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Greenland's Economy

Autumn 2022

- The economic outlook
- Economic policies
- Fiscal sustainability

The Economic Council of Greenland

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Summary

The global economy has been hit by two major crises within a short period of time: the corona pandemic and the war in Ukraine. Although the spread of infection and the risk of a resurgence of the pandemic remain, the situation has largely returned to normal. The war in Ukraine has had a major impact on the global economy and has heightened uncertainty about economic developments. This conflict and its political repercussions have driven up food and commodity prices, fuelling a sharp rise in inflation and interest rates. Likewise, the outlook for economic development has deteriorated in most countries around the world and some of them face a real risk of recession.

Economic activity in Greenland remains high and unemployment is low. While the war in Ukraine has initially affected fish exports, rising international food prices are also expected to have a knock-on effect on fisheries. Inflation will also rise here in Greenland, but the effects will be somewhat more gradual, partly because soaring energy prices have not yet been fully passed on to domestic customers here. It will not be possible to fully insulate ourselves from higher global energy prices over the coming years, and food import prices are expected to rise, with a corresponding impact on consumer prices in 2022. With European inflation forecast at around 8% in 2022 and projected to fall to around 4% in 2023, domestic consumer prices are expected to be in the order of 3-4% higher by the end of 2022 and 2-3% higher by the end of 2023. The fact that price increases this year are lower than in other countries is linked both to existing price hedging agreements on energy products and ongoing relatively low price increases in the cost of housing. Consumer prices are expected to rise as price hedging contracts expire. There is particular uncertainty surrounding inflation, which hinges both on how the global crisis unfolds and on the impact of international prices on the domestic economy — and on whether price increases are transitory or more prolonged. The key factor influencing aggregate purchasing power is whether export prices rise more or less than import prices.

Greenland currently has a booming economy with full utilisation of its production capacity and a great need to attract foreign labour and resources. Major investments in infrastructure will sustain activity over the coming years and ensure continued economic growth, even though rising energy and food prices will erode consumer purchasing power; *see Figure 1.1.* Although there is considerable uncertainty at present, economic growth is expected to be around 1% in 2023, slightly lower than growth in 2022.

Unemployment has declined in all regions since 2015. Labour market pressures are greatest in Nuuk, but unemployment continues to run high in South Greenland and Tasiilaq. The trend toward a greater concentration of the population in the capital continues. In the period since 2015, only Nuuk has actually experienced a net influx of people.

Employment has been rising and unemployment falling since 2014. With prospects for continued recovery in 2022 and 2023, the labour market will remain characterised by high employment, shortages of skilled labour and difficulties in recruiting both domestic and foreign labour. With significant pressure on the labour market, wage pressures are likely to increase. Rising prices may also drive up wage pressures to a certain extent, as workers seek to avert a fall in real incomes. Wage pressures are also influenced by the fact that wages abroad have increased, for example, in the construction trade.

The draft budget foresees a Treasury deficit in 2023 of just over DKK 70 million and DKK 40 million in 2024, followed by a surplus in 2025 and 2026. The proposal thus complies with the Budget and Accounting Act

requirement that, at a minimum, revenue and expenditure must be balanced over the 2023-2026 financial period. Nevertheless, the deficits are noteworthy in view of the high level of activity and the future challenges facing the Treasury. The projected deficits in 2023 and 2024 can be partially explained by the expenditure growth in previous years. The draft budget contains some minor reform measures that are costly, but also a reduction — with the exception of healthcare — in inflation adjustments for operating and subsidy appropriations.

Thanks to the budgetary policy, the Treasury has no debt, but rather net assets of DKK 1.1 billion. When conducting an overall assessment of the Treasury's financial position, it is also important to include the risk exposure incurred from government-owned companies, municipal joint stock companies and the municipalities. Total net interest-bearing debt is expected to double from 2021 (DKK 3.4 billion) to 2025 (DKK 6.8 billion) due to a number of capital investments in the pipeline.

There are several additional investment plans for the future, including for airports and energy supply (hydropower), while significant maintenance backlogs have accumulated over a number of years in the areas of institutions for the elderly/nursing homes, housing and ports.

Lack of maintenance results in a continuous deterioration of the value of the initial investment and an accumulated need for investment at a later date. Hence, a lack of proper maintenance effectively constitutes a depreciation of public assets and, if this is factored into the equation, the financial situation of the Treasury is actually worse than what is shown in the accounts. The current challenge is thus twofold: to address the accumulated maintenance backlog and to ensure that such backlogs do not occur in future.

It is essential to maintain an overview of the wide range of investment plans and the maintenance backlog, both as a basis for political debate and prioritisation — including of the basis for financing these measures — and in relation to the sequencing of project implementation. Most of these projects are large and will consequently have an impact on the aggregate economic activity of the country. With a shortage of skilled labour, there is a risk that the implementation of public projects could have a destabilizing effect if they are not adapted to the economic situation.

Over the long term, the solution to the labour challenge depends on educational policy. Many young people still do not receive vocational training, and the reality is that equal opportunities in education have not been achieved under the current system. Large geographical disparities persist along with differences between schools and settlements and towns in terms of the options available to children. Concrete action is needed in the field of education, with a focus on early intervention for children and young people. Primary and secondary schools play a pivotal role in this, and it is necessary to take into account the opportunities and challenges faced by individual schools. This report points to a number of concrete initiatives that can help strengthen primary and secondary education across the country.

The draft budget does not include major reform initiatives because a comprehensive plan will be presented under the Sustainability and Growth Plan II, which is expected to be released in early 2023. A reform of public assistance and labour market benefit has been implemented, which provides for the introduction of a job-search allowance to replace the labour market benefit. Work on tax reform has been announced. There are a number of problems with the tax system and reform should be a priority. In previous reports, the Economic Council has pointed to a number of problems in the tax system as well as in the interplay

between the social benefits system and housing policy. Total effective taxation is high for some groups, which creates disincentives, and there may also be politically unintentional consequences when it comes to distributing benefits. Accordingly, tax reform should also assess the balance between the high taxation of work-related income and the low taxation of various forms of capital income (including housing). A tax reform should also be seen within the context of a green reform and the need to achieve more sustainable development. A number of countries have introduced "green" taxes and have made great strides in the area of carbon taxation. Sustainable development in Greenland also requires prioritising environmental and climate issues. Moreover, the overall structure of the tax system is complicated and difficult to understand for individual taxpayers. This makes tax reform urgent, but it is also important to maintain stability with regard to tax regulations and conditions, and that makes it all the more important to introduce a coherent reform that puts an end to ongoing debates and uncertainty surrounding taxation rules.

There is an urgent need to define and launch a reform strategy that ensures sustainable economic development and a path toward a more self-sustaining economy. Thorough groundwork is essential to developing an understanding of the need for reform and the concrete actions to be taken. The problems associated with an ageing population are well known, and additional demands are imposed by new economic activities, educational requirements, social conditions and services like healthcare. Ever since the first Sustainability and Growth Plan in 2016, very few reforms have been implemented, including reforms of the pension system (mandatory pension savings and raising the retirement age) and early retirement (clarifying processes and focusing on utilising people's working capacity). While these reforms are important, they are not sufficient to effectively address the fiscal sustainability problem, nor has there been a decisive move toward a more diversified economic structure.

This report presents an updated sustainability calculation and highlights increasing pressures on public finances and recurrent budget deficits. The deficit will be around 3% of GDP from around 2035, when the ratio of elderly to the general population will reach a peak. The total fiscal sustainability problem is estimated at -5.3% of GDP, which corresponds to an annual financing shortfall of approx. DKK 1 billion (measured at 2020 levels) if the trend in public finances is to remain sustainable over the long term. This trend is qualitatively similar to previous estimates of Greenland's sustainability problem and underscores the need for economic policy reforms.

The fiscal sustainability challenge requires policy priorities that can both reign in expenditure growth and generate increased tax revenues. Achieving a long-term balance between public expenditure and revenues will, realistically speaking, require a reform package that encompasses several major areas of public welfare. The current report illustrates this issue by examining three main areas — pensions, education and the management of public expenditure — where reforms can help to alleviate the fiscal sustainability problem. This report only examines the impacts of policy changes and not how these changes can be implemented in practice, meaning that the findings listed here are merely indicative of the magnitude of the political challenges.

- Pension reform: A gradual increase in the retirement age as life expectancy increases, so that the number of years as a pensioner is roughly maintained at the same level as today. The retirement age would be gradually raised by four years up to the year 2050, which roughly corresponds to the

projected increase in life expectancy among the general population. This would boost sustainability by 1.7% of GDP.

- Educational reform: The impact of 150 more young people from the target group pursuing a secondary education each year — equivalent to increasing the probability of students transitioning to upper secondary education by 50% — would be felt over a number of years. The educational level of the population would increase from year to year, bolstering the workforce and employment, as more people with a higher level of qualification are integrated into the labour market. Sustainability would be boosted by 0.25% of GDP, assuming expenditure on education remains unchanged.
- Expenditure control: Strict public expenditure control over a number of years, with real growth in public expenditure reduced by 0.5% per annum over the five-year period 2021-2026. This would be roughly equivalent to zero growth in public consumption up to 2026. A sustained rigorous expenditure control over a five-year period would reduce the sustainability problem by 1.3% of GDP, mainly by reducing government spending as a percentage of GDP.

The analyses underscore that tackling the fiscal sustainability problem requires sweeping reforms and that they must involve multiple policy areas.

The report also includes an updated projection of the general level of education. This latest forecast shows that a larger proportion of young people will pursue an education beyond compulsory schooling than older segments of the population, and educational attainment will rise accordingly, as younger generations replace older ones in the labour market; *see Figure 3.6.* Based on current trends in educational attainment, by the year 2040 approx. 45% of the population aged 15-64 will have completed post-compulsory education and training by 2040. This proportion was around 41% in 2020 and 33% in 2010. The pace of this increase in educational attainment will diminish in future. This is partly because young people's access to upper secondary education has not expanded as rapidly in recent years.

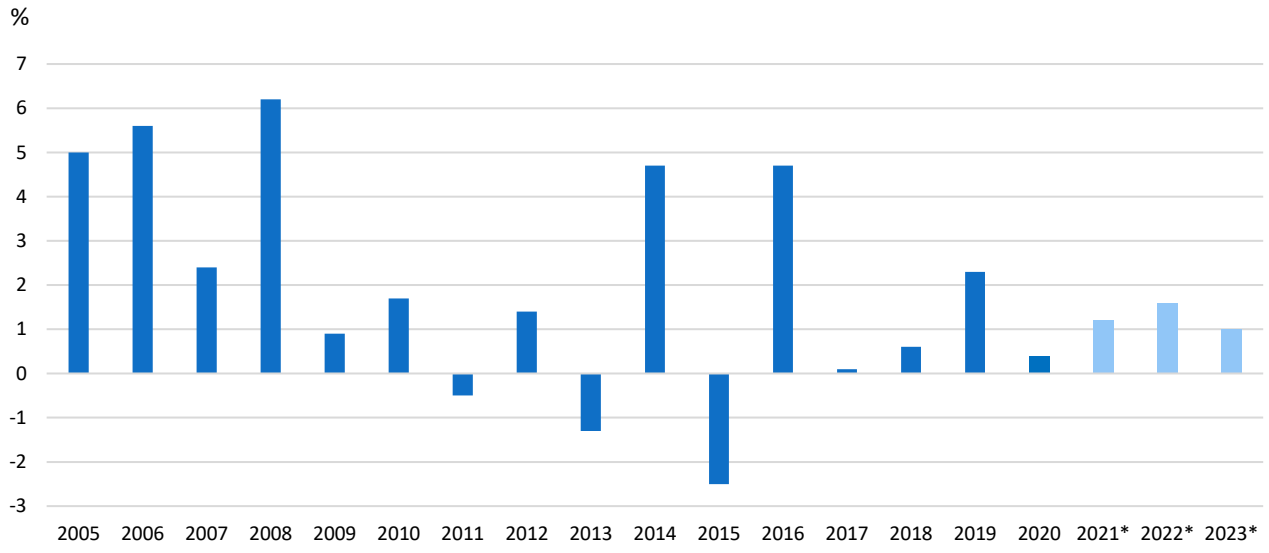
Chapter 1 The economic outlook

Russia's invasion of Ukraine has exacted an enormous toll in economic hardship and human suffering. The invasion has led to sharp rises in energy and food prices, exerting additional pressure on global inflation, which had already risen in the wake of the COVID-19 pandemic. In Europe and the US, inflation is running at its highest level in 40 years, and in Denmark inflation rose to 9.6% in July, as measured by the EU Harmonised Index of Consumer Prices.

Higher inflation has caused market interest rates to rise sharply in the Western world, with serious ramifications for consumer purchasing power and business investment plans. The OECD estimated in June that growth in Europe will be approx. 1.5% lower in 2022 and 1% lower in 2023 as a result of the war in Ukraine.[1] Inflation in Europe is estimated to be around 7% this year and 4-5% in 2023.

Greenland's economy will also be adversely affected by higher prices and interest rates, but the baseline situation remains solid. The economy is currently booming, with full utilisation of its production capacity and a great need to attract foreign labour and resources. Major investments in infrastructure will sustain activity over the coming years and ensure continued economic growth, even if energy and food price rises erode consumer purchasing power; *see Figure 1.1*

Figure 1.1 Growth in Greenland's gross domestic product, 2005-2023



Note: Growth is measured in 2010 prices, chained values. Data for 2019-2020 are preliminary national accounts figures, while data for 2021-2023 are based on the Economic Council's forecast.
Source: Statistics Greenland and the Economic Council

Unemployment has declined in all regions since 2015. Labour market pressures are greatest in Nuuk, but unemployment continues to run high in South Greenland and Tasiilaq. The trend toward a greater

[1] OECD estimates of GDP growth and inflation for countries in the euro zone in *Economic outlook*, June 2022, compared with the assessment in *Economic outlook*, December 2021.

concentration of the population in the capital continues. In the period since 2015, only Nuuk has actually experienced a net increase in population.

