2013).

### Canadian North

Population growth from migration in the Canadian North is subject to the same boom and bust patterns found elsewhere in the Arctic. In the first population census following the Klondike Gold Rush, the population of Yukon had swelled to 27,219 and that of the Northwest Territories (which then included Nunavut) to 20,129 (Figure 7).



In what had been previously been a largely indigenous population (including North American Indian (First Nation), Métis, and Inuit), the percent non-indigenous was 85 percent of the population. Following realization that most miners would not make their fortunes in the North, the population fell to less than one-third of its 1901 level by 1911. The percent non-indigenous would continue to

decline, reaching a low of just 14 percent of the northern population in 1931. The population of the NWT would not reach the levels seen during the Gold Rush period until 1961 and the Yukon would not reach that level until 1981. In recent decades, both territories have experienced continued population growth fueled in part by migration and also from having high fertility because of their younger age structures from having large migrant populations. The newly-formed territory of Nunavut is also growing but because of the higher fertility of the predominantly indigenous population as there has been steady out-migration from the region. With increased migration, the share indigenous has declined and the entire Canadian North is now roughly half indigenous and half non-indigenous.

Due to an increase in migration, Yukon had the highest population growth of any Canadian province or territory between the 2006 and 2011 censuses, growing by 11.6 percent (Yukon Bureau of Statistics, 2013). While some of this high growth is due to its small population base, mostly due to expansion of mining, Yukon has had consistent population growth over the past 50 years, declining only between the 1996 and 2001 censuses due to the closure of the Faro mine. Over the decade since 2003, Yukon has had positive net migration into the region each year (Yukon Bureau of Statistics, 2009). An illustration of the sizeable impact of migration on small Arctic populations is that in 2009 in Yukon, natural increase added 586 people to the population (380 births and 206 deaths), while migration added 652 (2,785 in-migrants and 2,133 out-migrants) (Yukon Bureau of Statistics, 2010). In 2010, 25 percent of females and 28 percent of males had not been residents of Yukon five years earlier (Yukon Bureau of Statistics, 2013). Showing the age selectivity of migration, young adults between 25 and 35 are the least likely to have been in the population five years earlier. In a trend similar to other Arctic regions, 80 percent of this growth was concentrated in the capital of Whitehorse. In 1971, the number of people in Whitehorse surpassed the number of Yukoners in the rest of the territory; that ratio has been growing ever since. Currently, 68 percent of the territories population resides in Whitehorse.

In the NWT, the population has remained at the same level since 2006 as natural increase has been offset by approximately the same amount of net out-migration and the population now stands at 43,459 (NWT Bureau of Statistics, 2014). The high natural increase is attributable to the NWT having one of the youngest populations of all provinces and territories of Canada. Going back further to 1992, there have only been 5 of 22 years in which there has been net in-migration to the region and there has been an overall net out-migration of 7,474 people over this period, which is a remarkable amount for such a small population. The general pattern over the past decade has been population losses from migration to the other provinces and gains from international migration. Diamond and gold mining projects which drive a lot of the migration are proceeding slowly or are being cut back. Similar to the trend in the Yukon, there has been increased concentration of the population into the capital of Yellowknife. The share of the territory's population residing in Yellowknife has increased from 32 percent in 1981 to 46 percent in 2011 (NWT Bureau of Statistics, 2012 February 8).

The migration and population patterns in Nunavut are similar to those in the NWT. Over the past decade, there have been 6,374 more births than deaths, attributable to the young age structure and

high fertility of the largely Inuit population. This has been combined with a net out-migration of 1,671 causing considerable population increase. Nearly all of Nunavut's migration exchange is with other provinces of Canada as there is very little international migration. Ontario is a large and increasingly important source and destination of migrants from Nunavut. In 2013, 32 percent of inter-provincial in-migration was from Ontario and 37 percent of out-migrants went to Ontario (Nunavut Bureau of Statistics, 2014). Because of a quite deliberate policy to decentralize jobs in Nunavut, Iqaluit's share of the territory's population has declined from 21.1 percent in 2006 to 20.3 percent in 2013, thus bucking a pattern seen in most other Arctic regions.

# Greenland

The population of Greenland grew slowly and remained largely Inuit until Danes started to migrate to the island. In 1901, the population was 11,893 and only 2.3 percent were born outside Greenland (figure 8).



