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The Greenlandic Economy – Structure and Prospects

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# The Greenlandic Economy

## – Structure and Prospects

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**Abstract:**

Greenland is a vast country with a small and geographically dispersed population. These conditioning factors pose a particular challenge for a natural resource-based economy. Greenland is thus in many respects unique and yet has to find a way to ensure a self-sustaining economy. This requires an economic development which addresses current economic and social problems, makes the economy independent of transfers from outside, and provides for a satisfactory increase in living standards. Essential for this is a transformation such that the economy does not only rely on renewable natural resources (fish) but also on non-renewable natural resources (minerals). As a background for discussing these issues, the paper first briefly lays out the historical development of Greenland. The overall structure of the Greenlandic economy is laid out, and the major challenges to achieve a self-sustaining economy are discussed.

JEL: O10, O52, R10.

Keywords: Economic development, economic independence, small-states, natural resources.

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## 1. Introduction

Global warming and increasing global demand for natural resources have fuelled interest in the Arctic area in general and in Greenland in particular.

Greenland is vast and has a breath-taking nature, but in terms of population it is tiny. Measured by area Greenland is the 12<sup>th</sup> largest country in the world (area 2,166,086 km<sup>2</sup>), but only about 20% of this is ice-free (410,449 km<sup>2</sup>). The population constitutes about 56,000 people, most of whom live along the west coast in small towns and settlements (the by far largest town, the capital Nuuk, has 17,000 inhabitants; there are 16 towns and 58 registered settlements).

Distance matters in Greenland. Situated in the North, distances are far to potential markets for both exports and imports. Distances are also large within the country (largest distance North-South 2,670 km, East-West 1,050, Coastline 44,087 km), and the population is scattered around a vast area with no two towns connected by roads, implying that transport is either by sea or air involving high transport costs in terms of time and/or money. A scattered and tiny population has historically reflected the necessity of proximity to fishing and hunting areas and how large a population the area could sustain.

One may thus characterize Greenland as little-big. In economic terms the options are thus very different from most other countries. Significant barriers arise from the combination of a difficult geography and a small population. It may thus be argued that the economy is made up of a number of segmented areas between which there are barriers for economic integration and interaction. Despite globalization, geography still matters, and proximity to trading partners remains an important factor for international trade and thus economic development and growth. The background factors thus include small scale disadvantages (difficulties in releasing economies of scale) and difficulties in meeting even the most basic principle of a market economy, namely the potential entry of competitors to curtail market power and ensure a competitive market process. A direct and simplistic comparison to other countries provides a biased idea of the options and possibilities available in Greenland. Yet Greenland has to meet the requirements of global markets if it is to develop a self-sustaining economy.

The economic possibilities are tied to exploitation of natural resources – renewable and non-renewable. Historically natural resources (fisheries, hunting and mining) have been crucial and will remain so in the future but with increasing focus on the exploitation of non-renewable resources (minerals and fossil fuels).

Since the mid-20<sup>th</sup> century Greenland has experienced dramatic changes in social conditions and material living standards. Greenland used to be an isolated fishing and hunting society with a low standard of living, while today it has a living standard on par with several OECD countries. Housing and health conditions have been significantly improved. Over half a century Greenland has undergone a process which for most other countries has evolved over a couple of centuries. Such a quick and dramatic change does not proceed without problems; human, social and economic. Old structures are dismantled and new created simultaneously with strong outside influence on society at large. An assessment of the Greenland society and economic structure thus depends critically on whether one focuses on the large and dramatic improvements over a short period of time, or the contemporary economic and social problems compared to high-income countries.

In most OECD countries economic development and growth have run through a process of adjustment from primary sectors over industrialization to a service economy. In the case of Greenland, the industrial phase has never materialized, and no important industries have developed except those related to fishing. Fishing – and associated activities – remains the backbone of the Greenland economy in combination with grants from Denmark and the EU.

This paper offers an overview of the economic situation, challenges and prospects for the Greenland economy. It starts with a brief historical overview and then turns to a characterization of living standards in international comparison, and the structure of the economy is laid out. Various aspects including income distribution, social issues, migration, education as well as business cycle fluctuations are reviewed. The paper ends by a discussion of the prospects of making the Greenland economy self-sustaining with a living standard comparable to that of the Nordic countries.

## 2. Brief historic overview<sup>1</sup>

It is beyond the scope of this paper to give a detailed account of the history of Greenland, but there are some key points worth making since they are important in understanding the development path and the current situation in Greenland.

The arrival of the priest Hans Egede in Greenland in 1721 marked the commencement of the Danish colonization of Greenland<sup>2</sup>. The aim was not only Christian missionary but also to trade with the natives and to exploit the possibilities for fishing and whaling in the seas around Greenland.

The Danish colonial policy was based on three main principles; isolation/protectionism, monopolized trade, and the balance rule. Isolation/protectionism was founded on the view that the native population was vulnerable and in need of protection against cultural, political and economic influences from the more developed outside world. The protection was literal in the sense that foreigners' access to Greenland (also Danes) was restricted and required an explicit permit from Denmark. In this way all forms of interactions with the outside world were restricted and controlled by Denmark.

In the same vein all forms of trade were controlled. The Royal Greenland Trading Company (KGH: Kongelig Grønlandsk Handel) was established in 1776 and granted the exclusive right to all forms of trade with Greenland, a position which was maintained until 1950. Prices on both exports (fish, furs etc.) and imports

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<sup>1</sup> This section is based on DIIS (2006), Gad (1094), Heinrich (2012), Lidegaard (1991), Olsen 2005) and Store Danske Encyklopedia (2013).

<sup>2</sup> There has been some discussion whether the colonization comprised the entire Greenland or whether some eastern parts were not included. In an official statement in 1921 at the 200th anniversary for the arrival of Hans Egede, the Danish government explicitly stated that Denmark considered the entire Greenland as a colony. Various countries have in the past made claims on Greenland territory, including the US, Canada and Norway. Norway made claims on some eastern parts in the 1930s, but a verdict from the international court in Haag from 1933 stipulated the Danish sovereignty over the entire Greenland.

were determined by KGH based on an assessment of the needs of the population and largely independent of international price developments. Price policies were thus to a large extent driven by distributional considerations, including uniform pricing policies across the countries as well income insurance via price stability (stabilizing living standards). As a consequence private companies were not allowed in the colonial period. The market mechanism was thus suppressed with prices determined by political and paternalistic motives.

Finally, it was a principle – the balance rule - that the expenses of the colony should be covered by revenue from fishing, furs and mining; i.e. the Danish society was not supposed in net terms to extract resources from Greenland.

The 2<sup>nd</sup> World War had a pivotal effect on the situation of Greenland. While Denmark was under German occupation, Greenland remained non-occupied. Being isolated from Denmark, trade relations were developed with the US. Cryolite mining<sup>3</sup> (at Ivittuut) was an important activity providing the financial basis for Greenland imports. The strategic position of Greenland<sup>4</sup> both for meteorological observations and as a hub for transport between the US and Europe was essential, and the US army constructed 14 naval and air bases<sup>5</sup>. In accordance with the isolation policy, the interaction with US personnel and the population was kept to a minimum, which, among other things, was reflected in the geographical location of the bases.

The changes implied by the 2<sup>nd</sup> WW initiated a process impacting on the relationship between Greenland and Denmark. In 1953 Greenland gained status<sup>6</sup> as a county in Denmark. Greenland obtained representation in the Danish parliament, and a reform process was initiated. This included significant improvements in living standards in the form of health care, housing, education etc., all of which was financed by transfers from Denmark. The Danish welfare model was thus coming to Greenland. It was also part of the strategy to strengthen the economy such that it eventually could become self-sustaining.

Denmark and therefore also Greenland became member of the EU in 1973. EU membership was contested in Greenland<sup>7</sup> primarily due to worries over access to fish stocks, and Greenland left the EU in 1985. An agreement between EU and Greenland granted some fishing rights to fishermen from the EU for which Greenland was compensated by an annual transfer. Greenland maintains a partnership agreement with EU, providing some fishing opportunities to EU fishermen and which also includes transfers directed at strengthening education.

The “home rule” agreement (Hjemmestyre) in 1979 implied the establishment of the parliament, Inatsisartut, and clear division between areas for self-determination and common areas of interests being settled by

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<sup>3</sup> The mining was opened in the early 19th century and operated by the Danish Cryolite company between 1859 and 1987.

<sup>4</sup> The well-known Sirius patrol in North Eastern Greenland was established in 1941 to protect the Danish sovereignty in the area. This was a response to German attempts to set up meteorological stations in the area.

<sup>5</sup> Two of these airports – Kangerlussuaq and Narsarsuaq - remain important for air transport today.

<sup>6</sup> Via a change in the Danish constitution following a referendum.

<sup>7</sup> There was a referendum in 1972 to decide on membership. While there was a majority to join, the votes cast in Greenland had a majority against membership.

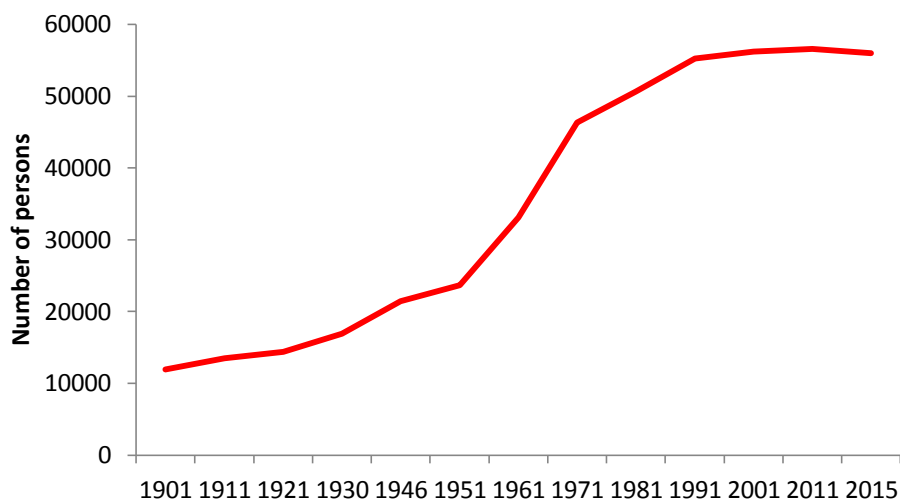
Denmark. Greenland obtained a “block grant” from Denmark as well as indirect subsidies via activities still being the responsibility of Denmark. A growing point of tension was the right to the natural resources.