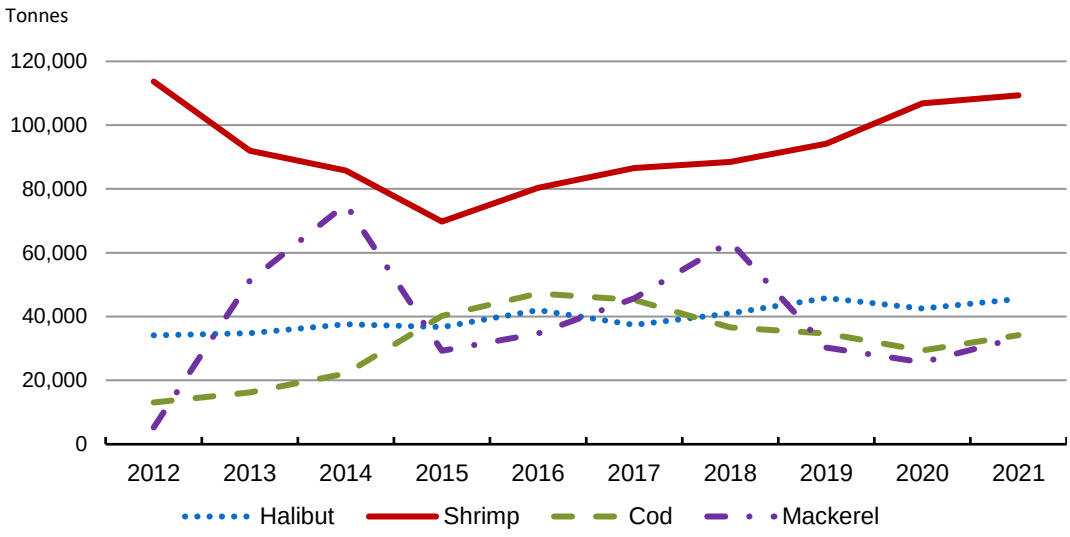
1.1 Fisheries and exports

Fisheries catches were slightly higher in 2021 compared to the previous year. The shrimp catch in Greenlandic waters was 109,300 tonnes, with an ongoing increase in catches since 2015; *see Figure 1.2.* In the latter part of 2021 and into 2022, inshore shrimp catches declined due in part to a severe winter and difficult fishing conditions. Shrimp quotas have reflected the recommendations of marine biologists for several years and the fishery is MSC certified as sustainable.

Catches of Greenland halibut, cod and mackerel also increased in 2021. This follows a slight decrease the previous year, resulting in catches in 2021 being similar to those in 2019. For inshore fishing of Greenland halibut and cod, the quotas and catches are substantially higher than the recommendations of marine biologists. For the pelagic mackerel fishery, fluctuations in catches are a consequence of the constant movements of migratory stocks in Greenlandic and international waters. No mackerel have been caught in Greenlandic waters since 2019. As a coastal state for mackerel, Greenland can dispatch its vessels to fish in the international zone, where all fishing for this species has taken place since 2020.

Catches this year are expected to be around 2021 levels, as shrimp quotas remain unchanged from 2021. On the other hand, the high fishing pressure on Greenland halibut and cod in inshore fisheries may be a sign of stagnating or declining catches in the future, as these fisheries are not biologically or economically sustainable.

Figure 1.2 Catches by Greenlandic fishers and vessels in Greenlandic waters, 2012-2021

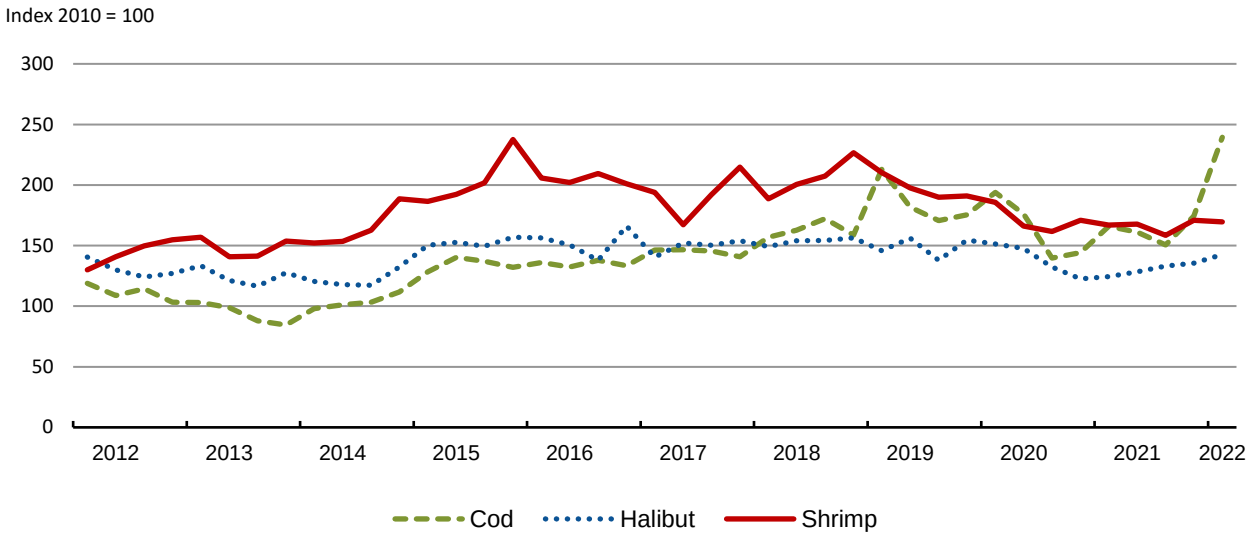


Note: Catches of mackerel include the proportion that is fished in ICES international waters.
Source: Statistics Greenland

The price of seafood fell in 2020 and has remained relatively stable in 2021. Average prices per kilo for shrimp and Greenland halibut were slightly higher in Q1 2022 than in Q1 2021. The price of cod increased sharply in Q1 2022, but major price fluctuations for fish products are not unusual; *see Figure 1.3.*

International food prices have risen significantly in 2022, and this is expected to have a spill-over effect on fisheries. Food prices are closely interlinked, and rising prices for one type of food often lead to rising prices for other foodstuffs. This impact is evident in the retail sector where, for example, there is a clear positive correlation between price increases for seafood and price increases for other food products.[2] In July 2022, Danish consumer prices for seafood were 15.9% higher compared to the previous year, and similar price increases can be observed in other European countries. Even though there is not a 1:1 correlation between consumer and producer prices, higher food prices indicate that there will be rising seafood export prices during 2022 and into 2023.

Figure 1.3 Average fish and shrimp prices, 2012-2022

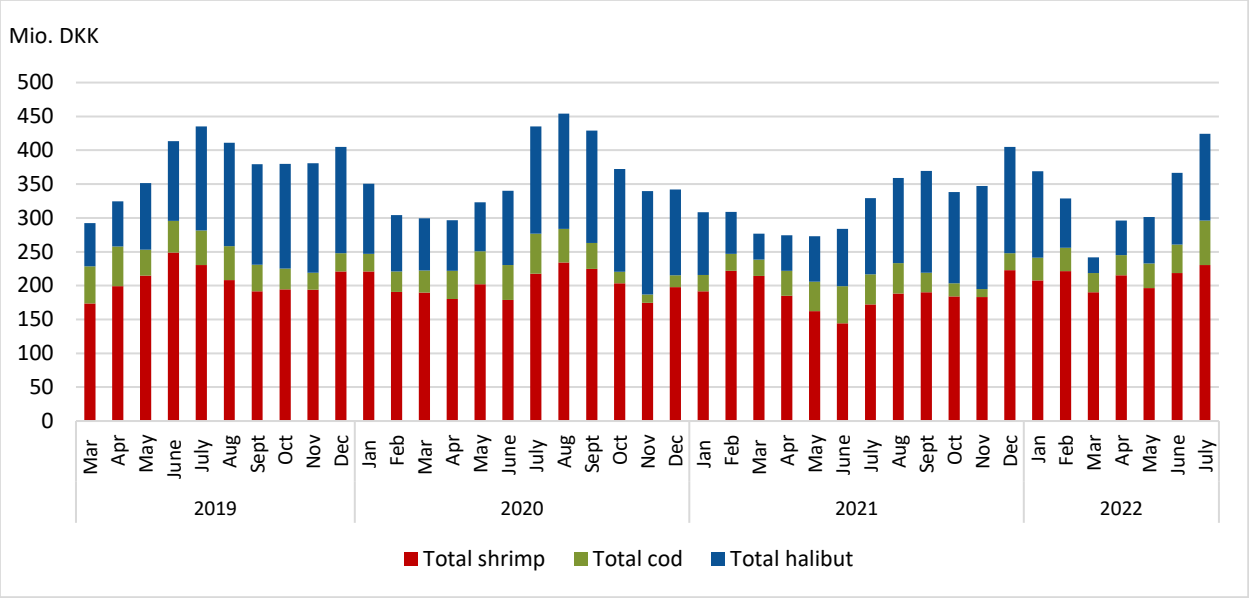


Note: Most recent observation is Q1. 2022
Source: Statistics Greenland

Price movements in the fisheries sector have resulted in the value of exports in 2021 being 10% lower than the previous year. Preliminary figures for 2022 show that the value of exports during the first seven months of the year is higher than exports during the same period in 2021. However, export figures are subject to a certain degree of uncertainty, with large monthly fluctuations; *see Figure 1.4.*

[2] When it comes to the retail price index, the correlation between the annual growth rate of fish products and other food products is between 0.3 and 0.9 in European countries. In Denmark, the correlation is 0.5.

Figure 1.4 Export value of fish and shrimp, DKK million, 2019-2022



Note: The export value is calculated as a three-month average to compensate for month-to-month fluctuations.
Source: Statistics Greenland and own calculations

Fish products are the main export product, so rising export prices can thus offset rising import prices to a certain extent. Rising seafood prices are necessary to avoid a deterioration in the balance of trade (i.e. the difference in the monetary value of exports minus imports) and thus limit the impact of more expensive imports on consumer pocketbooks. Export prices will have a major impact on the level of prosperity in the country. Seafood prices have increased significantly since 2014, generating an increase in wealth equivalent to around 15% of GDP by 2020. This outpaced the 10% growth in real income (GDP) over the same period; *see Box 1.*

Box 1 The impact of higher seafood export prices on economic prosperity

Figure 1.5 illustrates the trend in the terms of trade since 2012 and the implications for economic prosperity. Seafood prices have risen sharply since 2014, boosting export prices. At the same time, import prices have remained fairly stable for imports as a whole. As a result, a given volume of exports has been able to finance a growing volume of imports, creating greater opportunities for increased consumption and investment.

An improvement in the terms of trade consequently entails an increase in prosperity that is comparable to an increase in income. It is possible to assess this impact on prosperity by calculating the terms of trade-adjusted GDP, which shows the number of units (volume) of exports that are needed to buy a single unit of imports. It is calculated as follows:

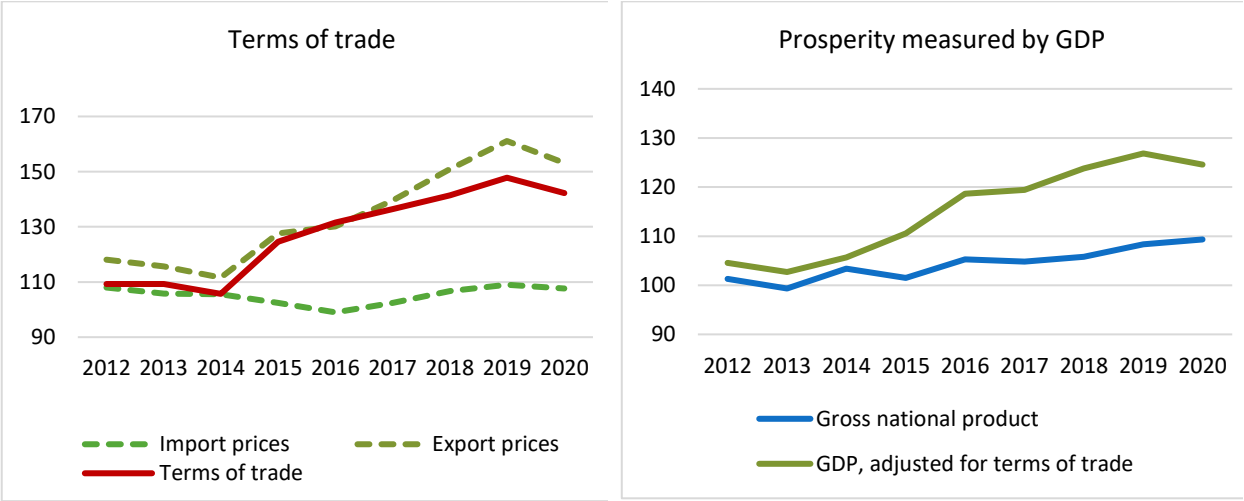
$$\text{Terms of trade-adjusted GDP} = \text{GDP} - \text{exports} + (\text{export prices}/\text{import prices}) \times \text{exports},$$

where GDP and exports are measured in constant prices (volumes) and export and import prices are the deflators for exports and imports in the national accounts.