The population grew largely because of the higher fertility of native Greenlanders and improved mortality but also partially due to the influx of outsiders from Denmark. The percent of the population born outside Greenland peaked at 19 percent in 1974 when home rule was introduced and there were fewer positions available for Danes. This period of a large share of Danes also marked the beginning of high female outmigration when Greenlandic women married Danish men who tended not to stay in Greenland permanently (Hamilton & Rasmussen, 2010). The percent of the population born outside Greenland has continued to decline as Greenlanders assert more control over their economy and government affairs and now stands at 11 percent. The population of Greenland reached 55,000 for the first time in 1989 and has grown quite slowly since then as natural increase has been almost exactly offset by out-migration. The total population size has remained

remarkably stable at just over 56,000 for the past fifteen years. With increased contact with Denmark and Danish citizenship, it has been relatively easy for Greenlanders to migrate to Denmark. In 2007, there 13,482 Greenlanders living in Denmark, meaning that roughly one-quarter of the Greenlandicborn population resides outside the country. Again, this is a predominantly female out-migration as the ratio is 70 males to 100 females among this diaspora population, contributing to the relatively higher percent male in Greenland. With 112 males per 100 females, Greenland has the highest male sex ratio of any region in the Arctic (Heleniak, 2014).

Greenland has had a similar internal migration pattern as many other Arctic regions with depopulation of many rural villages and increased concentration into larger settlements, usually the capital. One factor driving this trend in Greenland has been a deliberate government policy towards centralization of government services because a decentralized system of settlements is expensive and faster and more dynamic growth can be achieved by focusing on the larger urban settlements. The policy of equal prices for consumer goods in all settlements was abolished in 1994 and in 2005, the equal price system for electricity and water was replaced by a more market oriented system causing huge price increases in smaller settlements and inducing some to migrate. The percent of Greenland's population living in Nuuk has grown from 17 percent in 1977 to 29 percent in 2013 (Statistics Greenland, 2014).

#### Iceland

Throughout its history, Iceland has had wild swings in both natural increase and net migration (Figure 9). The years of large excesses of deaths over births were due to periodic crop failures and epidemics. Because of low natural increase, population growth was rather slow and Iceland's population did not reach 100,000 until 1926. Because of Iceland's geographic isolation, migration did not play a very significant role in population change in most of the 1800s (recording of international migration started in 1801). In the late 1800s, there was a similar emigration to the United States that took place from much of Europe. Starting in 1945 after the end of World War II, when Iceland became independent from Denmark, a period of relative prosperity and economic transformation began as did much higher natural increase which resulted in relatively rapid population growth, with the population reaching 200,000 in 1968 and 300,000 in 2007. In recent decades, migration has swung rather wildly between periods of net immigration and emigration depending on the fortunes of the Icelandic economy relative to others. During the boom years from 2004 to 2008, prior to the 2008 banking crisis, there was a net immigration of 15,921. In the years, 2009 to 2012, following the crisis, there was a net emigration of 8,692. Between 1961 and 2013, there was a net emigration of 23,658 Icelandic citizens and a net immigration of 27,524 foreign citizens. The foreign-born population in Iceland has increased from 4.6 percent in 1998 to 11.8 percent in 2009, before declining to 11.0 percent in 2013 (Statistics Iceland, 2014). In 2013, the largest group of foreign-born citizens were from Poland (9,404 or 2.9 percent of the entire population), many of whom came to work in various construction projects such as the aluminum smelter and associated hydroelectric development in east Iceland. This is down from a peak, as about 20 percent of the Polish-born population in Iceland left following the financial crisis of 2008.

The trend in internal migration in Iceland is similar to other Arctic countries with increased concentration into Reykjavik and the larger capital region. Reykjavik's share of Iceland's population went from just 8.5 percent of the population in 1901 to 38.2 percent in 1990 and the larger capital region going from 10.5 to 57.1 percent over the same period (Statistics Iceland, 2014). Reykjavik's share peaked in the early 2000s at 39.4 percent and has declined slightly to 37.2 percent in 2013 in part because of continued growth in the larger capital region, which now contains roughly 60 percent of the country's population.



### Russian Arctic

The manner in which the centrally-planned economy of the Soviet Union went about developing the resources of its Northern and Arctic periphery regions was quite different from that of other Arctic countries (Hill, 2003). This resulted in a much larger overall population and much larger cities than in comparable Arctic regions elsewhere. According to Marxist theory, nature existed to serve the needs of humans. The Soviet Union had a number of examples throughout its history where this concept was put into practice. Probably the greatest example was its attempt to overcome the harsh climate and remoteness of the Arctic in developing the rich natural resources of the region which were so crucial to the Soviet economy and which remain vital to the growth of the Russian economy.