Greenland obtained self-governance (Selvstyre) following a referendum on the question on 25 November 2008. Self-government was established on 21 June 2009, 30 years after the introduction of the home rule. Greenland remains part of the Danish Kingdom (defence, foreign policy, monetary policy<sup>8</sup> etc. are common) but has sovereignty on domestic issues including rights over natural resources. A fixed block grant is still provided by Denmark (3.4 billion DKK 2009 prices<sup>9</sup>).

### 3. Living standards

Living standards have improved significantly since the 1950s. It has been assessed that average living standards in 1950 were about half the level in Denmark (see Gad (1994)), while today the gap has been reduced significantly. It is not possible statistically to document the change in living standards over the last century or more, but a clear indication is seen from the development in the population size, cf. Figure 1, which reflects better living conditions and thus falling mortality. The population doubled between 1951 and 1971, and has since the late 1990s been steady.

**Figure 1: Population Greenland, 1901-2015**



Source: Statistics Greenland, Befolkning og befolkningstilvækst 1901-2013. Population per January 1st each year.

It was an explicit part of the policy pursued after the constitutional change in 1953 to bring living standards closer to those in Denmark. The period thus saw heavy investments in housing, health and education. This was beyond what could be financed by the production result in Greenland and consequently the previous balanced budget policy was replaced by significant increases in transfers from Denmark. Transfers amounted to no less than 140% of GDP in 1960 (see Gad (1994)).

<sup>8</sup> There is a currency union between Denmark and Greenland, and the currency in Greenland is thus Danish Kroner.

<sup>9</sup> The block grant is adjusted annually based on price-wage developments in Denmark.

To compare contemporaneous living conditions with those prevailing in other countries various indicators are often used. All of these provide some information, but none are perfect, and they all have problems. A frequently used indicator is the Human Development Index (HDI), constructed by UNDP (see e.g. UNDP (2012)), which is published regularly for a large set of countries, though not Greenland. The index has three elements, average income as a measure of material living standards, life expectancy at birth as a measure of health, and share of population with education as a measure of human capital. The following characterize living standards in Greenland using this approach.

**Table 1: Human Development Index**

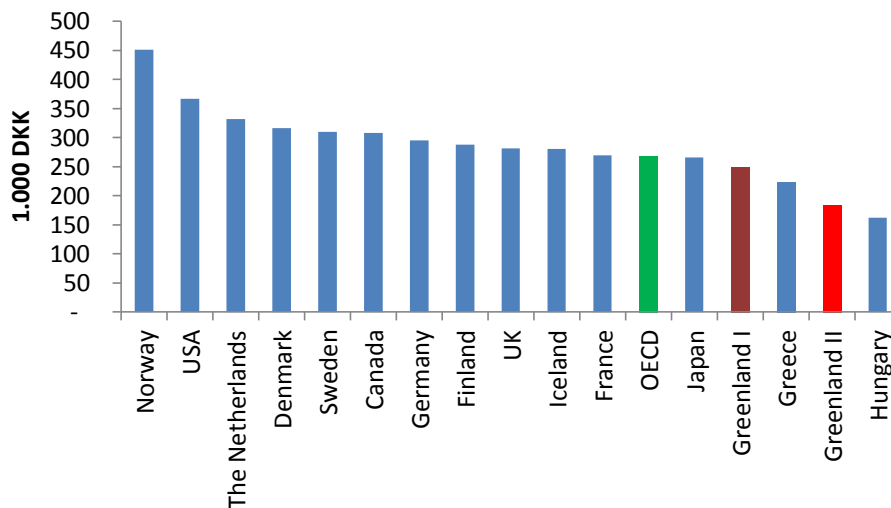
	HDI	GDP pr. Capita	Longevity	Education
Greenland	0.839	27,097	68.8	78
Iceland	0.969	35,742	81.7	96
Denmark	0.955	36,130	78.2	101.3
Finland	0.959	34,526	79.5	101.4
Norway	0.971	53,433	80.5	98.6
Sweden	0.963	36,712	80.8	94.3

Note: GDP is measured in PPP adjusted US \$. For Greenland income is disposable GNI per capita. The level of education is an assessment.

Source: Skatte- og Velfærdskommissionen (2010).

The HDI score for Greenland brings it in the group of countries with "high human development" on par with countries like Bulgaria and Rumania, and somewhat lower than the Nordic countries belonging to the group of countries with "very high human development", where Norway is topping the list.

**Figure 2: BNP per capita, purchasing power, Greenland and selected OECD countries, 2010**



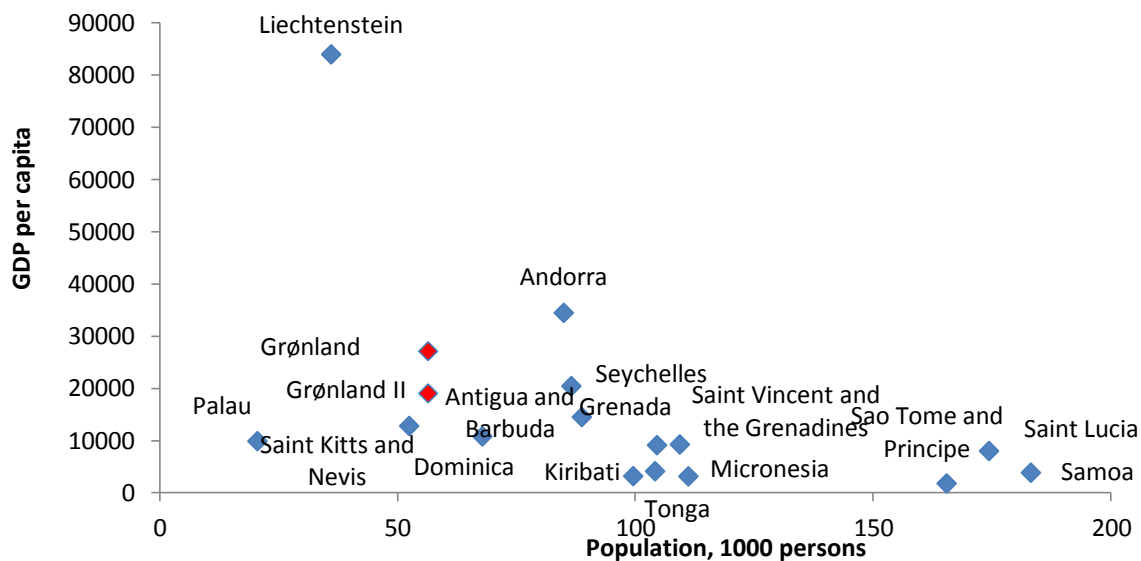
Note: Greenland is GDP per capita, and Greenland II is disposable national income per capita. Purchasing power correction for Greenland is done assuming a 20% higher price level in Greenland compared to Denmark.

Source: Statistics Greenland and own calculations.

In assessing material living standards it is important to make a distinction between, on the one hand, the production result and the income level it creates, and, on the other hand, the income disposable to the population, which is the sum of the former and (net) transfers from abroad. The former is in national accounts termed Gross Domestic Product (GDP) and the latter disposable Gross National Income. For most countries this distinction is not crucial, but for Greenland the difference is substantial due to the large transfers received from Denmark (and the EU). Figure 2 displays both measures in a comparison with selected countries<sup>10</sup>. As seen from the figure Greenland is close to average income in the OECD area when compared by disposable GNI, but significantly below when compared by GDP per capita. This highlights the basic issue that the economy is not self-sustaining in the sense of supporting a living standard on par with the OECD average or the Nordic countries. The transfers received have a significant impact on living conditions.

Measured in terms of Gross Domestic Product per capita, material living standards are about 40% lower than in Denmark. Including transfers as in disposable Gross National Income per capita, material living standards are about 20% lower than in Denmark, but on par with the OECD average.

**Figure 3: GDP per capita, small states, 2010**



Note: For all the countries included in the table the difference between GDP and GNI per capita is small, except for Greenland (both measures shown in the Figure) and Palau where GNI is lower than GDP per capita. Note that income levels are not corrected for purchasing power.

Source: UNDP Human Development Indicator database, for Greenland as Figure 2.

<sup>10</sup> Comparisons of purchasing power are not unproblematic since prices at the consumer level are affected by indirect taxes and subsidies. The tax structure can thus have an effect on the measure for an unchanged real disposable income. The comparison between Denmark and Greenland is affected by the fact that Denmark has a value added tax and significant subsidies for some consumption items (e.g. housing) in Greenland. For a recent comparison of price levels between the two countries see Statistics Greenland (2015). In Figure 2 is based on a gross assessment.