When import prices deflate instead of export prices, the volume of exports and consequently real GDP is adjusted upwards as the terms of trade improve. This provides an indication of the consumption and investment

opportunities created by exports. The terms of trade-adjusted GDP will outpace GDP when the terms of trade improve. Measured this way, from 2014 to 2020 (the latest year with national accounts figures), Greenland experienced an increase in prosperity of about 15% of GDP due to higher seafood prices alone. During the same period, GDP (incomes) increased by about 10%, and total real wealth growth has thus been about 25%.

Figure 1.5 Terms of trade and trends in economic prosperity, index 2010 = 100



Source: Statistics Greenland and own calculations

1.2 Mineral exploitation

Mineral exploration and extraction activities have been adversely affected by global economic developments. In 2020, investment in mineral exploration amounted to DKK 85.5 million, which is the lowest level to date in the most recent 10-year period and is tied to the lull in new exploration permits during the pandemic. Investment in mineral exploration has not yet been calculated for 2021, but it is expected to be higher than in 2020 and, in terms of activity, 2022 is anticipated to be in the order of DKK 200 million, as before the pandemic. There are currently nine advanced mining projects, two of which are operational and one that is in an initial construction phase; *see Table 1.1.*

Table 1.1 Selected large mining projects

Project	Status	Workforce
Greenland Ruby A/S ..... Aappaluttoq (rubies and pink sapphires)	Operational phase (Exploitation licence: 2014)	Approx. 55 employees
Lumina (formerly Hudson Greenland A/S Kangerlussuaq (anorthosite)	Operational phase (Exploitation licence: 2015)	Currently 15 employees, but expected to increase to approx. 30.
Ironbark A/S ..... Citronen Fjord (Zn, Pb)	Initial construction phase (Exploitation licence: 2016)	Construction phase: Up to 300* Operational phase: Up to 475*
Nalunaq A/S	New exploration activities	Construction phase: 70-80 employees
Napasorsuaq (Au)	(Exploitation licence: 2003)	Operational phase: Up to 150 employees

Greenland Minerals A/S ..... Kuannersuit (Kvanefjeldet) (REE, U, Zn, fluorite)	Application for exploitation licence received. The project cannot be implemented in its original form because of the policy of zero tolerance on uranium.	Construction phase: Up to 1,121* Operational phase: 715*
Tanbreez Mining Greenland A/S ..... Killavaat Alannguat (Kringlerne) (Zr, REE, Nb, Ta, Y)	Exploitation licence: 2020 Rights holder is working to secure funding for the project.	Construction phase: up to 140 (without chemical processing) Operational phase without chemical processing: 80
Dundas Titanium A/S ..... Northern Greenland (Ti)	Exploitation licence: 2020 Rights holder is working to secure funding for the project.	Construction phase: up to 270* Operational phase: 175*
Greenland Anorthosite Mining APS ..... Majoqqaq Qaava (anorthosite)	EIA and SIA reports are being prepared.	Construction phase: Estimated 30-40 employees Operational phase: Estimated 60-90 employees, depending on the model selected.
Greenland Resources Inc. ..... Malmbjerget (East Greenland) (Mo)	EIA and SIA reports are being prepared.	Construction phase: Estimated 500 Operational phase: Estimated 300

* Estimated

Source: Mineral Licence and Safety Authority, May 2022

Greenland Ruby A/S mines rubies and pink sapphires at Aappaluttoq, near the settlement of Qeqertarsuatsiaat. There have been modest exports of rubies from the mine so far, which employs around 55 people. The other project in operation is Hudson Greenland's anorthosite project at Kangerlussuaq Fjord. The mine was opened in September 2019 and now employs around 15 people.

Ironbark A/S was granted an exploitation permit in 2016 to mine zinc and lead at Citronen Fjord in North Greenland and is continuing to raise the necessary capital for the project. During the operational phase, the project would employ nearly 500 people, of which only a few are expected to come from Greenland. The mine would be located in a highly remote region, far from any populated areas in Greenland.

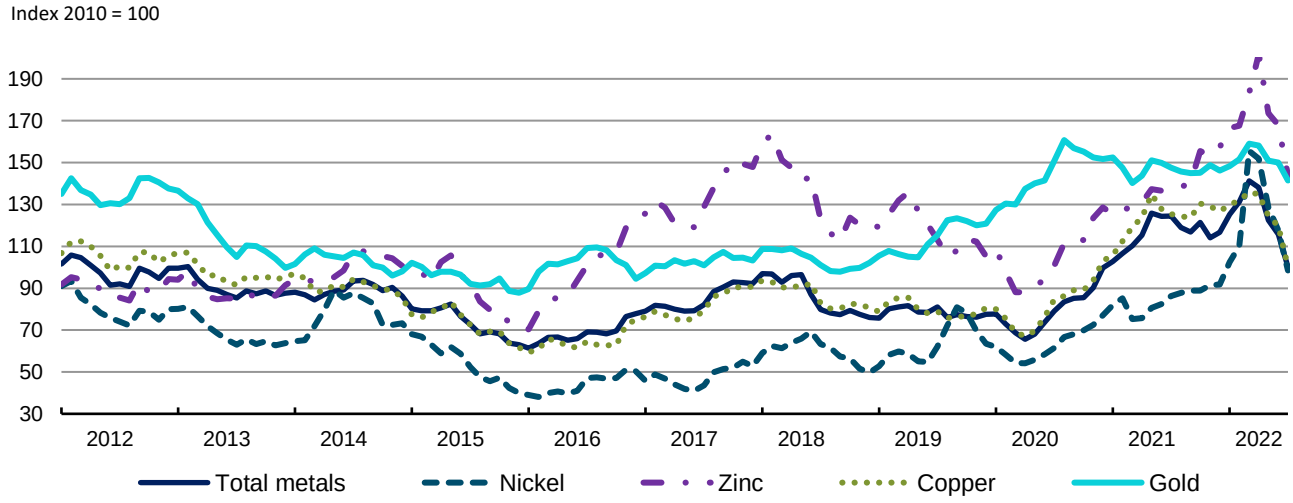
In addition to the above projects, which are in the operational or initial construction phase, there are an additional five projects with exploitation permits, but where financing has not yet been secured, and consequently construction has not started. Nalunaq A/S, owned by AEX Gold Inc., plans to reopen the gold mine near Nanortalik in South Greenland and pursue exploration activities at previously discovered gold deposits in the area. The project is still in the exploratory stage and detailed production plans have not yet been disclosed. In August 2020, Tanbreez Mining Greenland was granted an exploitation licence to extract rare earth elements at Killavaat Alannguat in South Greenland. The construction phase is expected to take two to three years and create around 80 local jobs during the production phase. In December 2020, Dundas Titanium A/S, a subsidiary of the Blue Jay Titanium Mining Company, was granted an exploitation licence to mine ilmenite. The project is expected to employ up to 270 people during the construction phase and 175 people during the operational phase. Greenland Anorthosite Mining ApS is working to establish a mine at Majoqqap Qaava in the area of Fiskenæs Fjord, south of Nuuk. Exploration has revealed promising deposits of anorthosite in the area. During the operational phase, the mine is expected to employ 60 to 90 people. Greenland Resources Inc. has a molybdenum project at Malmbjerg, in East Greenland. The company is

working to establish an open-pit mine 30 km from the coast and it is estimated that it could employ up to 300 people during the operational phase.

In early July 2021, the Government of Greenland initiated consultations on draft legislation that would prohibit uranium prospecting, exploration and exploitation. The draft law was adopted on 9 November 2021 and came into force on 2 December 2021. As a result, the proposed exploitation by Greenland Minerals A/S at Kuannersuit, with uranium as a by-product, is no longer considered a viable project in its original form.

In the first quarter of 2022, prices for a number of commodities rose sharply; *see Figure 1.6.* The World Bank notes in its annual *Commodity Markets Outlook* for April 2022 that the prices of a number of metals are expected to rise by up to 16% in 2022 compared to the previous year, then decline slightly again in 2023. Price increases for these commodities are fuelled by supply bottlenecks arising from lockdowns associated with the COVID-19 pandemic but are also linked to disruptions to supply chains caused by Russia's invasion of Ukraine. The price of commodities could become highly volatile if there are further disruptions to global supply chains, for example, as a result of additional lockdowns in China. But over the long term, the transition away from fossil fuels could help to sustain the prices of a number of metals, most notably aluminium, copper and nickel.

Figure 1.6 World Bank metal prices index, 2012-2022



Note: Price index in USD. Most recent observation is May 2022.
Source: World Bank Commodity Markets Outlook

The sharp rise in prices for minerals and metals may lead to increased interest in mining exploration in Greenland. The growing focus on European self-sufficiency may also be a strong contributing factor for this level of interest. This underscores the need for sound and stable conditions for mineral exploration and mining.

1.3. Investments

There is a high level of construction activity in Greenland, with projects already underway as well as planned projects; *see Table 1.2* for an overview of major infrastructure projects.

Table 1.2. Selected major infrastructure projects

Project	Sector	Status	Projected volume of investment
Kalaallit Airports International[1] ..... . Nuuk	Aviation (airports)	The main construction work is expected to be completed in 2022, after which half of the new runway will be put into service while the remaining part is completed. Garage building partially completed and design of terminal buildings underway.	DKK 3,900 million total for Nuuk and Ilulissat
Kalaallit Airports International[1]. . . . . Ilulissat	Aviation (airports)	Site preparation for the terminal area is scheduled for completion in June 2022. Some construction equipment will be moved from Nuuk to Ilulissat during the course of 2022, after which construction of the runway will intensify.	DKK 3,900 million total for Nuuk and Ilulissat
Kalaallit Airports Domestic[2]. . . . . Qaqortoq	Aviation (airports)	Work on the project started in the summer of 2022. Construction of airport buildings tendered in spring 2022.	DKK 1,044 million
Esani A/S . . . . . Municipal waste management company	Energy	Financing secured for two incineration plants and two or three waste oil facilities	DKK 450 million.
Vandkraftværker[4]. . . . . Aasiaat and Qasigiannguit	Energy	Greenland is currently exploring the possibility of Denmark contributing to the funding.	DKK 1,345 million
Expansion of hydropower plant[4]. . . . . Nuuk	Energy	Greenland is currently exploring the possibility of Denmark contributing to the funding.	DKK 1,675 million
Nuuk City Development.	Urban development	Efforts are underway to obtain loans to finance the remainder of the construction.	DKK 1,250 million

Source: 1) Kalaallit Airports International Annual Report 2021. 2) Kalaallit Airports Domestic Annual Report 2021. 3) www.esani.gl 4) Letter of intent between the Government of Denmark and Greenland's Naalakkersuisut on financing for hydropower projects in Greenland as part of the green transition, March 2022, Naalakkersuisut and Socioeconomic Impact Assessment Hydropower Projects in Greenland, updated 14 June 2021 5) Information obtained from Nuuk City Development and Kommuneqarfik Sermersooq.

In autumn 2019, work began on the construction of the airport in Nuuk. The majority of the construction work is expected to be completed during 2022, when the first half of the new runway is expected to be operational. The final design phase of the terminal building is underway. It is expected that the runway will be ready for use in Q4 2024.

Work on the airport in Ilulissat started in autumn 2020, but bad weather and the COVID-19 pandemic led to crewing challenges, so construction efforts initially focused on the runway in Nuuk. When the bulk of the construction work in Nuuk is completed in 2022, construction equipment will be transported from Nuuk to Ilulissat to carry out the work there. It is expected that the runway will be ready for use in Q4 2024, but a section of the access road will not be ready until 2025.

The total financing plan for Nuuk and Ilulissat airports originally allocated slightly more than DKK 3 billion. This amount did not take into account Kalaallit Airports International's additional financing needs of DKK 900 million for both construction (approx. DKK 728 million) and the start-up operating costs of the airports (approx. DKK 140 million), *see section 2.1.*

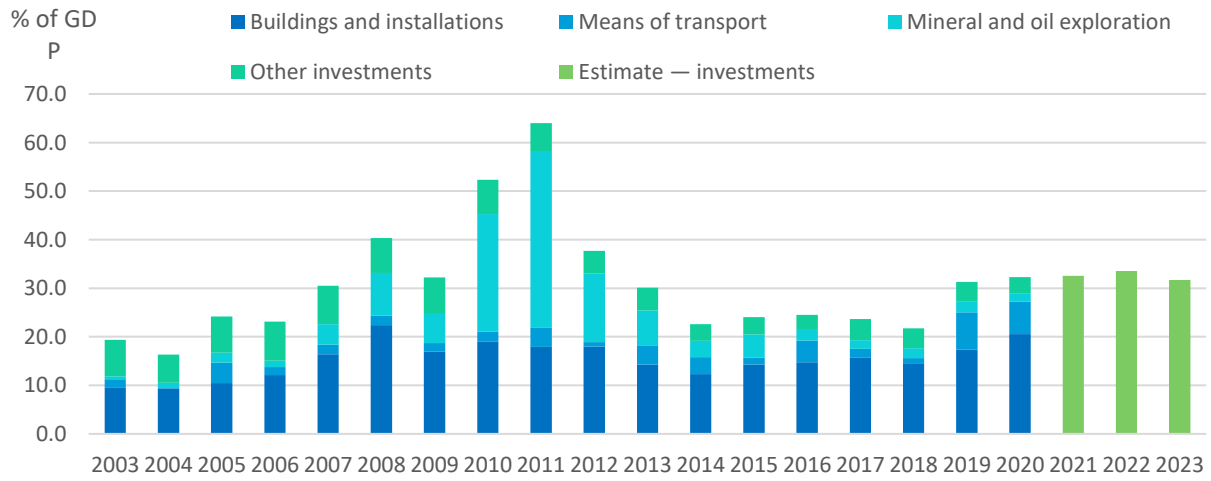
Construction of the airport in Qaqortoq was tendered twice, but it was not possible to implement the project within the budget of DKK 669 million allocated by Naalakkersuisut. In autumn 2021, Naalakkersuisut allocated an additional DKK 462 million for the project, after which a Canadian company won the tender and is expected to start construction in summer 2022. The construction work is estimated to last three years, with commissioning in 2025.