For planning, economic development, statistical and other purposes, the Russian government defines both a set of northern and Arctic region.<sup>2</sup> This section will examine migration trends in the broader fifteen regions classified as the Far North or simply the North.

The development and securing of a necessary labor force in the North proceeded in several overlapping stages (Heleniak, 2009). The first was through the use of forced labor which was a part

of the GULAG system where millions were sent to Siberia and the Arctic to rapidly industrialize the Soviet Union starting at the time of the first Five-Year Plan in 1928. Later a system of wage increments and other benefits were paid to lure people to migrate to and work in the North. Transport to the region and consumer goods were heavily subsidized. At the end of the Soviet period, all of the various subsidies for northern development were estimated to cost 3 percent of GDP. At that time, there were 9.5 million people living in the North and nearly 2 million in the Russian Arctic.

The breakup of the Soviet Union, liberalization of the society including freedom of movement, and the shift from a centrally-planned to a market economy caused a shift in the direction of migration in the North from moderate in-migration in the 1980s to rather large scale out-migration in the post-Soviet period. The role of the state in northern development decreased considerably and development became governed by market principles. Subsidies for transport, wages and benefits, and other necessities were largely eliminated causing a huge increase in the cost of living resulting in a large-scale exodus from the region (Figure 10).

Figure 10: Net Migration by Region, 1989 to 2008 (%)



# Net Migration by Region, 1989 to 2008 (percent)

Source: Rosstat, Demographic Yearbook (selected editions).

By 1990, all northern regions had more people leaving than arriving and this trend has continued past 2000, albeit at much lower rates than the early 1990s. The year of the greatest out-migration was

1992, the first year of the economic reforms and the year that prices were liberalized when the market cost of living in the northern periphery began to be felt. Over the entire period, all northern regions except for the Khanty-Mansi Autonomous Okrug have had out-migration. Eleven of the fifteen northern regions have had one-quarter or more of their populations migrate out since 1989. The only exceptions in addition to the Khanty-Manisy okrug were the Yamal-Nenets okrug and the Karelian Republic and Archangelsk oblast. The rates of out-migration increased to the east and in regions with smaller populations. At the extreme are Magadan, which saw an out-migration of 62 percent of its population and Chukotka, from which nearly three of every four persons migrated out causing the population to fall from 164,000 in 1989 to just 51,000 currently.

The population of the entire Russian North declined by 20 percent between 1989 and 2013, from 9.4 million to 7.6 million. Migration has been the main driving force of population change over the period of the economic transition, with a 22 percent population decline from migration. Pointing to the fact that two distinctly northern economies have developed during the post-Soviet, only two northern regions, the Khanty-Mansiy and Yamal-Nenets okrugs have had population increases since 1989. These are the two oil and gas producing regions of Russia. For the Khanty-Mansiy region, its population growth of 24 percent consisted of a natural increase of 19 percent and positive net migration of 4 percent. For Yamal-Nenets, its growth of 10 percent consisted of natural increase of 21 percent offset by outmigration of 12 percent. These two regions had by far the highest percent natural increase in the North because of the young age structure of their populations which result from having such large populations of in-migrants.

There was also a clear trend towards population concentration across the North as in all but three of the northern regions, the regional center increased its share of the region's population between 1989 and 2010. At the other extreme was the closure or abandonment of many smaller settlements in the North. Between 1989 and 2002, the number of settlements in the North declined by ten percent. At the time of the 2002 census, when census takers arrived, they found that 12.2 percent of villages were discovered to be ghost towns. These were settlements that had been previously been populated but which on census day were bez naseleniya (without population). An extreme example is that of Magadan, a key gold producing region. In the 2002 census, Magadan had the highest share of villages without people in Russia, 42 percent. In Magadan, the urban population declined from by slightly more than half from 326,000 in 1989 to 150,000 in 2010, while the rural population declined spectacularly from 60,000 to just 7,000 over the same period. While the population of the city of Magadan declined by a third from 152,000 in 1989 to 96,000 in 2010, its share of the region's population increased from 39 to 62 percent. Thus, now two-thirds of the total and urban population resides in the regional center of Magadan, with much of the rest of the large region very sparsely populated, an example of how the withdrawal of state support has caused the settlement structure to contract.

While this large migration represents an adjustment to the counterfactual size and distribution of a population in the Russian North that might have been if the region had been developed under market conditions, there was considerable path dependency in terms of both infrastructure and settlement structure as a result of decades of northern regional development under central planning.

As with any migration stream, those who left tended to be young, more educated, and more capable, leaving behind an older and less educated population without the resources or capability to migrate away from the region.