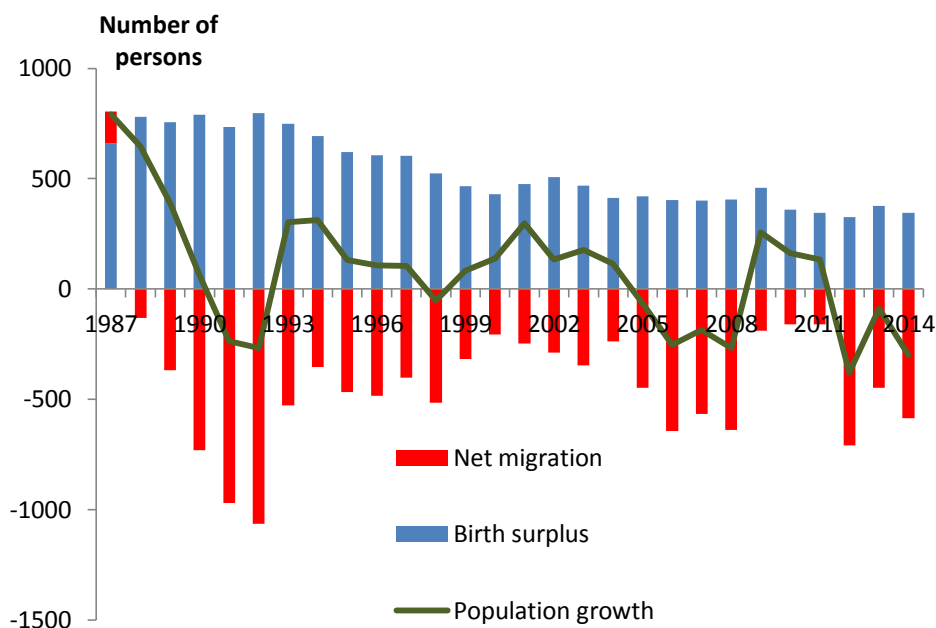


It may be argued that a comparison with OECD countries is misleading since these economies are much larger than the Greenland economy. In Figure 3 Greenland GDP and disposable GNI per capita are compared to other small states defined as having a population no larger than 200,000 inhabitants. In this comparison Greenland is performing rather well, indicating that it may be more difficult for small states to reach income levels comparable to those of the larger OECD countries.

#### 4. Population and migration

The population size has over the last decades been relatively constant around 55,000 persons. This is the net result of two opposing forces. First, the fertility rate is relatively high, though falling. In 2000 it was 2.5, in 2010 2.3, and Statistics Greenland's population projection assumes that it will be 2.1 by 2020 (the level of population reproduction). Second, in net terms there is emigration from Greenland, cf. Figure 4. The net immigration has in particular been high in periods with economic crises in the late 1980s and early 1990s.

**Figure 4: Population dynamics, 1987-2012**



Note: Birth surplus is the difference between the number of births and deaths.  
 Kilde: Grønlands Statistik, Statistikbanken, Migration (Vandringer), [www.stat.gl](http://www.stat.gl)

For a small country it is natural to expect a high level of immigration and return migration for the simple reason that many young people go abroad (mainly to Denmark) to educate themselves. Roughly half the population have lived some period of their lives abroad (Greenland Economic Council (2013)). Going abroad for education

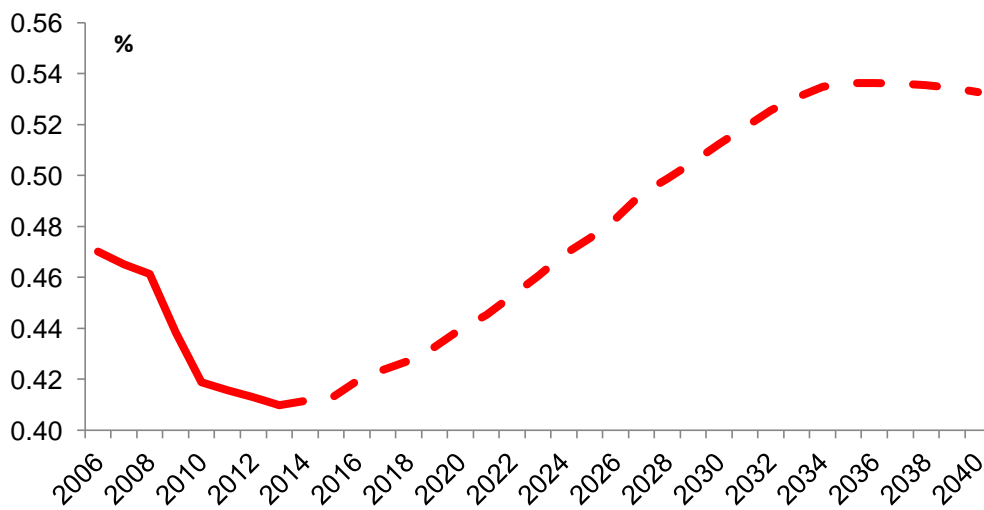
and to acquire labour market experience is an advantage both for the individual and for society. However, the systematic tendency to net immigration can be taken as a sign of underlying problems, where a large share of those migrating, do not return to their mother country. Emigrants to Greenland mainly originate from Denmark, and a significant share only stays in the country for a few years.

An analysis of those migrating to Denmark shows several remarkable findings (Greenland Economic Council (2013)). The return migration is much smaller for immigrants from Greenland than e.g. Iceland and the Faroe Islands. About 80% of all immigrants to Denmark from Iceland have returned to their mother country after 10 years, for immigrants from the Faroe Island it is 60%, but for Greenlanders it is only 40%. Moreover about 4/5 of those living in Denmark are well integrated into the labour market with good jobs and incomes. The human capital balance underlying migration flows is thus problematic. At the same time young educated leave the country, and there is a need to attract qualified labour (mainly from Denmark) for jobs in both the public and the private sector.

As most other countries the population is ageing. The prime driver is an increase in life expectancy reflecting improvements in living and health standards. This involves a catching up element since life expectancy has been significantly below the level in OECD countries. Life expectancy is steadily increasing. For men it has increased about 8 years from late 1977-81 to 2008-12 (from 60.4 to 67.6), for women about 5 years (from 68.2 to 73.1). Though being reduced there is still a gap to e.g. Denmark. Most notably the mortality rate for men in their 20s is much higher due to accidents and suicide. Increases in longevity are expected to continue, and Statistics Greenland predicts the longevity for men to be 72 years and for women 77.3 years by 2040.

Like most other countries, Greenland is facing dramatic changes in the age composition of the population. The declining fertility rate and increasing longevity cause an increase in the dependency rate, cf. Figure 5. The flipside of this is that it creates a problem of fiscal sustainability, cf. below.

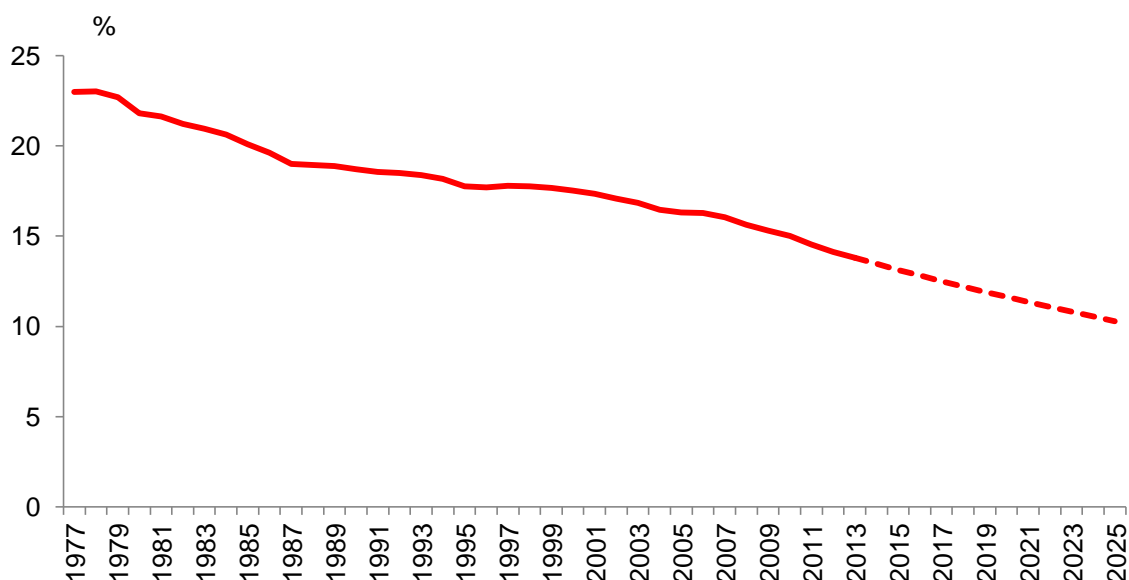
**Figure 5: Dependency ratio, 2006- 2040**



Note: Population aged 0-24 and above 60 relative to age group 25-59. Data for 2013-2040 is a projection.  
Source: Statistics Greenland, Population projection 2013.

As all countries Greenland is also experiencing a tendency towards agglomeration alongside economic developments and changes in the economic and social structure of society. While close to 25% of the population was living in settlements in the late 1970s, the share is now down to about 15%, and according to Statistics Greenland’s population forecasts it will decline further. This process reflects both an adjustment to the geographical location of economic activity and the need to exploit the possibilities offered by bigger towns in terms of education, culture, sports etc. However, in a small population with scattered and separate settlements the agglomeration process takes a different form than in most counties. In many European countries smaller villages and towns remain habituated while people commute to jobs in different areas. This is obviously not feasible in most cases in Greenland.

**Figure 6: Share of population living in a settlement, 1971-2025**



Note: Data for 2013 to 2025 is a projection.  
Source: Statistics Greenland. Population forecasts, [www.stat.gl](http://www.stat.gl).

The agglomeration process is a particularly difficult issue in Greenland both due the cultural importance of the settlements and historic experience including some compulsory relocation of inhabitants in settlements. With changing economic structures it is increasingly difficult to maintain job opportunities in the settlements, especially if they are to offer incomes on par with the bigger towns. At the same time settlements are rapidly ageing since the young move, which also reduces fertility in these locations. To this could be added difficulties in maintaining equal access to schooling in the sense that trained teachers are not available. Likewise access to welfare arrangements like health and old age care is more problematic, although some progress has been made via tele-medicine. Even access to daily supplies can be a problem, and is in general more expensive due

to transport costs and small markets. On the other hand the settlements carry a strong cultural legacy going back to the Inuit hunting and fishing society. Accordingly policy questions related to the settlements are very sensitive.

## 5. The economic structure

As other economic regions in the Arctic, Greenland has an economic structure based on natural resources and a large public sector (see e.g. Duhaime and Caron (2006)). This particular structure is clearly reflected in foreign trade and the relative size of the public sector.