Another project that has been launched is the joint municipal waste management company ESANI A/S. Two modern waste incineration plants will be built, one in Sisimiut and one in Nuuk, as well as a number of waste oil treatment plants. The incinerators are expected to be operational in 2023 and 2024. Financing for these facilities was secured by late 2021, with the Greenland Government Authorities and the municipalities contributing DKK 100 million in the form of capital contributions and loans, and DKK 250 million financed by commercial banks as loans. Furthermore, the company has signed an agreement with Nukissiorfiit for delivery of district heating with a value of DKK 600 million over a period of 30 years.

In light of Naalakkersuisut's objective for public energy supply to be based on renewable energy to the greatest possible extent by 2030, a bill was introduced on the conditions for the construction, financing and operation of hydropower plants to supply Nuuk, Qasigiannguit and Aasiaat. The law was passed during the 2021 autumn session. The Danish government and Naalakkersuisut subsequently agreed to explore how Denmark could contribute to financing these hydropower plants. Financing is expected to be finalised by autumn 2022.

Under the recently dissolved urban development corporation Nuuk City Development, construction of a school, daycare centres and a fire station commenced and will be completed. An agreement is still pending on the financing of the remaining part of the construction work, estimated at DKK 1.25 billion.

Figure 1.7 Gross investments as a percentage of GDP, 2003-2023



Note: Current prices. Data for 2003-2020 are preliminary national accounts figures, while 2021-2023 are based on the Economic

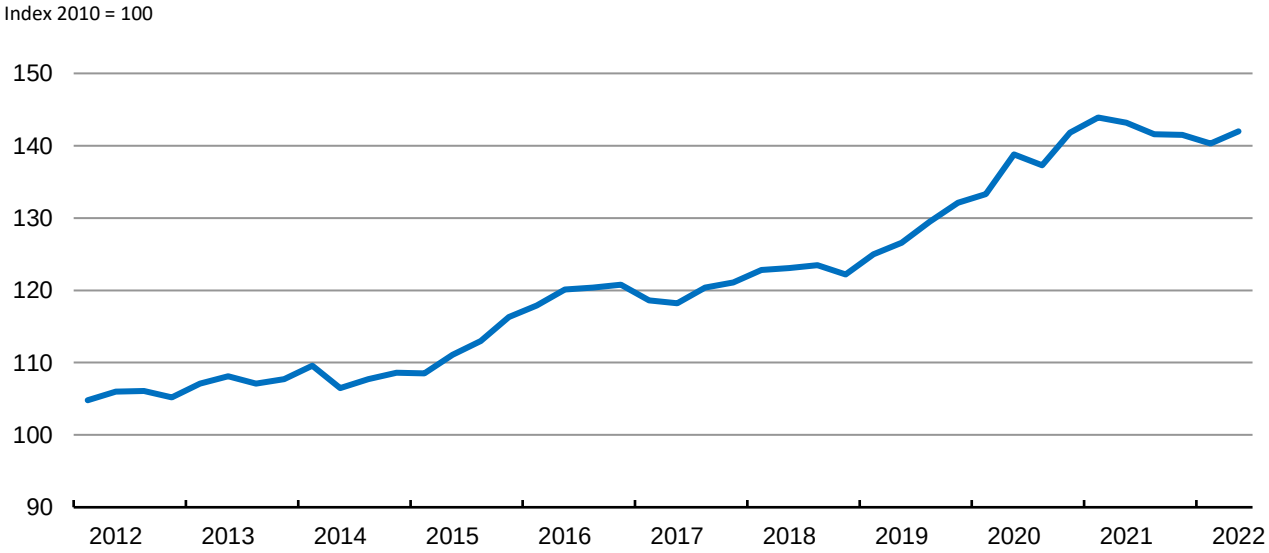
Council's forecast.
Source: Statistics Greenland and The Economic Council.

Investment in construction and civil engineering projects accounts for a growing proportion of GDP, reaching 33% of GDP in 2020, and is expected to remain at a high level in the years 2021 to 2023; *see Figure 1.7.* Investment plans are in place in a number of areas, while there are significant maintenance backlogs in areas like airports, ports, housing and energy supply; *see Chapter 2.*

1.4 Consumption and prices

Retail turnover in the three largest supermarket chains has stagnated over the past year and in Q2 2022 is slightly below the level in Q2 2021. This follows a significant increase in 2019 and 2020; *see Figure 1.8.* This sharp increase in 2020 is partly due to the COVID-19 pandemic, which shifted consumption away from services — especially air travel — and toward goods. This was in line with a global trend toward increased consumption of goods and reduced consumption of services, as the pandemic restrictions were aimed particularly at the service sector. All around the world, these developments have increased pressure on international supply chains and led to rising shipping rates and commodity price increases. Accordingly, the stagnation in retail sales in 2021 may simply reflect the gradual phasing out of travel restrictions and the normalisation of consumption patterns toward more services (especially air travel).

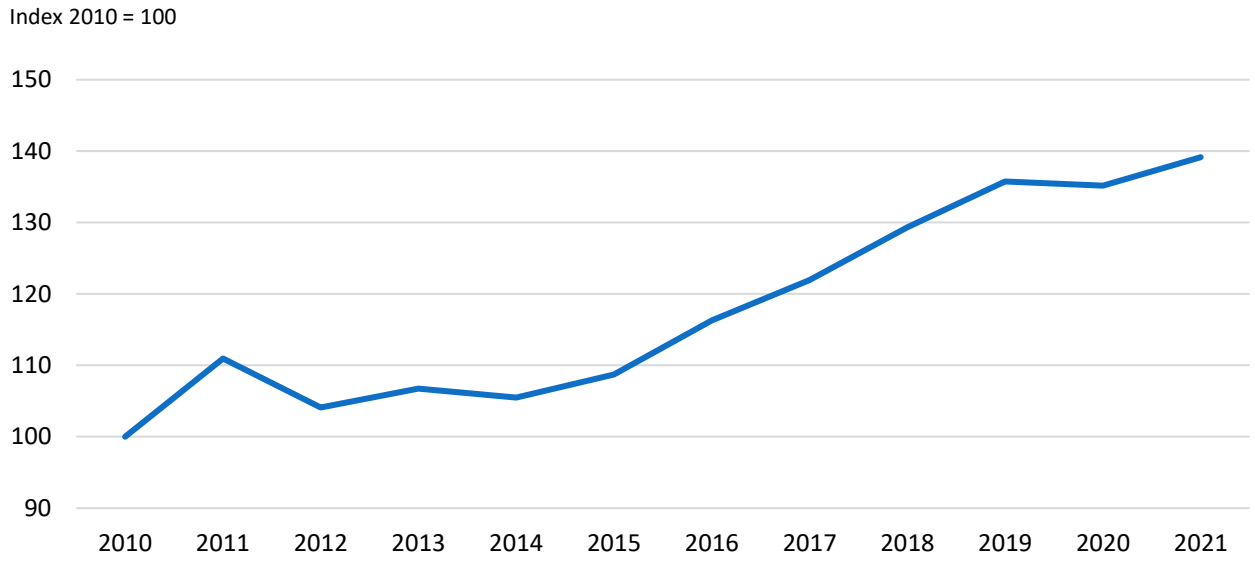
Figure 1.8 Retail sales, seasonally adjusted, 2012-2022



Note: Most recent observation is Q2 2022
Source: Statistics Greenland.

The increase in consumption since 2015 is closely tied to rising employment and growing household incomes, fuelled in large part by high seafood prices. Business earnings have increased significantly for a number of years, albeit with a brief slowdown in 2020; *see Figure 1.9.* Income growth continued in 2021, judging by tax data on labour market contributions, which strongly correlate with trends in wage income, etc.

Figure 1.9 Trends in earned income, index 2010 = 100



Note: This figure shows trends in revenue from labour market contributions, indexed to 2010 = 100. Labour market contributions are paid on all earned income, excluding deductions, so the index reflects trends in earned income. However, no labour market contributions are paid to Greenland on public sector salaries.
Source: Treasury accounts and own calculations

Rising consumer prices

In many parts of the Western world, inflation has risen to its highest levels since the 1980s. European consumer prices increased by 8.6% in June 2022 compared with the same month the previous year, and Danish consumer prices rose by 9.6% in July 2022 compared with the same month the previous year.[3]

The current high rate of inflation among Western countries is linked to several factors. *First,* economic policies in many countries have been extremely lax during the COVID-19 pandemic. Extraordinary fiscal stimulus measures have been implemented to stabilise economies and monetary policy has moved in the same direction with very low interest rates. This has stimulated demand and put upward pressure on prices. *Second,* the pandemic has shifted consumption toward goods and away from services, which for long periods were subject to restrictions. International supply chains have come under pressure, as evidenced by rising shipping costs, a shortage of parts and components, and rising commodity prices. The combination of strong demand and weak supply has compounded inflationary pressures in the global economy since the

[3] European consumer prices are measured here by the annual rate of increase of the Harmonised Index of Consumer Prices (HICP) for the eurozone; *see Eurostat, Euroindicator 1 July 2022.*

second half of 2021. *Third,* the war in Ukraine has led to large increases in food prices, as both Ukraine's and Russia's large food export markets have been hard hit by the war. The war has also led to significant price increases for fuel and natural gas because Russia accounts for slightly more than 10% of global oil production. The price of a barrel of Brent oil was around 100 dollars in August 2022. Futures prices of oil indicate that energy prices will decline slightly during the year, but are expected to remain at a high level.

Sooner or later, rising oil prices will mean higher import prices here in Greenland. In the years 2011 to 2013, when the price of oil was also above 100 dollars per barrel, the import value of fuel was roughly DKK 1.1 billion to 1.3 billion. By comparison, the value of imports was between DKK 400 million and 900 million in 2015 and 2019. Hence, the increase in the price of oil will result in additional costs for Greenland insofar as no price hedging agreements have been concluded for deliveries of oil and other fuel. Based on a service contract, Polaroil supplies diesel and petroleum products to communities throughout Greenland, and the price hedging agreements concluded for 2021-2023 will shield Greenland to some extent from energy price increases during this period. The impact on consumer prices has thus been much smaller than in other countries. In some areas, however, price increases are being felt, for instance through rising shipping costs and increasing costs for petroleum products not covered by the service, such as for trawlers, mines, etc.

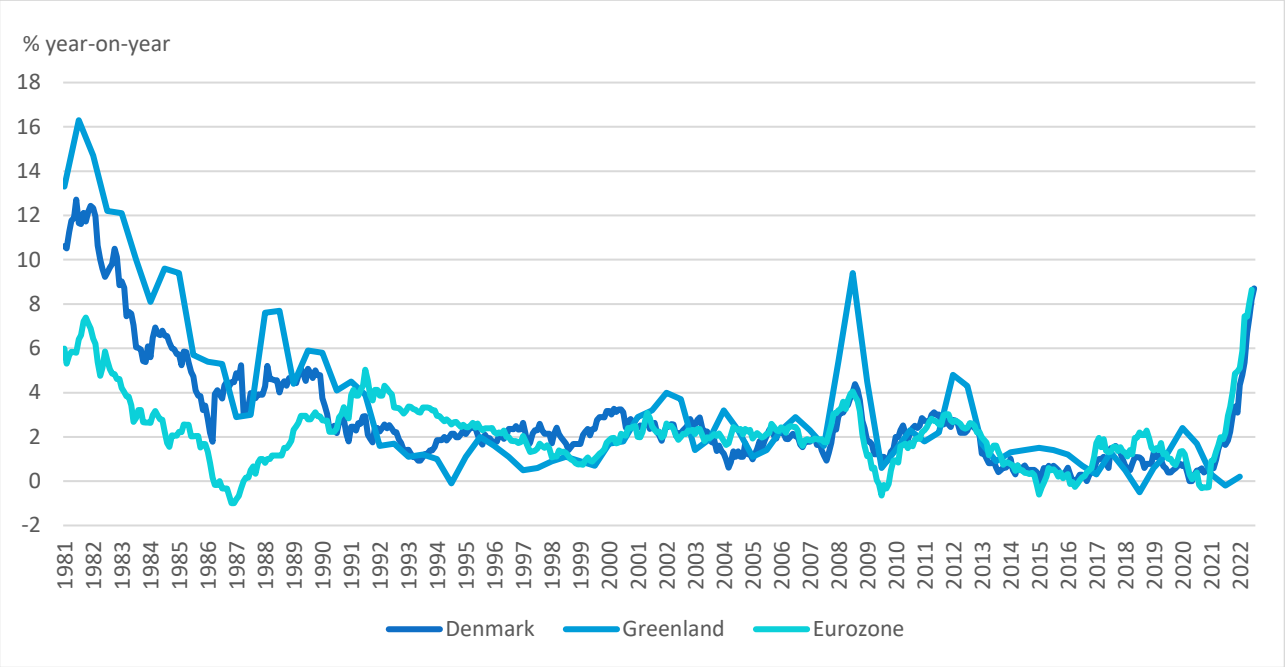
It will not be possible to fully insulate ourselves from higher global energy prices over the coming years, and food import prices are expected to rise, with a corresponding impact on consumer prices in 2022. This will follow a long period of relatively stable consumer prices. Over the past five years, consumer prices have risen on average by less than 1% per year, partly as a result of particularly low price increases — and periods of declining prices — for housing, furnishings and telecommunications, which are expenditure categories that weigh rather heavily in household budgets.

Housing costs — which include rent, electricity, water and heating — account for 27% of the consumer price index. Over the period since 2015, this expenditure category has seen a 5% decline in prices. By comparison, over the same period, Denmark has seen a 14% increase in the price of housing.