A variety of migration assistance programs were developed at the federal, regional, and enterprise levels to assist northerners to migrate away from the region. This was done because of their increased burden on the state but also partly for social reasons, as it was often those most vulnerable who had the least ability to move who were left behind. However, most of these programs had low take-up rates and were poorly funded and were thus able to assist with the out-migration of only a small portion of the northern population who wished to leave. Most of those who did migrate away from the region did so on their own with little state assistance. After more than two decades since the start of the economic transition, those who wish to leave the North have done so and the population size and settlement structure has stabilized.

In 2012, the population of the North declined by only 8,000 persons or 0.1 percent, the smallest rate of population decline in the post-Soviet period. The populations of the Nenets, Khanty-Mansiy, and Yamal-Nenets okrugs were all growing moderately. The populations of the Evenki Okrug, Sakha Republic, Chukotka Okrug, Kamchatka Oblast, and Sakhalin Oblast appear to have stabilized are experiencing no change. The populations of the other northern regions continue to decline albeit at rather low rates.

While the direction of net migration for the North and most northern regions has been negative for most of the past two decades, the direction of the migration flows has hardly been unidirectional as there have been large flows both from and to the North. The northern regions have always had higher rates of migration turnover than the rest of Russia, meaning that more people are moving to, from, and within the North than the rest of the country. In 1993, near the peak year of net outmigration, for every 10 persons leaving the North, 6 people migrated to the region (Rosstat, selected years). By 2009, the ratio of in-migrants to out-migrants had risen to 8 to 10. Thus, while there more people migrating away from the North than to the region, for many the North is still an attraction, at least temporarily. As was the case during the Soviet period, the population of the North is rather footloose and does not have a strong attachment to place, which has implications for human capital (Heleniak, 2009).

# Conclusion

Based on current migration patterns in the Arctic several trends about migration in the future can be identified. This is already the case in many Arctic regions. First, even though there is increased attention to the Arctic and increased resource development, much of the resource development requires rather small and concentrated workforces, thus with a number of local examples, there is not likely to be a huge influx of people to the Arctic in the foreseeable future. According to projections in the forthcoming AHDR, the population of the Arctic is projected to increase only slightly from 4.0 million in 2010 to 4.2 million in 2030 (Heleniak, 2014). The period of rapid growth of the Arctic population from migration seems to be subsiding. Between 2000 and 2010, the population of the Arctic actually declined slightly, by 56,000 people or 1.4 percent. Second, in spite

of the overall decline in migration into the Arctic, with more countries becoming interested in the Arctic, people from a wider variety of countries will come to the region, many as labor migrants. Third, as documented above in the section on migration in each Arctic region, there is a clear trend towards increased migration into the larger urban areas in the Arctic that is expected to continue.

#### Notes

- For the purposes of this chapter, the Arctic encompasses Alaska, the three northern territories of Canada – Yukon, the Northwest Territories, and Nunavut, Greenland, Iceland, the Faroe Islands, and the fifteen regions of Russia classified as the Far North. The number of Arctic regions shown in various tables differs because of data availability. This definition differs slightly from that used in the Arctic Human Development Report.
- 2. The entire territory of ten regions are classified as being in the Far North (Krainyy Sever) Nenets Autonomous Okrug, Murmansk Oblast, Yamal-Nenets Autonomous Okrug, Taimyr Autonomous Okrug, Evenki Autonomous Okrug, Republic of Sakha (Iakutia), Chukotka Autonomous Okrug, Kamchatka Oblast, Koriak Autonomous Okrug, and Magadan Oblast. The Russian government classifies fifteen regions as belonging to the Far North on the basis that all or a majority of their territory is classified being in the Far North. In addition to the ten regions listed above, the following are also classified as the Far North - Republic of Karelia, Komi Republic, Arkhangelsk Oblast, Khanty-Mansi Autonomous Okrug, and Sakhalin Oblast. The city of Norilsk is also included this definition of the North. Russia also defines certain regions as being Arctic, which is a subset of those defined as northern. According to this definition, the Russian Arctic includes the territory of Murmansk Region, the Nenets, Chukchi and Yamalo-Nenets Autonomous Regions, the municipal formation of Vorkuta (Komi Republic), the municipal district of Norilsk, as well as several areas of Yakutia, two districts of Krasnoyarsk Territory and municipalities of Archangel Region (Marinelink.com, 2014). This is similar to the definition of the Arctic in Russia used in the Arctic Human Development Report (Arctic Council, 2004: 17-18).

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