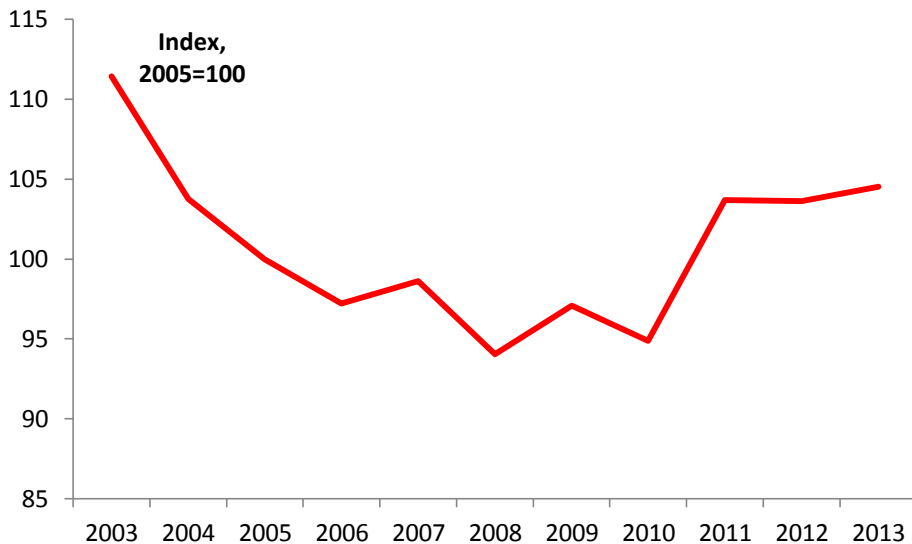
Foreign trade is predominantly inter-industrial; that is, imported goods and services differ from exported goods and services. Export is dominated by shellfish and fish (90% of all export) of which a few species constitute the major share. Measured in terms of value in 2010, 50% of exports are due to prawns and 20% to halibut. Imports are more broadly composed of various raw materials, machinery/equipment and consumption items. A predominantly inter-industrial international trade structure is characteristic for an economy based on natural resources. At a global level the main driver of international trade over the past decades has been intra-industrial trade; that is, trade in goods and services which may be used for the same purposes but differ in quality, design etc. (e.g. clothes, cars). The international division of labour is thus to an increasing extent based on a splitting up of the value added chain, and the specific elements in the chain are made where it is most profitable. Therefore production of specific items is more geographically concentrated than consumption, firms supply not only their home markets but also foreign markets, and in this process countries specialize and international trade increases. Since Greenland does not have a significant industrial and service sector, it is not part of this development, and it is also unlikely that it will be. The size and location of the country is an impediment in this respect<sup>11</sup>. Greenland's comparative advantages are associated with natural resources, see below.

The strong dependency on fishery – and a few species – creates some very special and difficult circumstances. The economy is extremely sensitive to the fishing possibilities and the world market prices for fish. In the 1950s to the 1970s fishing was dominated by cod, but stock dwindled due to overfishing and climatic changes. Instead prawns and halibut gained in importance. The fluctuations in prices is seen from Figure 7 giving the terms of trade, that is, the development in export prices relative to import prices. The variation in the terms of trade within very short periods of time are driven by changing prices of prawns and fish, and displays the sensitivity of the economy to fishing. There is systematic trade-deficit i.e. imports of goods exceed exports, which is made possible due to the transfers.

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<sup>11</sup> The so-called gravity equation in international trade says that trade between two countries is proportional to economic size measured by Gross Domestic Product and inversely related to the geographic distance between them. This relationship has strong empirical support.

**Figure 7: Terms of trade, 2003-2013.**

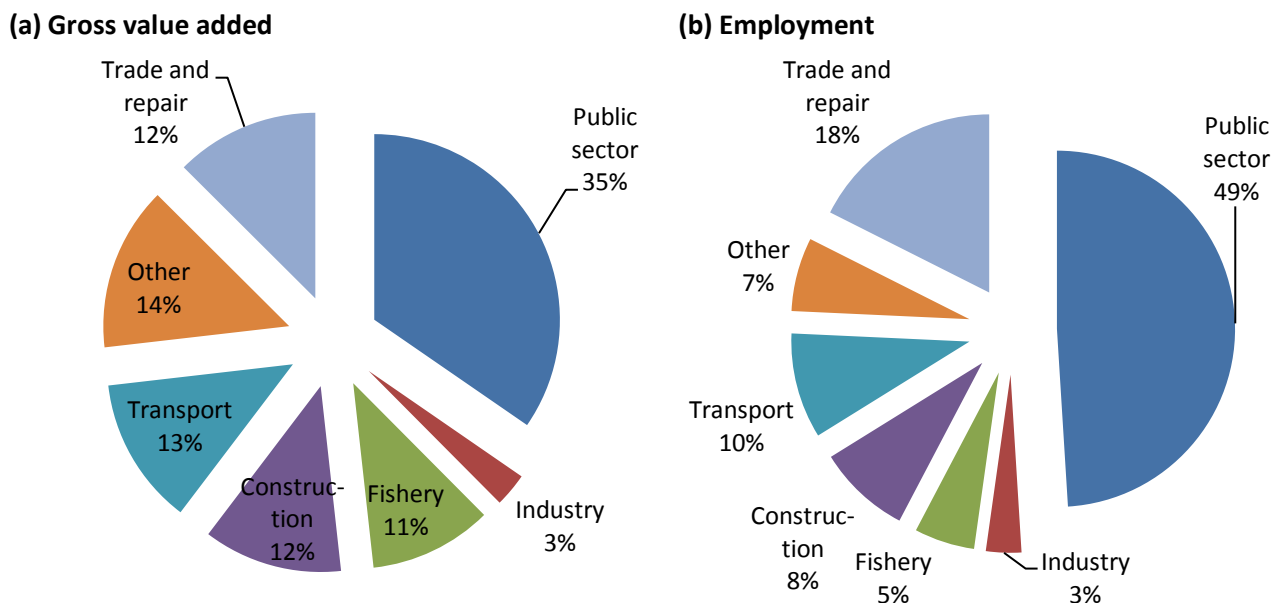


Note: Terms of trade defined as the ratio between price index for export relative to price index for imports, 2005=100.  
Source: Statistics Greenland.

Fish is a renewable resource, and overfishing may provide short-term gains at severe long-term costs. Catches are thus regulated by quotas based on biological advice. The quotas remain a contested issue between biological experts and the industry. Quotas for prawns and halibut are currently being reduced. Due to the importance of fishing there is a large political pressure to increase quotas. At the same time the fishing sector is also suffering from structural problems due to excess capacity and a fishing fleet with too many small vessels (Fiskerikommissionen (2009)). Too many are employed with fishing relative to the amount of catches. The productivity in the sector is thus low, and although there is some scope to expand possible catches of other species of fish, it is not realistic that fishing can contribute significantly more than at present, and thus not to a sufficient extent to ensure a sustainable economic development.

The characteristics of the economic structure are seen by considering the distribution of gross value added and employment across sectors, cf. Figure 8. The importance of the public sector is visible from the figures. The fishing sector constitutes a larger share of gross value added than of employment, indicating that average value added in the sector is higher than the average in the economy. The sector composition also shows that the industrial sector is tiny, and the importance of activities oriented towards the home market. The private sector is made up of a number of small firms with only a few larger firms (within fisheries), see below.

**Figure 8: Economic structure – sector shares in employment and gross value added, 2013.**



Kilde: Grønlands Statistik, Beskæftigelsen 2012, Statistikbanken, [www.stat.gl](http://www.stat.gl)

The geographical structure of economic activity can be illustrated by the distribution of the labour forces across towns and settlements. There are a few big towns and a number of smaller towns and settlements. The larger part of the labour force is in the bigger towns. The three biggest towns thus have more than 50% of the labour force, and unemployment is also lower here. The 10 smallest towns have about 25% of the work force, but 40% of the total unemployment. Recall that the towns and settlements are separate entities with no or only very difficult commuting possibilities.

## 6. The public sector

The Nordic countries are well known for having large public sectors. Extended provision of welfare services (education, health and care) and a relatively generous social safety net are financed collectively via taxes. For the large Nordic countries the public sector constitutes about 50% of GDP, cf. Figure 9. In the case of Greenland the public sector amounts to 75% of GDP.

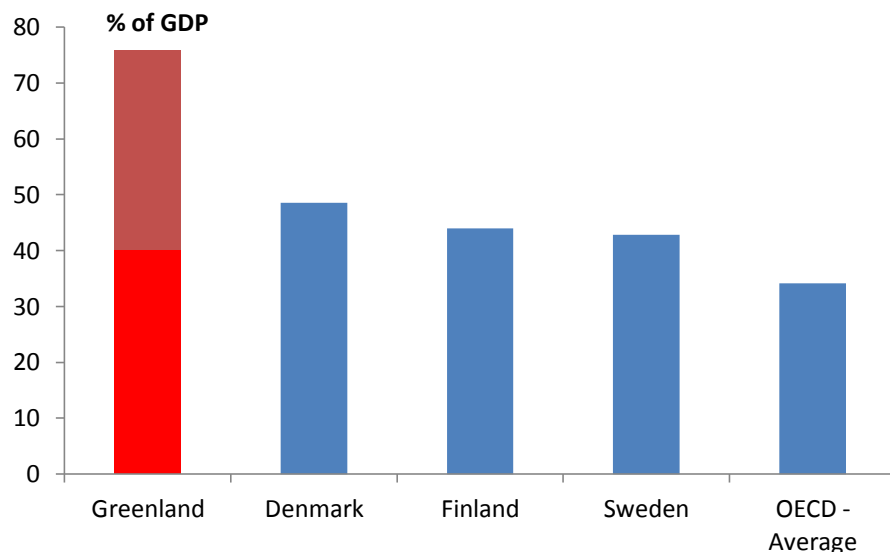
There are a number of reasons why one would expect the public sector to play a relatively larger role in a country with a tiny and scattered population<sup>12</sup>. A number of tasks have to be undertaken, and small-scale

<sup>12</sup> It is not unusual to find that small states have relatively large public sectors and a significant share of revenue accrues from grants from outside, see e.g. IMF (2014) on Pacific Island Countries.

disadvantages tend to make them expensive. At the same time there may be a need for public sector activities and involvement due to imperfections in the market mechanism due to the small and segmented markets. On top of this comes the political objective to have an extended welfare state of the Nordic type. It is a unique feature of Greenland that there is no private ownership to land. Land is public property, but individuals can attain land leases which are basically free.