This trend in prices most notably reflects that maintaining low rents and affordable rates for electricity, water and heating has long taken precedence over ensuring the necessary renovation and maintenance of Greenland's public housing; *see section 2.3.*

The increase in Greenlandic consumer prices over the coming years will depend to a large extent on international developments. There is a clear link between Greenlandic and Danish inflation, just as the fixed exchange rate policy leads to a close link between Danish inflation and inflation in the euro countries; *see Figure 1.10.* In periods where inflation rates have diverged significantly between Greenland and Denmark, this has often been due to changes in import taxes. For example, major tax increases on sugar, alcohol and tobacco were adopted in 2007 and 2019.

Figure 1.10 Increase in consumer prices in Greenland and Denmark and euro countries* since 1980



Note: The annual increase in consumer prices measured in per cent. *Germany 1981-1990 and euro countries 1991-2022.
Source: Statistics Greenland, Statistics Denmark and Macrobond.

Several factors point to declining global inflationary pressures in 2023. Most importantly, the US and Europe have tightened their monetary policies considerably and rising interest rates will put a damper on economic activity. A gradual normalisation of global supply chains will also help to ease inflationary pressures, although new lockdowns in China and elsewhere could delay this process. Finally, diminishing price increases for energy, commodities and food will also reduce future inflationary pressures. For example, the OECD predicted in June 2022 that inflation in Europe will gradually decline to 4% in 2023 after peaking at around 8% in mid-2022.[4] Declining global inflationary pressures would mean, however, that the current rate of inflation will not trigger an accelerating wage-price spiral. This requires in particular that our inflation expectations do not spiral out of control, but remain anchored at around 2%, which is the target set by the leading Western central banks.

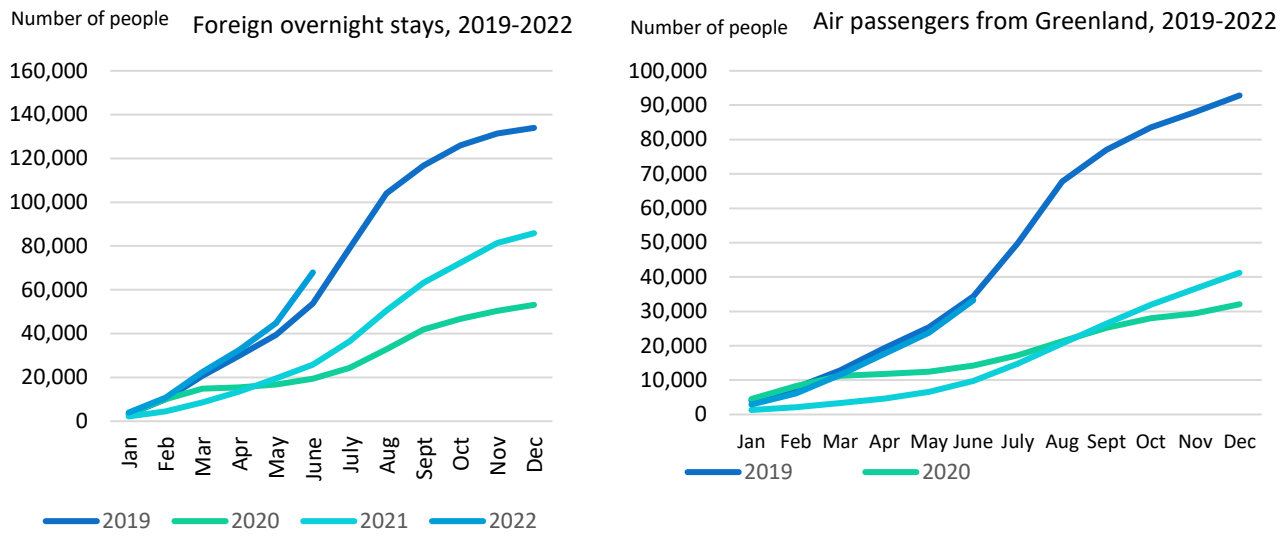
With European inflation forecast at around 8% in 2022 and falling to around 4% in 2023, domestic consumer prices are expected to be in the order of 3-4% higher by the end of 2022 and 2-3% higher by the end of 2023. The fact that price increases this year are lower than in other countries is linked both to existing price hedging agreements on energy products and ongoing low price increases on the cost of housing. Consumer prices are expected to rise as price hedging contracts expire. There is particular uncertainty surrounding inflation, which hinges both on how the global crisis unfolds and on the impact of international prices on the domestic economy — and on whether price increases are transitory or more prolonged. Higher producer prices will eventually be passed on to consumers, but the timing depends on many factors, including the state of market competition, price hedging agreements, etc.

[4] See *OECD Economic Outlook*, June 2022.

1.5 Tourism

The negative impacts of the pandemic were mainly felt by the tourism and travel industries. Tourism may make a strong comeback as a result of the lower rates of infection here in Greenland and in the rest of the world, although uncertainties related to the war in Ukraine and declining purchasing power from inflation may slow tourist flows. However, preliminary figures for foreign overnight stays clearly indicate increased foreign interest. Some of the increase in foreign overnight stays in the second half of 2021 and in 2022 may be linked to incoming labour. Similarly, the number of air passengers from Greenland in 2022 has returned to roughly the same level as before the pandemic; *see Figure 1.11.* Both the sharp decline in tourism in 2020 and 2021 and the recovery in 2022 show how sensitive the industry is to the threat of infection. New virus mutations can spread rapidly around the world and will pose a latent risk of infection in the years to come. This means that new temporary travel restrictions in the other parts of the world could quickly change the situation for the tourism sector.

Figure 1.11 Air passengers from Greenland and foreign hotel overnight stays, 2017-2022



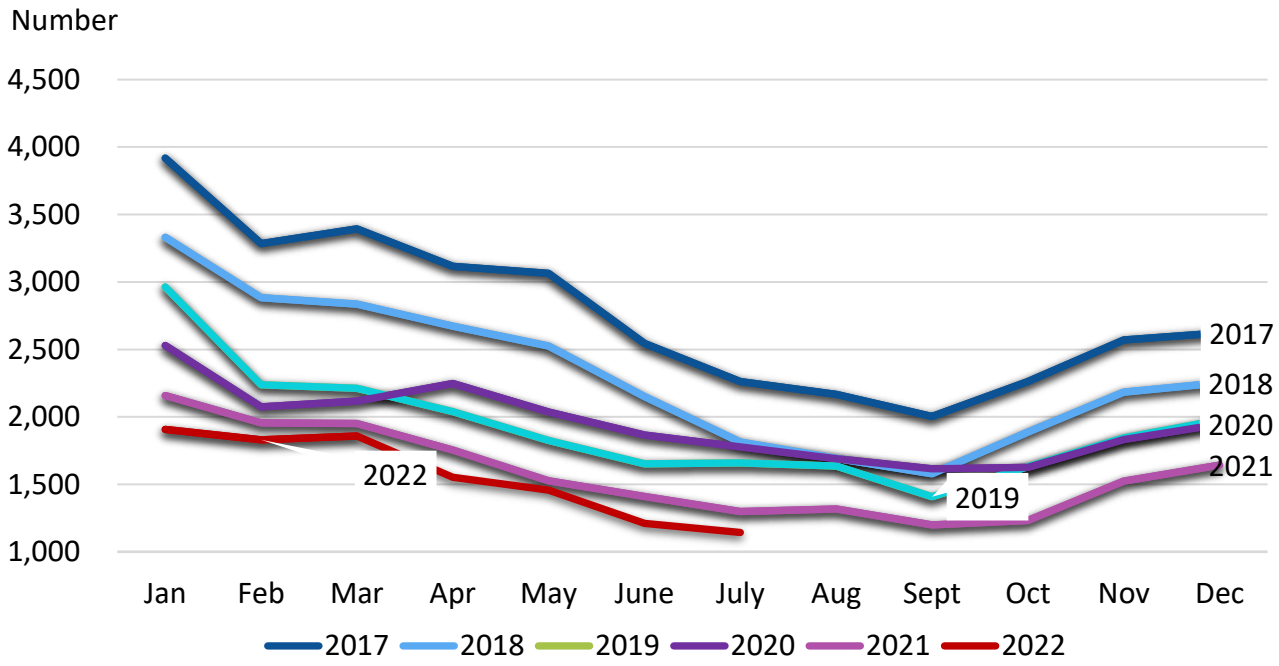
Note: Cumulative figures, year to date.
Source: Statistics Greenland

The number of cruise ships visiting Greenlandic waters has increased significantly in 2022 after two years of suspended operations. No statistics are available for 2022 for the number of cruise ship passengers, but Sikuki Nuuk Harbour expects to have approx. 50 cruise ships in port and between 20,000 and 22,000 passengers in Nuuk. By comparison, there were between 34 and 36 cruise ship calls in Nuuk between 2017 and 2019. The surge in cruise ship tourism is spilling over into the business activities of local tourism operators, who are, however, experiencing difficulties in recruiting local guides.

1.6 Economic activity and employment

Business activities slowed slightly in 2020, but Greenland managed to weather the COVID-19 pandemic far better than most other countries. Total employment continued to increase in 2021, as reflected in the number of registered jobseekers; *see Figure 1.12.* The statistics on jobseekers indicate the number of individuals who contacted their local authority during a given month because of unemployment. The decline is most pronounced in urban areas and mainly pertains to people who are ready to take up employment.

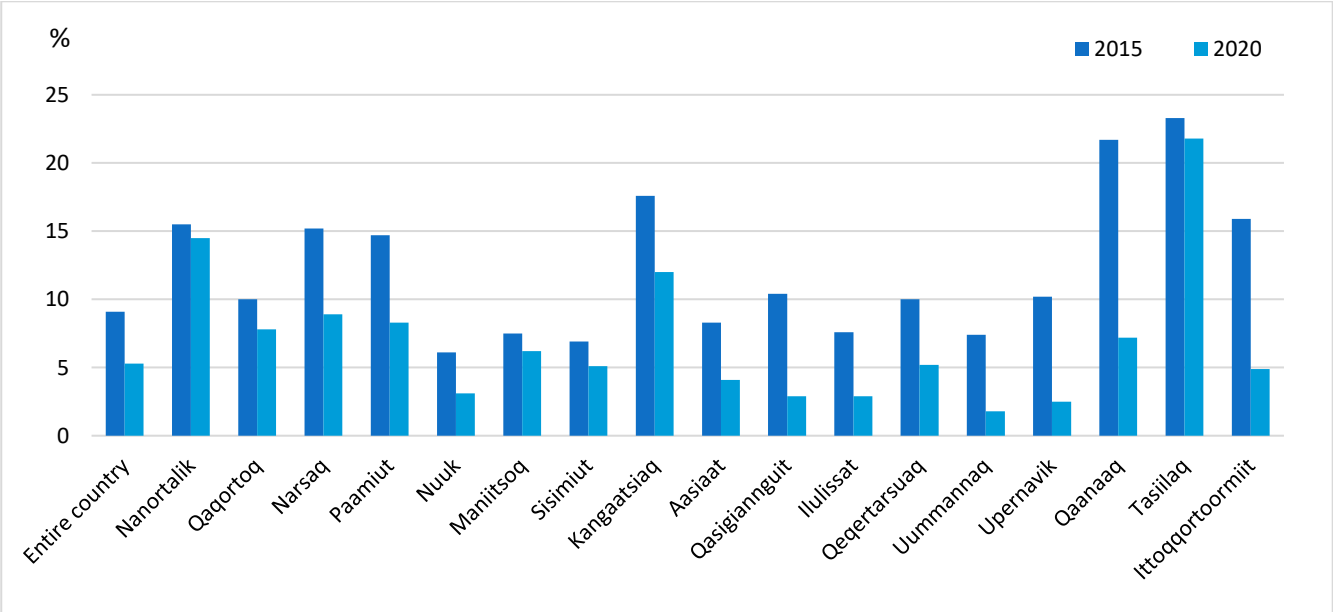
Figure 1.12 Number of registered jobseekers, 2017-2022



Source: Statistics Greenland

Although unemployment has declined in all towns and cities since 2015, it is primarily Nuuk that is experiencing an acute shortage of labour. In 2020, unemployment remained high in several communities. For example, unemployment in Nanortalik, Tasiilaq and Kangaatsiaq was 14%, 12% and 20%, respectively, for the entire labour force, and even higher if only young people under 30 are taken into account.