In 2013 the total public outlays were about 10 billion DKK, of which public consumption constituted 7.3 billion DKK, social transfers 2.1 billion DKK and public investments 0.6 billion DKK. This was financed by import taxes of 0.8 billion DKK, income taxes of 3.6 billion DKK, capital income of 1.1 billion DKK, and transfers from abroad constituting 4.9 billion DKK (inclusive 0.9 billion DKK in reimbursement of expenditures from the Danish state, 3.6 billion DKK in block grant from Denmark<sup>13</sup>, and 0.3 billion DKK from the EU). Close to half of total public outlays are thus financed via transfers from abroad, cf. also figure 9.

**Figure 9: Public sector size as a share of GDP, 2013**



Note: Public sector size measured by total revenue relative to GDP. For Greenland revenue is separated into domestic revenue sources (the bottom part of the column) and revenues from transfers from abroad (the top part of the column). Source: Statistics Greenland and OECD.

It is worth noting that Greenland does not have a public debt problem. The public sector as such does not have a debt (small positive net position), but there is an implicit debt via ownership of companies. In 2013 the gross

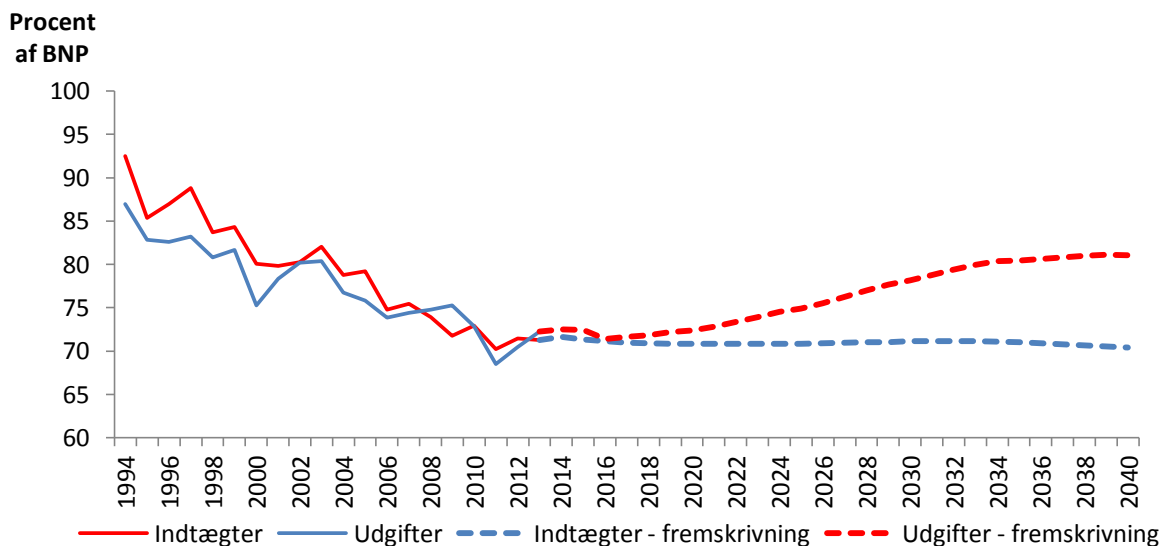
<sup>13</sup> The grant is indexed to price-wage inflation in Denmark. If GDP growth is higher in Greenland than Denmark, it follows that the block grant relative to Greenland GDP will fall. If the expenditure share in GDP is to remain unchanged, other financing sources relative to GDP have to increase.

financial debt is 4.8 bill DKK, and net debt is 2.8 bill DKK<sup>14</sup>. However, the government has given some explicit and implicit guarantees which are not reflected in the debt statistics. Given this and the special and vulnerable structure of the economy implying that there is a “too big too fail” aspect related to many activities imply that there are strict limits as to the possibilities for the government to debt finance activities.

A specific characteristic for Greenland is the large commercial involvement of the public sector. The government owns fully or partly a number of large companies (some of which are monopolies.). Examples include (public ownership is given in parenthesis): Royal Greenland A/S (100%), KNI Pilersuisoq A/S (100%), Tele Greenland A/S (100%), Royal Arctic Line A/S (100%), A/S Boligselskabet INI (100%) and Great Greenland A/S (100%), Air Greenland A/S (37.5 %).

Employment in companies fully government owned constitute about 15% of total employment, and combining this with the direct employment in the public sector, it follows that about 60% of total employment directly or indirectly is in the public sector. The flip side is a small private sector where most firms are relatively small. The large public involvement has historically been based on the need to ensure supplies and infrastructure (houses, heating, water and transport), but there is also public involvement in fisheries. As discussed above particular market imperfections in a tiny and scattered country may necessitate such involvement, but it also raises a number of issues. If such companies are not exposed to the usual market forces, how does one ensure efficiency and adjustability? How does one ensure arms-length between the political system and the management of such companies? If bankruptcy is not an option, how does one avoid a hold-up problem of recurrent need for extra-funding?

**Figure 10: Public expenditures and revenue – actual and projected, 1994-2040.**



<sup>14</sup> See Politisk Økonomisk Beretning 2013.



Note: Data for 2014-2040 is a projection.

Source: Greenland Economic Council (2014).

As noted Greenland, as most other countries, is facing an ageing problem. The dependency ratio (number of children and old relative to number of people in working ages) is going to increase steadily, cf. Figure 5 above. This will have a significant impact on public finances. Projections of public expenditures and revenues are showing a path with a widening financing gap since expenditures will steadily increase while revenue will remain constant as a share of GDP (Skatte- og Velfærdskommissionen (2011), Grønlands Økonomiske Råd (2010,2012,2013,2014)). In short, the current welfare arrangements cannot be financed by the current taxation system (including transfers) as the population ages. The current situation is not economically sustainable. The aim of developing a self-sustaining economy is thus very demanding since even the existing structure and arrangements are not financially viable. This stresses the urgency for reforms and the need for economic development, cf. below.

## 7. Income distribution and social conditions

Living standards cannot be assessed only by considering the average income level, the distributional profile is equally important. The relevant income measure is disposable income (market income less taxes and plus transfers) as a measure of the purchasing possibilities of the individual. It is also customary to correct for the size and composition of the household (equivalence scale) to get a more accurate picture of the economic resources available in a given family. The distribution of income is usually summarized by the GINI-coefficient<sup>15</sup>, and measured in this way income inequality is somewhat larger in Greenland than in the Nordic countries, but less than in some other OECD countries (e.g. for the US the GINI coefficient is 38 in 2011).

**Table 2: Income distribution Nordic countries, 2011**

	Income inequality	Relative poverty : Critical income in % median-income		
		40%	50%	60%
Greenland	33.7	4.9	9.3	15.6
Iceland	30.1	3.4	6.4	12.7
Denmark	24.8	2.4	6.1	13.4
Finland	25.9	3.0	8.0	15.6
Norway	25.0	4.3	7.8	13.3
Sweden	25.9	3.9	8.4	16.4

Note: Income inequality measured by the GINI coefficient defined over equalized disposable income. Same income concept for the poverty measures. The GINI coefficient is defined to be between 0 and 100%. The larger the GINI coefficient, the more unequal the income distribution.

Source: Grønlands Statistik, Indkomststatistik 2011, [www.stat.gl](http://www.stat.gl)

<sup>15</sup> The Gini coefficient can be interpreted as the share of total income which needs to be redistributed to achieve a complete egalitarian income where all citizens have the same income.

It should be noted that the extent of non-market income arising from fishing and hunting is substantial and implies that registered market income underestimates the actual living standard. Not least in some settlements. However, such activities are also important for people with higher incomes, and it is thus not obvious how this affects the distribution of living standards (see Rasmussen (2005)).

The source of inequality is a large dispersion in market incomes. About 40% of employees have an annual wage income which is less than what corresponds to full-time work at the SIK minimum wage (see Skatte og Velfærdskommissionen (2010)). There is a close relation between employment and wages on the one hand and education and qualifications on the other, cf. below.

These metrics for inequality and poverty are to be seen in perspective of the significant improvements in living standards in recent decades. Moreover, living standards also depend on other factors than income. The standard of housing has improved significantly over the years, although there are still problems and shortage of housing (due to relocation of the population). There have also been significant improvements in health. This can be illustrated by the development in life expectancy, cf. above. However, living conditions are also affected by risk factors like alcohol, drugs, smoking and sexually transmitted diseases. Hence, despite the increases, longevity remains shorter than in most OECD countries.

A crucial question in relation to income distribution is the living conditions for the least well off in society. Poverty is usually measured by defining a critical income level, and households falling below this level are considered poor. The critical income is usually defined relative to the "normal" income level in society. The perspective is that poverty is a question of marginalization and social inclusion, and if consumption possibilities are significantly worse than for most, it is difficult to have a life on par with the rest of society. This may in particular be a problem for children and youth. The "normal" income is usually measured by the median income (the income defined such that 50% of the population has a higher income and 50% a lower income). The poverty criterion is usually defined as having an income below some threshold of the median income, say 50% or 60%. As seen from Table 2, irrespective of the threshold level used to define poverty, Greenland has more poverty than the Nordic countries.

Among those falling below the poverty line there are many singles as well as both young and old persons. There is not in general an overrepresentation of families with children. With a poverty line determined by 60% of the median income, 15% of children grow up in poverty; with a 40% limit the share is 5% (Skatte- og Velfærdskommissionen (2011)).