Figure 1.13 Unemployment by district

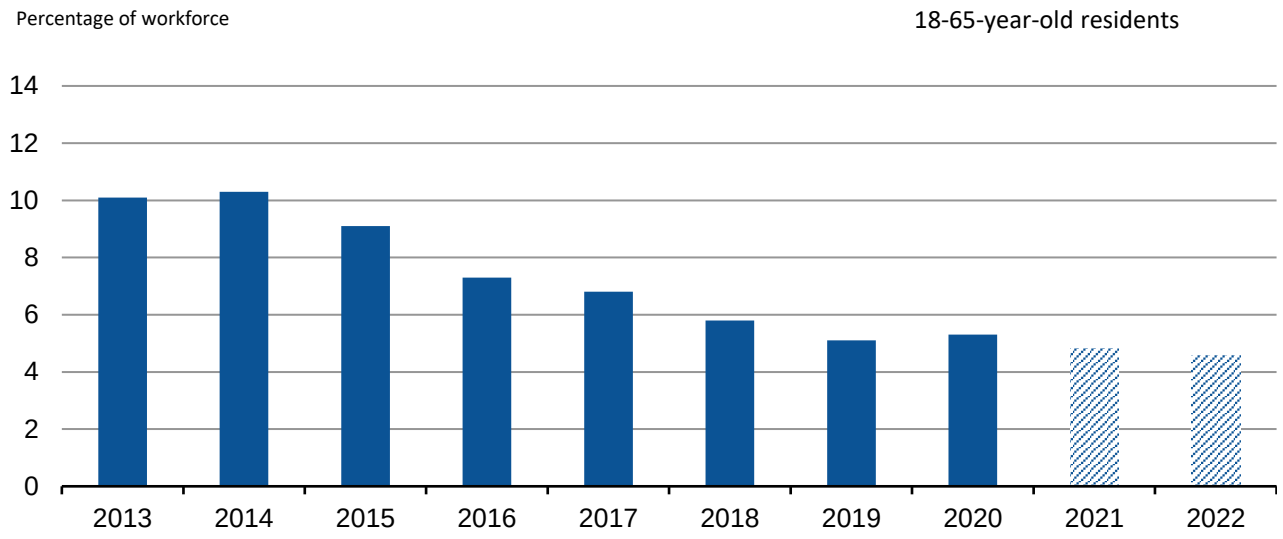


Source: Statistics Greenland

The excellent job opportunities in Nuuk are one of the reasons why people continue to move to the capital. Population trends since 2015 show that every year between 200 and 400 people move to Nuuk from other towns in Greenland. Other communities — with few exceptions — are experiencing a net migration. South Greenland and Tasiilaq are particularly hard hit by this population exodus. Since 2015, a total of 740 people have moved from Kommune Kujalleq to other parts of the country or abroad. The corresponding figure for Tasiilaq is 413 individuals.

Statistics Greenland publishes annual register-based statistics on unemployment among permanent residents aged 18-65. In recent years, the number of registered jobseekers has mirrored quite closely the unemployment trend in the registry-based statistics, with the average monthly number of registered jobseekers being 900-1,000 greater than the average monthly number of unemployed persons. If the workforce were assumed to remain more or less unchanged, a mechanical projection would result in an unemployment rate of 4.8% in 2021 and 4.6% in 2022; *see Figure 1.14.*

Figure 1.14 Unemployment rate among 18-65-year-old residents, 2010-2022



Note: The figures for 2012 to 2020 are from Statistics Greenland, whereas the figures for 2021 and 2022 were calculated by the Economic Council.
Source: Statistics Greenland and own calculations

In summary, the statistics and indicators show that employment has been rising and unemployment falling since 2014. With the prospect of a further recovery in 2022 and 2023, labour market pressures will continue, as will the need to expand the workforce or to recruit more foreign workers.

It is important to tackle the challenges facing the labour market, both in the short term and in the long term. Already today, there are no unemployed people in the country with a vocational qualification and the dependence on incoming foreign labour is set to increase further over the coming years. The main structural challenges of the labour market are to improve the skills of those with no tertiary education and to raise the overall level of educational attainment.

The economy is expected to grow by a total of 4% from 2020 to 2023. Growth in 2021 and 2022 is closely linked to the high level of investment and activity in construction. Public consumption appears to have increased by around 1% in 2021, based on the increase in the number of full-time public employees. This is the sixth consecutive year of growth in the number of public sector employees, even though plans call for lower public consumption growth. Construction activity is expected to remain extremely robust this year and into 2023, with airport-related activities serving as a major driver. Growth is expected to slow to around 1% in 2023, with price increases expected to dampen purchasing power and demand; *see Table 1.3.*

The labour market will consequently continue to be characterised by high employment, a shortage of skilled workers and ongoing difficulties in recruiting both domestic and foreign labour. With significant pressure on the labour market, wage pressures are likely to increase. Rising prices are also driving up wage pressures as workers seek to avert a fall in real incomes. Wage pressures are also influenced by the fact that wages abroad have increased, for example, in the construction trade.

Table 1.3. Supply balance, annual real growth in %

	Percentage of GDP in 2019	2016	2017	2018	2019	2020	2021	2022	2023
							Forecast		
Private consumption	35.0	1.5	0.9	1.5	-0.1	1.6	1.5	0.2	0.3
Public consumption	43.8	1.8	1.7	3.0	4.4	-2.1	1.0	0.4	0.4
Gross investments	31.3	10.9	-4.1	-6.9	53.3	5.9	3.3	5.2	-4.4
Export of goods and services	41.1	15.2	-3.8	3.6	-10.4	-6.2	1.5	2.0	2.0
Aggregate expenditure	151.2	5.9	-1.4	1.7	6.8	-0.7	1.7	1.8	0.5
Imports of goods and services	51.2	11.0	-3.5	2.4	14.5	-2.8	2.8	2.2	-2.9
Gross domestic product	100.0	4.7	0.1	0.6	2.3	0.4	1.2	1.6	1.0

Note: 2016-2018 are final figures; 2019-2020 are provisional figures; 2021-2023 are Economic Council estimates.
Source: Statistics Greenland and own calculations

Chapter 2 Economic policies

The current economic situation is favourable, with high levels of activity and employment, and although there are uncertainties surrounding economic developments in the near future, the main challenges are related to slightly more long-term developments. One of the main challenges to maintaining the current situation is the ongoing sustainability problem in public finances, including a significant maintenance backlog in housing and infrastructure, as well as the demands and needs to deliver on political aspirations and in response to socioeconomic developments.

Section 2.1. of this chapter provides a brief overview of the current financial situation of the Greenland Government Authorities and the municipalities. As a basis for a discussion of public borrowing, an overview of maintenance backlogs and investment plans is provided in section 2.2. The scope for combining economic prosperity with increased equality through education — including the resulting demands on compulsory education — is discussed in section 2.3. Economic policy requirements and reforms are examined in section 2.4.

2.1 Public finances

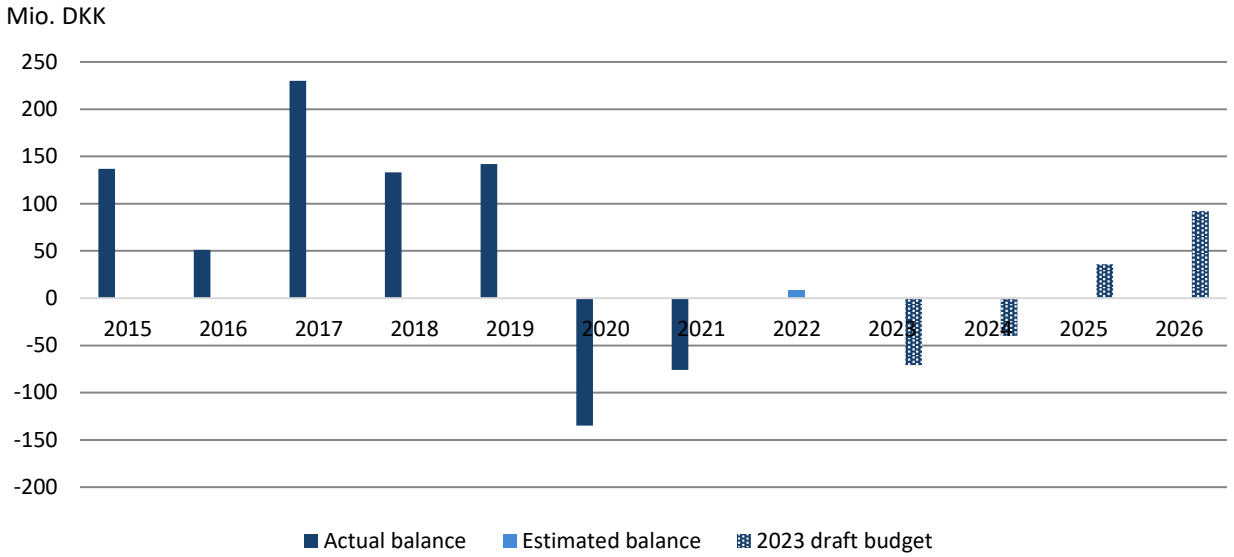
The 2023 draft budget foresees a deficit of just over DKK 70 million in 2023 and DKK 40 million in 2024, followed by surpluses in 2025 and 2026. The proposal thus complies with the Budget and Accounting Act[5] requirement that, at a minimum, revenue and expenditure, as measured by the budgeted OI result (operating expenditure and investment), must be balanced over the 2023-2026 financial period.

The projected deficits in 2023 and 2024 can be partially explained by the high expenditure growth in previous years. The draft budget contains some minor reform measures that are costly, but also a reduction in the price and wage adjustments to operating and subsidy appropriations so that, with the exception of healthcare, they will only be adjusted by half of the calculated adjustment rate of 2.85%. The 2023 draft budget includes a review of reform plans, but a comprehensive plan will be presented as part of the Sustainability and Growth Plan II, which is expected to be released in early 2023.

It is now possible to form a more detailed picture of the impact of the COVID-19 crisis. As described in Chapter 1, the impact of the crisis on economic activity in Greenland has been significantly more muted than in most other countries. For the years 2020 and 2021, the Treasury has incurred a total deficit of DKK 210 million, and although this is a considerable amount, it is significantly less than anticipated during the crisis, and also comparatively less than in most other countries. The shortfalls are mainly due to expenditure on relief measures, emergency air transport and healthcare.

[5]Pursuant to Greenland Parliament Act No. 26 of 28 November 2016 on the budgets and accounts of the municipalities and the Greenland Government Authorities, Section 2.

Figure 2.1 National budget — public fiscal balance 2015-2026



Note: Positive figures indicate a surplus. 2022 is an estimate; 2022-2026 are budgeted years.
Source: 2023 draft budget

The economic situation is different in each municipality, see Chapter 1, and this is also reflected in the municipal finances. On the whole, the municipalities have an acceptable financial situation, with some notable differences: Qeqqata Kommunia and Kommune Qeqertalik have deficits, while Kommuneqarfik Sermersooq has had surpluses in both 2021 and 2022. Kommuneqarfik Sermersooq's finances are currently under review in light of the municipality's involvement in the housing sector, particularly through Nuuk City Development. In 2021, Avannaata Kommunia and Kommune Kujalleq obtained permission from the Greenland Government Authorities to increase their respective cash credit limits in a bid to enhance their liquidity, but have not had to make any significant use of the expanded limits.

Table 2.1. Municipal finances, accounts 2021 and budget 2022.

	Kujalleq	Sermersooq	Qeqqata	Qeqertalik	Avannaata	Total
2021 accounts	-147	70,394	-77,191	-20,585	26,799	-750
2022 budget	15,491	142,257	-15,699	-10,200	-21,507	110,342

Source: 2022 Political and Economic Report. For Kommune Kujalleq, the figure for 2021 is the budgetary figure.

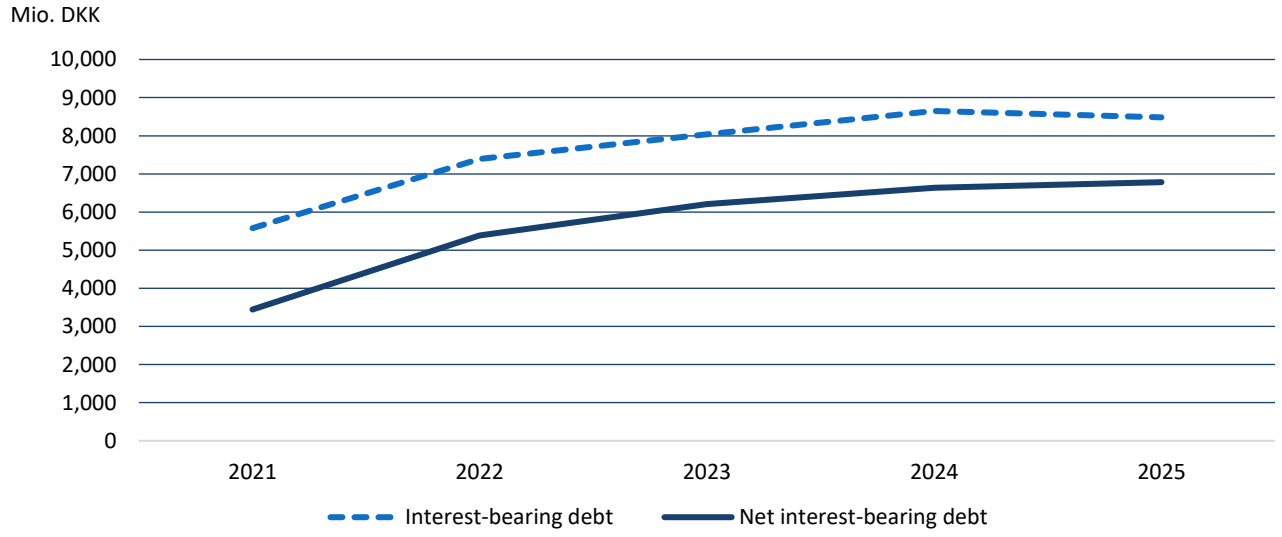
Thanks to the budgetary policy, the Treasury has no debt, but rather net assets of DKK 1.1 billion. When conducting an overall assessment of the Treasury's financial position, it is also important to include the risk exposure incurred from government-owned companies, municipal joint stock companies and the municipalities. Total net interest-bearing debt is projected to increase from DKK 3.4 billion in 2021 to DKK 6.8 billion in 2025; *see Figure 2.2.* The calculations include debt[6] incurred by Kalaallit Airports A/S and loans

[6] The projection does not include an anticipated loan of DKK 3.1 billion to finance the expansion of the Buksefjord hydropower plant near Nuuk and the construction of a hydropower plant near Qasigiannguit and Aasiaat.

obtained by Nuuk City Development[7]. This increase is due to higher debt exposure in government-owned companies and, most notably, municipal enterprises (urban and housing development companies). Loan financing of specific profitable capital investments is appropriate, but it also entails a risk exposure for the Treasury. Prolonged financial losses in one or more of these companies could have major consequences for the country's fiscal balance. The activities of these companies are generally vital to society, i.e. they are of vital socioeconomic importance and cannot be closed down in the event of financial difficulties. In such a situation, the Treasury would be encumbered to maintain the activities in question. The debt situation must also be viewed within the context of both a significant maintenance backlog and a series of investment plans; *see below.*

Chapter 3 presents an updated sustainability calculation and highlights increasing pressures on public finances and recurrent budget deficits. The deficit will be around 3% of GDP from around 2035, when the ratio of elderly to the general population will reach a peak. This corresponds to an annual financing shortfall of around DKK 1 billion (measured at 2020 levels) if the trend in public finances is to remain sustainable over the long term. As a percentage of total output, the sustainability problem amounts to -5.3% of GDP. This trend is qualitatively similar to previous estimates of Greenland's sustainability problem and underscores the need for economic policy reforms.