Most children and youth are thriving and getting a good start on life, but several analyses point to problems for a large group. Christensen et al. (2009) assess that about 27% of all children are experiencing neglect of care, of which 12% are neglected to some extent and 15% to a serious extent. Moreover problematic factors with parents may have a negative effect on their parent role, and thus in turn hamper their children.

Alcohol, drugs and violence have a predominant role in many homes and families (Skatte- og Velfærdskommissionen (2011)). As an illustration some 60% of the young have experienced problems associated with alcohol in their family, and 20% of all mothers say that they have experienced physical abuse

and threats of violence from their partner. Moreover there are problems with sexual abuse, about 1/3 of the girls and somewhat less for the boys has experienced such abuse. Suicide or thought of suicide is a big problem among children and youth. The frequency of suicide for youth below the age of 24 is about 30 times larger than in Denmark.

Finally, the intergenerational linkage in social conditions is extremely strong and reflects itself in a vicious circle with lack of education, marginal attachment to the labour market, abuse and violence. The social and distributional challenges are thus an important issue.

## 8. Education

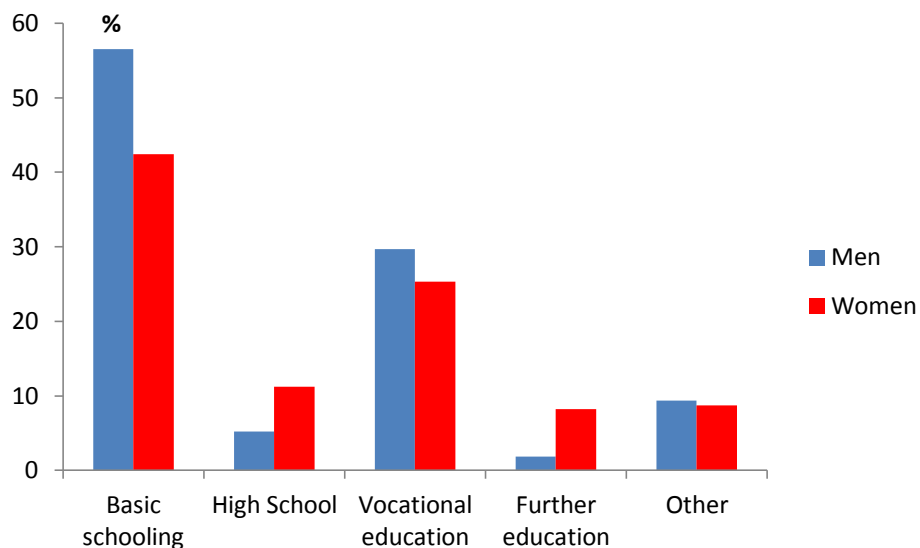
Education and human capital are of key importance. For the individual it is important for the labour market possibilities in terms of jobs and wages, and thus for self-support and active participation in society. At the same time education is a value in itself and is important for active participation in society and democracy. Empirical research shows that human capital is an essential factor for high living standards and growth, see e.g. Hanushek and Woessmann (2011). Moreover, education is crucial for employment, and an equal distribution of education and qualifications is crucial to attain an equal distribution of income, see e.g. Andersen (2015).

Education has high priority and almost 20% of public expenditures are allocated to the purpose. This is high in a comparative perspective. It constitutes about 11.5% of disposable GNI, while the comparable Danish share is 8%. Denmark is the OECD country using the largest share of GDP on education via the public sector.

The scope for educational activities is hampered by several factors. Small scale disadvantages and a scattered population make it difficult to offer equal opportunities for all children. In particular schooling in settlements is associated with problems; there are few children and it is difficult to recruit qualified teachers. Moreover, a language issue with deep roots prevails. The official language is Greenlandic, but society is effectively bi-lingual with Greenlandic and Danish being simultaneously used. However, not all have a strong proficiency in Danish, and there is also a share of the Greenlandic population who are not proficient in Greenlandic. For historic reasons there has been a large share of Danish teachers and teaching material, but the share of Greenlandic teachers has increased significantly in recent years. Danish remains important in the educational system especially beyond primary school due to access to teaching material and teachers but also to advance into higher levels of education. A large share of youth goes to Denmark for schooling and studying for shorter or longer periods of time. It is a recurrent issue which educations should be offered in Greenland and which students should go abroad. Small scale disadvantages make it difficult to reach critical mass both as regards students and teachers, while local education options may be important for intake and the structuring of the programmes. Although the educational system has been expanded, it is not realistic to have a full educational programme offering education at a competitive international level.

The average level of education is low. Figure 11 provides a snapshot by considering the highest level of education achieved for the age group 30 in 2013. While some may still be in education these figures illustrate the situation. A large share (57% for men and 42% for women) has not achieved any education beyond basic schooling. While this share has declined somewhat in recent years there is a considerable educational gap where many leave public schooling with insufficient skills and motivation for further education.

**Figure 11: Educational achievement for population aged 30 in 2013**



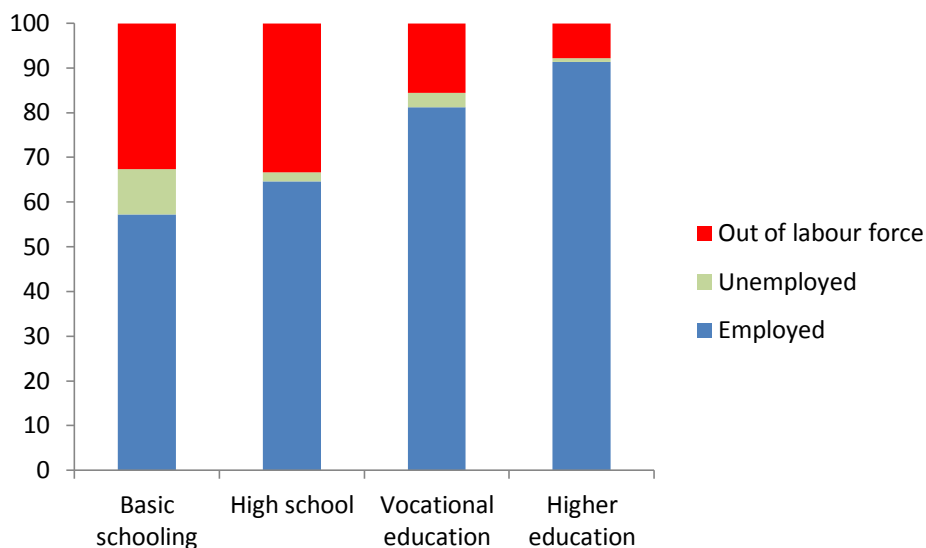
Note: Grouped according to highest achieved education for the age group 30 in 2013  
 Source: Statistics Greenland

There is a significant difference in educational achievements between youth growing up in settlements and towns. Economic Council (2010) considers cohorts born in 1971-77 and their educational achievement when they have reached the age group 30-35 and finds that 39% of those enrolled in a public school in a town obtained a vocational education, while the share was 27.5% for those from a settlement. Among those attending public schools in towns 10% obtained a short further education, while it was only 3.5% for those growing up in a settlement. Hardly any from settlements get a long further education, but the fraction of those growing up in towns that get a long further education is also small (1-2%).

It is well-established that education is crucial for labour market possibilities. This also applies in Greenland, cf figure 12. Labour force participation and employment is clearly increasing in education. Low educated are more often outside the labour force, unemployed and less often in employment than other groups. This clearly points to education as a binding barrier for increases in employment which the implications this will have for the distribution of income but also public finances (via less expenditures on social transfers and higher tax revenue).

While shortage of educated teachers has been a significant problem in the past, the ratio of educated teachers per student is now at about the same level as in e.g. Denmark. The problem remains, however, with schools in settlements having difficulties in recruiting educated teachers.

**Figure 12: Labour market status and education, 2013**



Source: Statistics Greenland

A large share of each cohort leaves school either without graduating or with such a bad result that they do not have the needed skills and proficiencies to progress in the educational system. There is also a gender difference with more boys than girls leaving school with a weak educational background.

At all levels of education there are very high drop-out rates and the number of “retakers” is very large. This implies a large turnover in the educational system which is a cost-driver. There are no systematic analyses of the reasons for this situation, but weak proficiency in reading, mathematics and language are among the likely causes. Moreover education is for many involving a move from a smaller community to a larger town, which can be difficult. Access to housing is also a constraint.

In recent years there has been an increase in entry into various forms of education. The number of commenced educations is significantly higher today than just 10 years ago. However, there is also an increase in drop-outs, and therefore the increase in completed educations is more moderate. It is too early to conclude whether there is a clear trend break in completion of education.

For vocational educations shortage of “traineeships” and student housing are serious constraints which have the effect that not all qualified applicants are admitted into these educations.

As in many OECD countries there is a tendency that education is both commenced and completed later in life. The average age for commencement of a labour market relevant education is 25 years, and for completed educations it is 30 years, cf. Skatte- og Velfærdskommissionen (2011). For vocational educations women start and end later than men, while it is the opposite for short and long further education. Both aspects are

problematic from an individual as well as a societal perspective for the obvious reason that the value of education is larger, the more it is used.

An improvement in the educational level of the labour force is a major challenge and a necessary step to ensure a more self-sustaining economy.