Figure 2.2 Total debt of the Greenland Government Authorities, government-owned companies, municipalities and municipal companies, 2020-2024



Note: Net interest-bearing debt is equal to interest-bearing debt minus cash and cash equivalents.
Source: 2023 draft budget
Source: Statistics Greenland

[7] Under the recently dissolved urban development corporation Nuuk City Development, construction of a school, day-care centres and a fire station commenced and will be completed. An agreement is still pending on the financing of the remaining part of the construction work, estimated at DKK 1.25 billion.

2.2 Investment plans and maintenance backlogs

In a number of areas, investment plans are associated with improvements in infrastructure, utilities and key public activities. At the same time, there are significant maintenance backlogs that undermine the delivery of services and adversely affect people's everyday lives. Hence, Greenland will have major investment needs in the years ahead.

The following provides an overview of key investment plans and areas with maintenance backlogs. This includes both adopted measures and areas where a need or political aspiration has been established. For some of these projects, detailed studies are available that provide an assessment of the financial impact, while for others only rough calculations have been made. This section reviews some of the main investment plans and needs, but it does not provide an exhaustive list. The referenced economic assessments have not necessarily been conducted in a similar manner and have also been prepared at different times. Consequently, the figures mentioned here should be merely understood as an indication of the orders of magnitude involved.

It is essential to maintain an overview of the wide range of plans and needs, both as a basis for political debate and prioritisation — including the means of financing these measures — and with respect to the sequencing of project implementation. Most of these projects are substantial and will consequently have an impact on the overall economic activity of the country; *see Chapter 1.* With a shortage of skilled labour, there is a risk that the implementation of public projects could have a destabilising effect and further increase pressure on the labour market. There is also a risk that major projects will be abandoned at the same time, which could also have a destabilising effect. It is important to gear investment plan implementation to the economic situation. Accordingly, the following review points to the need for a global investment approach that addresses both the financing and the implementation of projects.

An airport strategy plan was adopted in 2015. The essential elements of the "airport package" are the expansion of the airports in Nuuk and Ilulissat, which has already commenced with construction activities currently underway and financing secured for KAIR International. The airport package also provides for the establishment of an airport in Qaqortoq (KAIR domestic) and runways in Tasiilaq and Ittoqqortoormiit. Table 2.1 gives an overview of the airport projects currently being pursued in addition to the airports in Nuuk and Ilulissat. Assessments of the finances of the different projects have been made at different times and based on different assumptions, for example, construction costs may have changed over time.

Table 2.1: Airport projects

Project	Finances	Notes	Status
Airport in Qaqortoq[1]	Construction costs DKK 1,044 million. Net annual cost to the Treasury DKK 3 million.	The airport fails to meet profitability criteria and has to be financed directly by the Treasury.	Tender closed and project launched. Financing secured under the 2021 budget agreement.
Runways in Tasiilaq and Ittoqqortoormiit[2]	Estimates of capital and operating expenditure are being prepared.	The runway in Tasiilaq is only marginally profitable from a socioeconomic perspective and will put a strain on the Treasury. The runway in Ittoqqortoormiit is only marginally profitable from a socioeconomic perspective.	Naalakkersuisut is working to secure financing for the initial planning phase of the two new airports.
Mittarfeqarfiit[3]	Estimated annual operating subsidies DKK 75 million.	One consequence of the air traffic restructuring process has been the establishment of KAIR. The future status of Kangerlussuaq and Narsarsuaq airports has yet to be determined.	The need for operational subsidies is under review.

Note 1) Deloitte, 2021, Socioeconomic Impact Assessment of New Airport in Qaqortoq, 2) Rambøll, 2020, Feasibility Study for New Airport in Tasiilaq, 3) Deloitte, 2022, Update of Socioeconomic Impact Assessment with Focus on Nuuk and Ilulissat Airports.

In the utilities sector, key activities include boosting the production of renewable energy by expanding existing hydroelectric power plants and building new ones. Table 2.2 provides an overview of the investment plans in this area.

Table 2.2 investment plans in the utilities sector

Project	Finances	Notes	Status
Hydroelectric power: expanding the Buksefjord facility[1]	Construction costs DKK 1,675 million.	Meets socioeconomic profitability criteria.	The project has been approved. Greenland is currently exploring the possibility of Denmark contributing to the funding.
Establishing hydropower plants in Qasigiannguit and Aasiaat[2]	Construction costs DKK 1,345 million.	Meets socioeconomic profitability criteria.	The project has been approved. Letter of intent between the Danish state and Naalakkersuisut provides a credit line of max. DKK 3.1 billion, with the Danish state either guaranteeing loans or providing direct loans from Denmark.
Hydropower plant in Tasiilaq[3]	Estimated annual operating expenditure DKK 40 million.		Inatsisartut has decided that Naalakkersuisut will present a proposal for the construction, operation

			and financing of the project by the 2023 autumn session.

Note: 1) and 2) Naalakkersuisut, Socioeconomic Impact Assessment Hydropower Projects in Greenland, updated 14 June 2021, 3) Stated in response to a Section 37 query for information submitted by the Naalakkersuisoq (Minister), January 2022.

For several years now, significant maintenance backlogs have accumulated in a number of areas, including housing, utilities and infrastructure (ports and airports/heliports). At the same time, there are growing requirements to improve standards in areas like housing and hospital services. Table 2.3 provides an overview of some of the main areas.

Table 2.3: Maintenance backlog and new construction

Project	Economic estimates	Notes	Status
Ports[1]	Maintenance backlog estimated at DKK 230-270 million.		An annual DKK 25.2 million is allocated in the budget for reinvestment in ports.
Housing[2]	Preliminary estimates of maintenance backlog: i) Rental housing owned by the Greenland Government Authorities DKK 3.7-3.9 billion. ii) Municipal rental housing (excluding Kommuneqarfik Sermersooq) 1.2 billion.		Further assessments pending the 2022 National Spatial Planning Report.
Nukissiorfiit[3]	Maintenance backlog DKK 2.4 billion.	Nukissiorfiit has been operating with systematic deficits as a result of the 2018 price reform, and its future financial foundation has yet to be clarified.	No concrete initiatives.
Healthcare[4]	Maintenance backlog and new construction 800 DKK million.	Must be financed by the Treasury.	No concrete initiatives.
Retirement homes and housing for the elderly[5]	Maintenance backlog and new construction (medium scenario) DKK 1,120 million.	Must be financed by the municipalities.	No concrete initiatives

Note: 1) Report on Maintenance Backlog at Greenlandic Ports, 2021, Department of Housing, Infrastructure and Gender Equality, 2) Comprehensive Housing Plan, 3) Draft budget for 2023, 4) Health Sector Plan, with the Health Commission quoted here, 5) Status of Housing Stock for Senior Citizens in 2020, Department of Social Affairs, Family and Justice, October 2020.

Financing

The multitude of construction plans and projects generates significant financing needs. The Budget and Accounting Act[8] stipulates the available options for financing construction activities with loans. It states (in Section 6) that *"Naalakkersuisut may only take out or authorise loans for investment in housing, business or infrastructure projects if user payments, reduced public expenditure or additional public revenue derived from such expenditure can, at a minimum, finance the interest and repayments associated with the loan. A further condition is that said investments must contribute to long-term fiscal sustainability".* In addition, municipalities may not, without the approval of Naalakkersuisut, take out loans and/or incur other debt obligations, etc. for activities that do not meet the requirement that various forms of revenue can cover the interest and repayment of the loan (Section 24).

The net revenue requirement tied to covering interest and repayments is an essential principle aimed at avoiding an excessive accumulation of debt, which could put a strain on the Treasury and have a destabilising effect, not only on the finances of the agreement Government Authorities, but on the economy as a whole. Activities that do not meet the net revenue requirements of the Budget and Accounting Act must be financed directly by the Treasury. This ensures that activities are not launched without a sound financial footing, which is essential for stable economic development. It is also important to bear in mind that unprofitable projects not only involve capital investment but typically also a need for operating subsidies during the subsequent use phase. There may be good reasons for implementing a project that does not meet the profitability requirements of the Budget and Accounting Act, for example, projects with a significant impact on people's quality of life, but in prioritising such initiatives there is also an obligation to secure funding for them.

The Budget and Accounting Act requirements for determining whether a project can be financed through borrowing differ from the criteria for assessing whether a project is socioeconomically profitable. The former is linked to the net revenue requirement needed to cover interest and amortisation payments. The latter is broader and may include, for example, the value of the travel time saved by passengers, which is a significant benefit to include, but is not necessarily reflected in revenue or cost savings. For instance, the analysis of the runway at Tasiilaq shows that a tarmac runway with a length of 799 metres is profitable from a socioeconomic perspective (less deficit than the current situation with an airport in Kulusuk), while it will be a burden for the Treasury from a budgetary perspective. The difference is partly due to the value of the travel time saved. It is also important to note that these calculations take into account that reduced travel times result in time savings for employees of the Greenland Government Authorities and the municipalities, the assumption being that the time saved can be translated into additional effective working time, with a corresponding reduction in the funds allocated to these individuals.

The Budget and Accounting Act's conditions for whether a project can be financed with a loan refer solely to the project in question and not to the overall risk exposure for the Treasury. This applies both to the specific risk of each project and to the covariance between different investment projects. The Government is the ultimate risk owner (in terms of its share of ownership), and so it is important to consider the overall risk exposure. It also has an impact on loan opportunities, which are not automatically available, even if a

[8]Pursuant to Greenland Parliament Act No. 26 of 28 November 2016 on the budgets and accounts of the municipalities and the Greenland Government Authorities.

project qualifies for loan financing under the requirements of the Budget and Accounting Act. Thanks to this budgetary policy, the Treasury has no debt, but the Greenland Government Authorities have considerable and mounting risk exposure via government-owned companies, municipal joint stock companies along with the municipalities, as described above. The financing of investments in both airports and hydropower plants involves risk-sharing with the Danish state, partly through co-ownership in KAIR-International and partly through loan guarantees for both airports and hydropower plants. This provides not only access to capital but also risk diversification. There is an urgent need both for a comprehensive overview of investment plans and maintenance backlogs and for the establishment of a comprehensive policy in this area. Not all projects can be implemented at the same time, and it is necessary to prioritise investments. Likewise, the sheer scale of investment also requires clear, transparent and consistent management of the wide range of projects. As learned from experience in many other countries, it can be difficult to effectively manage public investment projects, and given the considerable scale and risk involved, this is particularly important in Greenland. The IMF calculates that, on average, a third of resources spent on public infrastructure investments are wasted due to a lack of oversight, both during the start-up phase and the subsequent operational phase. Both the IMF and the OECD have developed recommendations and tools to maximise the socioeconomic benefits of public investment in infrastructure[9]. This encompasses a range of issues, from the planning and construction stages to the subsequent commissioning and use, including an arm's length principle between the political system and operations.

Maintenance backlogs

The use of facilities and buildings entails a certain depreciation over time due to wear and tear, damage, etc. Maintenance is necessary to preserve the utility value and will generally extend the life of the investment and consequently its profitability. Lack of maintenance results in a continuous deterioration of the value of the initial investment and an accumulated need for investment at a later date. A lack of maintenance on public investment thus means that problems are postponed to a later date, when future generations inherit a less valuable capital asset and face the economic challenge of having to restore it. This is precisely the situation in a number of areas (*see Table 2.3*), and it currently poses a major challenge because these maintenance tasks come on top of other investment plans and needs. The current challenge is thus twofold: to address the accumulated maintenance backlog and to ensure that such backlogs do not occur in future.

Maintenance backlogs are a particularly pressing issue for publicly-owned assets, as there is no clearly defined ownership role with a direct economic interest in securing the investment in the asset, as is the case for private sector fixed investments. Due to the organisation of the public sector, there is not the same close link between the owner (the Greenland Government Authorities) and the user (e.g. school) and, as a result, maintenance needs often end up overlooked in the ongoing prioritisation of tasks. It is also linked to accounting practices where, unlike private companies, there is no ongoing inventory of the value of assets,

[9] See IMF, 2021, Infrastructure Governance, https://infrastructuregovern.imf.org/content/PIMA/Home/IMFs-Role.html
and OECD, 2020, Recommendation of the Council on the Governance of Infrastructure https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0460.

depreciation, etc. For public investment, this problem can be resolved by organising the asset as a company and entrusting management with responsibility for a given activity, including maintenance, on the basis of clearly defined objectives. Such a structure requires a clear arm's length principle between the political system and the management of the company concerned. Maintenance backlogs have largely arisen because there has been no such structure.