## 9. Growth and business cycles

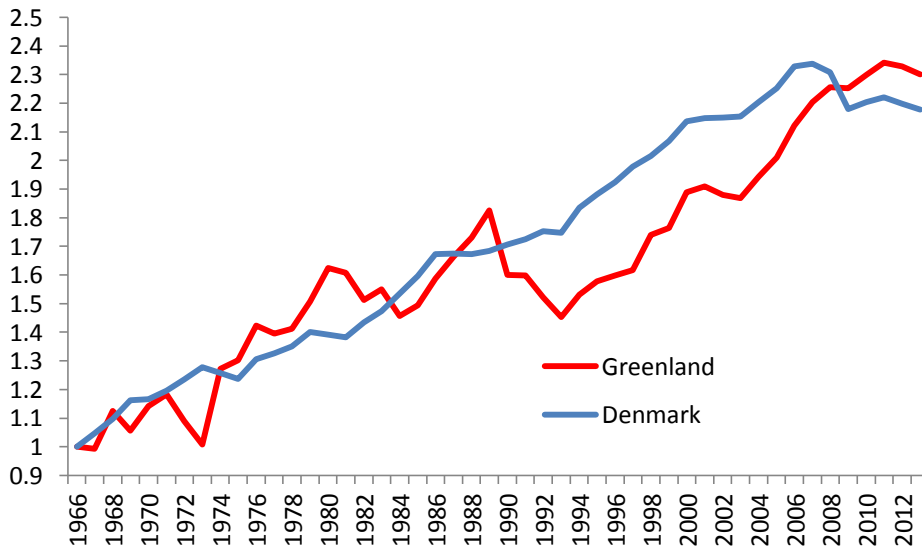
An essential question is whether Greenland from a low starting point is in a process of catching up in terms of improving its production outcome such that living standards come on par with the Nordic countries, and whether such a situation eventually can be sustained without transfers from abroad. As noted above the gap is 20% measured in terms of consumption possibilities and 40% in terms of production outcome. A significant increase in production is thus needed first to compensate for transfers from abroad and secondly to make living standards on par with the Nordic countries.

In history there are many examples – most recently some Eastern European and Asian countries – of countries experiencing a catching-up growth process. By this is understood that starting from a low income level, and thus a huge gap to high income countries, a growth process is initiated which reduces the gap. In this process the growth rate is higher than for high income countries, and therefore the term catching-up. The crucial question is thus whether Greenland is in a catching-up phase.

The long term development in GDP per capita for the period 1966-2012 is illustrated in Figure 13, which for comparative purposes also includes Denmark. The production result is 2.3 times higher in 2012 than in 1961. However, in the same period real GDP per capita grew roughly by the same order of magnitude in Denmark and other OECD countries. That is, although production has increased, the increase has been insufficient to close the gap. The difference in the production result compared to Denmark has not been reduced over four decades, and there is thus no catching-up. Measured in terms of production per capita there is a gap to Denmark of about 40%, and the gap was of the same size in the late 1960s.

As seen from Figure 13 production is more volatile in Greenland than in Denmark (and other OECD countries). This is to be expected by a small economy with a very specialized production structure. It is also seen from the figure that Greenland is not affected by the global business cycle, and the financial crisis has not had a direct effect on Greenland. The fluctuations in economic activity have mainly been driven by changes in fisheries (catches and prices).

**Figure 13: Real GDP per capita 1966-2012, Index 1966=100**



Note: There is no consistent national account series. The figure is made by combining several sources, and should only be considered indicative.

Source: Paldam (1994), Statistics Greenland and Statistics Denmark

The failure to catch up on growth raises several questions. First and foremost whether the large transfers from Denmark have been an impediment to growth? The economic development has been associated with a large expansion of the public sector (see above) and so-called non-tradeable sectors (housing, trade etc.). It is thus possible that private production and in particular export sectors have been squeezed in this process. Shielded by the transfers there has not been the same urge to develop production possibilities. This resembles so-called Dutch disease which refers to the possibility that outside transfers or revenue from natural resource extraction crowd-out production activities, see e.g. Torvik (2009). One mechanism through which this may happen is via wage increases driven by an expanding public sector and non-tradeable sectors. The higher wages hamper competitiveness for export oriented sectors, which in turn also reduces growth.

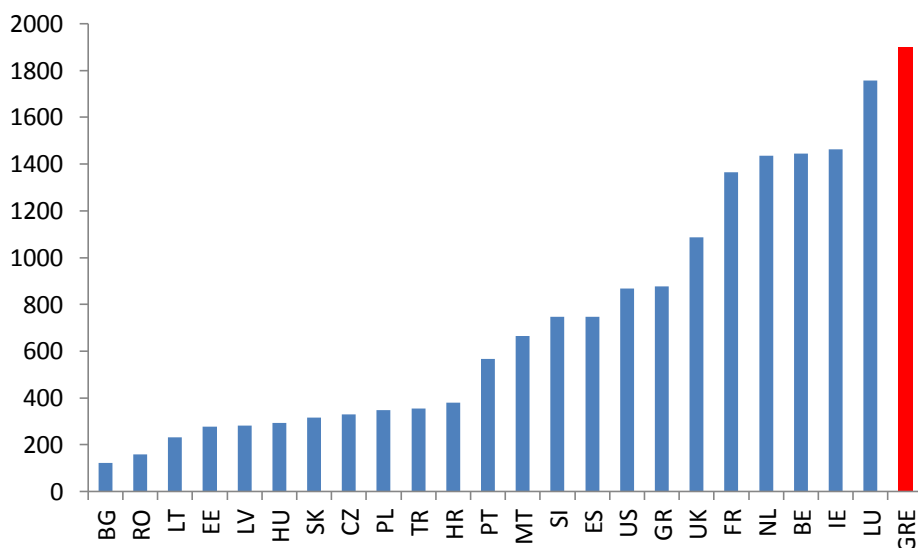
Wages are relatively high in Greenland seen in relation to the production potential. Historically, wage levels have been affected by Danish wages since import of labour has been needed for various activities including teaching, health, administration and building and construction activities. If wage developments are ahead of productivity in the tradeable sectors, it follows that competitiveness is hampered, and accordingly private sectors are crowded out - the Dutch disease. Figure 14 shows that Greenland stands out with a high minimum wage<sup>16</sup>. Workers do not necessarily perceive the wage to be high in terms of purchasing power, but this is

<sup>16</sup> Note if minimum wages are compared on the basis of purchasing power, Greenland drops to rank 6 in the country comparison used in Figure 1. It is assumed that the Purchasing Power index for Greenland equals that for Denmark adjusted upward by 20%.

underscoring the point that the Greenland economy is not in itself able to sustain the present level of material living standards, and it depends on outside transfers. The problem is that this in itself is an impediment to economic development.

The debate on wages is an important illustration of the dilemmas involved. To attract foreign labour it is necessary to offer an attractive wage (at least as high as in the country of origin). The wage may be high relative to wages in the domestic labour market either due to a higher productivity (e.g. better education, more experience) or because it includes a premium to attract workers. In the period 1964 to 1989/91 the so-called “fødestedskriteriet” was in use for public sector employees. It allowed wage differentiation depending on your birth place (Greenland or abroad/Denmark). The idea was that this would allow higher wages for imported labour without driving up local wage levels. This policy created tensions as it implied a wage differentiation between natives and foreigners doing the same job, having the same qualifications etc. It was thus considered unfair and an “imperialist” oppression of natives, and it was therefore given up.

**Figure 14: Minimum wage, monthly wage; EU-countries and Greenland. 2011**



Note: The minimum wage for Greenland is for SIK-workers. Note that the comparison includes countries having a legal minimum wage only.

Source: Minimum wages for EU countries.

[http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Minimum\\_wage\\_statistics/da](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Minimum_wage_statistics/da)

Against the argument of Dutch disease it may be argued that there was no thriving private sector to crowd out. The Danish policy before WWII was not conducive to such a development, and the economic base had to rely on natural resources (fish and minerals) rather than industrial production. While this to some extent is correct it is a fact that the transfers have muted the urge to develop production possibilities. Over the years it has been a recurrent theme to promote private enterprises. In the 1950s several attempts were made, but they



generally failed, and public intervention was needed. The public sector has thus been extensively involved in production activities, and still is today, cf. above.

It is also part of this discussion that a welfare system based on the Danish model was established in an economy with a much weaker production base. In Denmark welfare arrangements were developed alongside economic developments and changes. In the case of Greenland the order of appearance has been the opposite. This may have muted economic incentives to educate, mobility etc. It is difficult to make counterfactuals to assess the situation in the absence of Danish (or similar foreign) intervention. The most realistic scenario is probably depopulation. As noted above the population size increased dramatically in the period from 1950-1970 due to the improvements in living standards, cf. above. Moreover, higher net immigration could be expected.

There are three essential impediments for a well-functioning market economy. First, the competitive process in private markets relies on the possibility of entry. Free entry of competitors prevents monopoly situations from arising and fuels innovation and adjustment. However, in small markets it may be difficult to ensure free entry; where should the pool of potential entrants come from? This is especially important if there are large set-up costs due to geography. In many cases there may only be scope for one producer or company creating “natural” monopolies. Second, access to financial capital is essential. Financing is difficult since most investments tend to be irreversible in the sense that the constructions of production facilities have few or no alternative uses. This is a severely impede access to capital since the value of collateral in terms of buildings and infrastructure depends on their value in alternative uses (if the firm goes bankrupt, what would be the value of the buildings, machinery etc.?). Finally, export options often rely on development in a domestic market, but since markets are small and transport costs are high, this is a further barrier. The short version of this is that an industrial or service sector cannot realistically be the engine of growth for Greenland. Natural resources – exhaustible and renewable - are the key comparative advantage of the country.

The key question is – can a small scattered population with a difficult geography become self-sustaining?

## **8. Towards a self-sustaining economy**

The Greenlandic economy has not displayed an ability to catch up with other countries in terms of production, and at the same time there are large social problems and a looming problem of non-sustainable public finances. There is a strong need to develop a stronger economic base. Is this possible and can the economy become self-sustainable?

Economic sustainability can be defined in different ways. A first and obvious criterion is that public finances should meet sustainability requirements, but this is in itself a loose definition of sustainability since this can be attained at different levels of welfare arrangements. Hence, it is a further part of the definition that welfare arrangements should be satisfactory. The same applies to living standards, they should be on par with those of say the Nordic countries (or at least the gap should not be expanding). The Greenlandic economy is strongly dependent on foreign transfers; however, to become self-sustainable the country must become independent of such transfers by developing alternative revenue sources. On the other hand, defining a self-sustaining economy solely in terms of independence of foreign transfers is not meaningful. Declining the transfers is in

principle possible, but would cause dramatic economic adjustments and a significant drop in living standards. This underlines that a self-sustaining economy also includes objectives concerning the living standards achievable for the population.

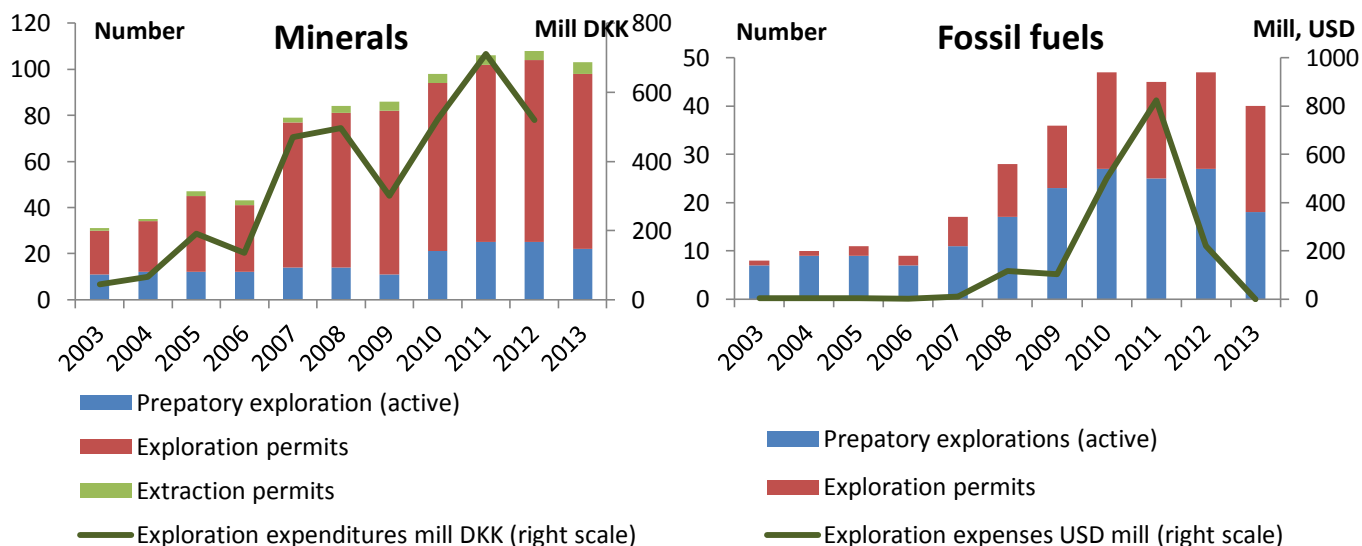
What is the scope to make the Greenland economy self-sustaining? The starting point is to initiate a process with a stronger economic development and thus a catching up process. This would require a strengthening of activity in the private sector. The comparative advantage of the Greenlandic economy is the natural resources; renewable and non-renewable. What are the possibilities here?

Fishery is very important and will remain so. It is, however, not plausible that fisheries can provide a much larger economic base than at present. There is definitely scope for improvements, and productivity can be increased, but it is not realistic that it can reach a scale to push the economy towards self-sustainability. Historically, there have been large variations in stocks and the species which could be used commercially. Earlier cod was important and currently prawns and halibut dominate the sector. Mackerel has recently become an option. Biological advice indicates that the overall catch levels in fisheries cannot be increased, and may have to be decreased for some species.

Tourism is often mentioned as a possible industry for Greenland. Nature is fantastic and there are spectacular options. Currently tourism is centred around Illulissat, but also some in southern Greenland. However, transport costs and the harsh climate make tourism a niche for individuals with a high ability to pay and great interest in nature. Developments in tourism have been stagnating in recent years. Much more can be done to improve tourism, and it does have the potential of becoming an important contributor to the economy, but not a primary base for a self-sustaining economy.

The prospects of economic development thus depend on non-renewable resources (e.g. minerals and fossil fuels). Mining has historically been of some importance (e.g. cryolite, coal), and during WWII the economy was to a large extent sustained due to mining of cryolite. However, in recent years mining has not been an important economic factor.

**Figure 13: Exploration for minerals and fossil fuels, 2003-2013.**



Source: Råstofdirektoratet

The geology of Greenland is well researched, and deposits of various minerals have been identified. Oil exploration research began already in the 1970s, and in recent years there has been a high level of exploration activity with a peak in 2001 with Cairn making some off-shore drillings, cf. Figure 13. However, these activities are at present on hold. Off-shore oil activities are highly debated due to the fragile nature and the particular risk arising due to the climate.

For minerals there are by the end of 2014 no operating mines, but North Gems is constructing a smaller ruby and pink sapphire mine at Aappaluttok about 150 km south-west of Nuuk (in operation the employment level will be about 80 persons).

Even if most of the prospected mining activities are not large in a global context, they are in a Greenland context. Take as an example the Isukasia iron-mining project which would require an investment in the order of 11-12 billion DKK and require 2,500 workers in the construction phase and 800-1000 in the production phase. The investment is roughly equal to annual GDP, and since total employment in the country is about 25,000 persons, the increase in employment is tremendous. No wonder such projects are termed “large scale projects”<sup>17</sup>. The Isukasia project is currently on hold due to financial problems, and London Mining Greenland has sold the exploitation permit in early 2015 to General Nice Development Limited.

Other projects which are in the planning include North American Nickel exploring nickel close to Maniitsoq; Hudson Resources with the Sarfartoq rare earth project and the Naajat (White Mountain) anorthosite (calcium

<sup>17</sup> Some of these issues are addressed in the “large scale regulations” applying to projects above 5 billion DKK.

feldspar) project near Kangerlussuaq; Greenland Resources Gold mining project at Qeqertarsuaq near Nuuk; Rare earth projects near Narsaq in southern Greenland, Tanbreez at Killavaat Alannuat (Kringlerne) and Greenland Minerals and Energy at Kuannersuit (Kvanefjeld). The project at Kuannersuit also involves the mining of radioactive material (including uranium). The government has in 2013 abandoned the zero-tolerance from 1953 concerning mining of uranium and the issue remains controversial. Export of radioactive material also involves issues in relation to international conventions and foreign policy. As yet it is unclear whether and when these projects will be realized.

While there in there earlier was much hype on the scope for mineral activities, the expectations are currently more muted. The exploitation of natural resources is clearly dependent on world market prices and the costs of extraction, and falling oil and resource prices have muted interest in fossil fuel explorations and also for minerals. The costs of setting up a mine are large due to the geography of Greenland. In most cases there is little infrastructure which can be used; i.e., the project often also involves substantial investments in harbours, roads etc. The recent experience shows that there is a long and uncertain way from discoveries to commercial exploitation.

The relative size of potential mining projects raises several issues. One is that financing would have to involve foreign capital. The domestic financing ability cannot lift such projects, and too much public involvement would entail very large risks for public finances. Moreover foreign expertise and workers are needed, especially in the construction phase.

The Greenland economy will be very sensitive to even a few large scale projects. There is a risk of overheating during the construction of such mines leading to wage increases, booming house prices etc. Moreover, strong political capital is needed to manage such a situation, including the allocation of revenues (resource rents<sup>18</sup>) from the activities<sup>19</sup>. Experience from other natural resource rich countries is that there is no automatic route from such activities to a self-sustaining economy (see Torvik (2009)). The natural resource curse has prevailed in many cases. The problems relate both to political factors, administrative capacity but also the effects on the economy. There are several risk factors. In this perspective it may turn out to be easier to handle a soft start with a few smaller mining activities, which also may be signals to future investors on the feasibility of such activities in Greenland.

Much focus has been on the government take from possible mining and oil projects. This is clearly important and there has been much discussion on whether this revenue should be collected via taxation or royalties. In

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<sup>18</sup> A Natural Resource Fund is to be established once revenue is accrued. However, the rules for disposal of the fund are very loose.

<sup>19</sup> The natural resources are the property of the Greenland population. In the agreement with Denmark from 2009 it is agreed that resource rents (above a certain minimum threshold level) are to be split 50-50 between Greenland and Denmark. There is an upper bound on the Danish take equal to the block grant, hence if this point is reached the block grant ceases. If this situation arises, the agreement says that the agreement between Greenland and Denmark should be renegotiated.

addition to this it needs to be stressed that the large impact on the economy only arises if the projects result in more activity for local enterprises and create jobs for the population. A large part of the value added of such projects is in the extraction activity itself rather than the resource rent. If these projects are not translated into more activity and jobs for the population, it will be very difficult to attain a self-sustaining economy with high living standards and an equal income distribution. There are clearly a number of challenges in this respect, including education and housing/commuting. Even if all resource rents are allocated to the resource fund it is unlikely within a long horizon to reach a level where the return can compensate for the transfers from abroad<sup>20</sup>. A wealth in the order of 9-14 times GDP is needed for the return to match the transfers from abroad (Greenland Economic Council (2014)). At present the Norwegian oil fund is about 3 times Norwegian GDP.

## Conclusion

The Greenland economy is not on a sustainable path and significant reforms are required. Over-optimistic expectations concerning natural resources and a swift path to a self-sustaining economy have been replaced by a more realistic view on the possibilities. Natural resources remain of paramount importance, but the scope depends both on external factors like world market prices beyond control and internal factors which can be affected. The latter include education, labour market policies and a development of the private sector. Greenland is currently in a position where it has to attract foreign labour, and in this sense there are jobs if the binding constraints in terms of qualifications, mobility and job-search incentives can be lessened. On top of this come looming fiscal sustainability problems due to an ageing population and other factors. While the situation at present may seem bleak, there is scope for improvements, and some of them can make an impact on several counts. Improved education will contribute to a lessening of social problems and improve labour market prospects. This in combination with an expansion of the private sector will also contribute to better public finances via increased tax payments and lower social expenditures. There is thus room for action to put the economy on a path which eventually may lead to a self-sustaining economy.

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<sup>20</sup> See also Udvalget for samfundsgavnlig udnyttelse af Grønlands naturressourcer (2014) for a discussion of the scope mining projects will have for the economy.

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