The maintenance backlog in the housing sector is a particularly thorny issue, the problem being that insufficient funds have been set aside for upkeep. Rents have been fixed too low, as defined by Greenland Parliament Act No. 2 of 12 May 2005 on leasing accommodation, which stipulates that rents in the public sector must be set at a level that allows the housing authority to cover all its running costs. Consequently, many residential units are now in a poor condition and there are no funds available for the renovation and renewal that is also in the long-term interest of tenants. Raising rents to provide funds for repairs/renovation would disproportionately burden current tenants and not be in line with the quality of today's public housing stock; moreover it would allow previous tenants to reap the benefits of low rents. Conversely, the current situation cannot be allowed to continue unchecked, as it would merely perpetuate the same problems. This means that providing the funds to renovate the existing housing stock would not, on its own, resolve the issue. Instead, the housing policy must also be revamped to ensure that these problems do not recur. In other words, the housing maintenance backlog must be viewed within the context of a comprehensive reform of housing policies; *also see below on tax reform.* Likewise, in other areas, such as seaports, there is a need to ensure a suitable organisation and to introduce user charges that would create a clear link between access to facilities and the associated expenditure of maintaining such infrastructure.

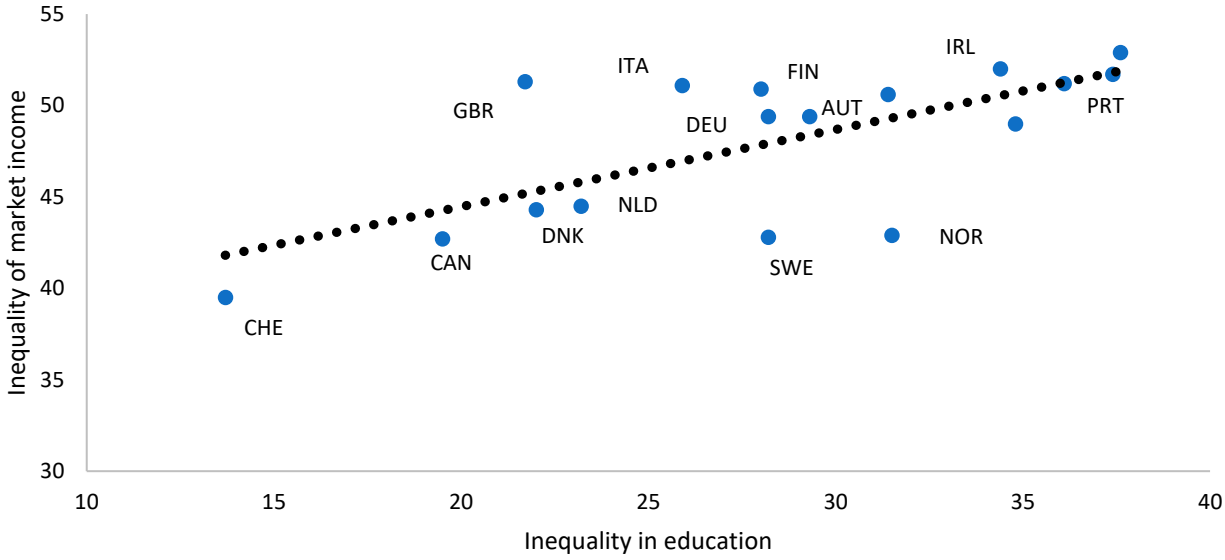
2.3 Equal opportunities in education and training

Despite high employment, many people remain outside the labour market and there are a number of unresolved social problems. Achieving a greater degree of sustainable development, not only economically but also socially, requires initiatives to create more equal opportunities for all to obtain vocational training and related employment and wage opportunities. While such development would primarily improve the lives of those concerned, it would also contribute to the emergence of a broader economic base and improve public finances by reducing social spending and boosting tax revenues.

Reducing economic inequality can be approached both from the perspective of redressing income and employment imbalances through taxation, the social safety net, housing policy, etc., or by taking a more active approach that focuses on creating genuine equal opportunities for all to obtain an education, which provides a ticket to better jobs and incomes. In short, one set of policies takes an active approach to inequality and distribution, while the other is essentially passive. Not surprisingly, there is a big difference between the two. The passive approach places a burden on public coffers, but it also creates problems through higher taxes and social benefits, which can reduce the incentive to pursue an education or training, actively search for work or move to a new location for a job. As a result, the passive approach can exacerbate the problems, and it fails to significantly address the root cause of each individual's situation. The active approach also requires public spending, but as an investment in raising and educating children and young people, which serves as a basis for providing them with the tools to access good and well-paid jobs. While the passive approach tries to fix problems here and now, the active approach is more forward-looking in its aim to reduce the scale of the problems. Both approaches are necessary, but substantial active measures

are required to achieve economically and socially sustainable development over the longer term. This principle is illustrated by the fact that countries with relatively low income inequality also have relatively low inequality in education; *see Figure 2.3.* An active strategy to ensure that everyone enjoys genuinely equal opportunities in education and training is thus a key prerequisite for combining economic prosperity with economic equality.

Fig 2.3. Inequality in income and education, European countries



Note: Inequality of income is measured by the Gini coefficient, an index which ranges from 0 (perfect equality) to 100 (perfect inequality); in other words, the higher the value, the more unequal the distribution of income. Income is measured by earnings before taxes and social benefits.
Source: OECD, 2021, How Was Life? Volume II, oecd.ilbrary-oecd.org.

In past reports, the Economic Council has stressed the importance of raising educational attainment levels and the need for concrete action in the field of education, with a focus on early intervention for children and young people. This entails creating more equal opportunities for all to put their skills and motivation into education and training. Although the basic premise of equal opportunities has broad support, it is difficult to put into practice. The challenge is to create truly equal opportunities for all children and young people in the country, which is complicated by many factors, not least the geographical constraints of a small yet widely dispersed population. This also means that, although the goals are the same, it is not a given that the same initiatives and tools are to be applied everywhere in the country, particularly with respect to the differences between towns and settlements. The following section discusses in greater detail the possibilities for promoting more equal opportunities in the education system.

Equality and opportunity in education

Compulsory schooling is where pupils first encounter the education system, and it is here that the foundations for subsequent training and education are laid. Ideally, compulsory education should provide pupils with the skills they will need as informed citizens and prepare them to advance further within the education and training system.

The debate on education reflects many opinions and aspirations. Politicians, trade unions, government agencies, school administrators, teachers, parents and children all have a stake in the running of our

schools. When the lack of quality in schools is discussed, it is often without a clear definition of what is meant by quality. Schools are often perceived as a single entity, and public education as an institution is seen by many as the cause of many of society's challenges, despite the fact that the country's schools have very different conditions, depending on the municipality where they are located and whether they are in towns or settlements. This means that each individual school cannot be seen in isolation from the community that it serves.

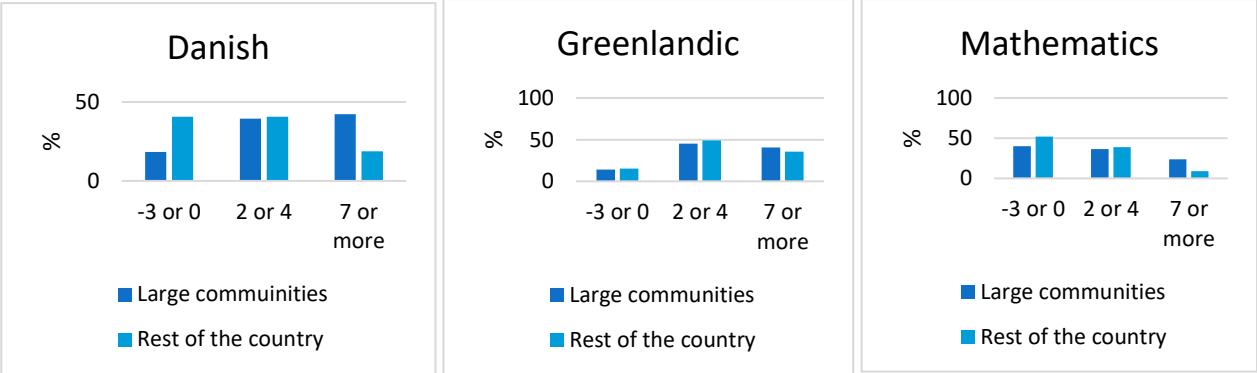
The core mission of compulsory schools is to educate — to provide a setting and a curriculum that is conducive for children to learn and explore. School is a place of many expectations, and many demands are made there — demands that may not always be compatible with each other. The purpose of compulsory education is clear and ambitious, but there is one aspect that is forgotten in the debate over fulfilling these intentions. Indeed, we have to ask ourselves whether our schools are equally equipped to meet the provisions and aims of compulsory education, so that all children can receive the kind of education to which they are entitled.

Inequality of conditions between schools in towns and settlements

When it comes to interpreting the results of compulsory education (primary school and lower secondary school), the debate often focuses on either parents, teachers or the municipality's lack of resources. In addition to unequal socioeconomic conditions among school pupils, there is also a structural and community dimension that has a major impact. Greenland's 77 basic education schools (2020-2021) are widely dispersed along the coast and administered by five different municipalities. There are 24 schools in towns and 53 schools in the settlements, where there are big differences in the conditions for providing a quality learning environment. There are major differences in the percentage of trained teachers, and in the buildings and resources of a school in Nuuk compared to, say, a school in Upernavik or in a settlement. For example, 11 settlement schools have no trained teachers, and the East Coast has the highest proportion of teachers who cannot teach in Greenlandic.

These differences are illustrated in Figure 2.4, which shows the distribution of marks in school-leaving examinations between children growing up in larger towns and those in smaller communities/settlements. In general, children from the larger towns and cities do better, except in Greenlandic, which is a subject area with a more balanced distribution. There is considerable variation in the results for children who were not raised in one of the major towns, and the results are particularly poor for children raised in East Greenland. There may be many different reasons for the differences in scores, but the large differences point to a major challenge for state-run schools.

Figure 2.4 Distribution of marks in school-leaving examinations, 2019



Note: Marks in the 2019 school-leaving examination, according to place of residence at age 12. Marks from the private school in Nuuk are included in the marks for larger communities.

In addition to disparities in physical environment and the number of trained teachers, many pupils from settlements have to relocate to the nearest school in a town or city and live in school residences in order to complete their primary and lower secondary schooling. According to the National Board of Education, the number of pupils placed in a boarding school setting in the 2020-2021 academic year was 189. At around the age of 14, pupils are forced to leave home for a completely new environment in order to obtain an education. These pupils come from settlement schools where the teachers have mainly been Greenlandic speakers, and consequently the children have had less exposure to the Danish language, which is an important prerequisite for progressing through the education system.

Relationship between local job opportunities, learning disruptions and educational attainment

In 2020, 47% of the population aged 25-64 in towns and cities had compulsory schooling as their highest level of education. In the same age group in the settlements, 75% had compulsory schooling as their highest level of education.

In addition to schools preparing pupils for further education, contact with the business community and local job opportunities are important in promoting pupils' interest and motivation for work and education. It can inspire young people and give them ideas about the direction they would like to take in the education system after completing compulsory schooling.

For many young people, continuing in the education system means having to move away from their home settlement or town. Moreover, after completing their education, not everyone can find a job related to their education in their home settlement or town.

Structural inequalities

The performance of each school must be assessed in relation to the socioeconomic background of the children and local circumstances and conditions. The importance of such factors is well documented by extensive research and, as an example, the Ministry of Education in Denmark measures the improvement potential of individual schools, taking into account the socioeconomic composition of the pupils and the performance of the school. In other words, this assessment of school performance is based on the observation that children from homes where their parents have a higher education tend to perform better academically than children from homes where their parents have no higher education.

Here in Greenland, there are other structural factors that influence state-run schools, above and beyond the socioeconomic background of the pupils. The difficult question is whether one can expect the same from a settlement school as from a town school. The obvious answer is no, you cannot. Settlement schools simply do not have the same conditions and opportunities as urban schools in terms of resources, school buildings and qualified teachers.

In practice, this means that pupils in the settlements (and their teachers) have to make an extra effort to attain the same scholastic level as city schools when the time comes for rural children to attend these urban centres of learning. Settlement pupils typically have not received the education and learning environment to which they are entitled by law. Responsibility is shifted from the administration to the pupils and the city schools that receive them. Of course, schoolchildren have a certain responsibility for their own learning, but this requires the right environment and the opportunities to use it effectively. Learning disruptions and dropout rates thus also reflect how well state-run schools have prepared young people for the rigours of the education system — a system where proficiency in the Danish language is a prerequisite in most tertiary education programmes.

Hence, the high and (slowly) growing inequality in Greenland may be partly structural in the sense of an education system that does not create a level playing field for pupils, depending on where they live. This can lead to unequal living conditions and opportunities, which are strongly tied to the ability to complete an education and obtain well-paying jobs.

There is a need for education policy initiatives that specifically address the systemic challenges that create inequalities for schoolchildren. Geographical challenges associated with recruiting and retaining trained teachers in settlements and small towns have major implications for the quality of education. The best solution or approach for a large city school is not necessarily a good solution for a settlement school and vice versa. Municipalities and schools have few resources to address this challenge. Looking forward, the focus of the debate should be: How can it be done better and what improvements have been made? More children should complete their compulsory schooling better equipped, qualified and motivated for further education.

In view of the limited resources and time of schools and municipalities for development work, there is a need for a nationwide policy decision on how best to support them. Schools cannot be seen in isolation from the communities they are part of, and they face challenges that they cannot tackle alone. There is a need for a comprehensive approach involving all stakeholders: parents, schools, municipalities, businesses and the Greenland Government Authorities. A national education and training strategy must be based on the context and needs of schools and municipalities, and objectives must be translatable into local initiatives and constantly monitored.

There is also a need to restructure the supervision of state-run schools with a greater focus on opportunities for improvement. The current methodology provides an annual status update, but without proposing any solutions, which makes follow-up difficult. It is recommended that monitoring methods be adopted to give schools the tools and resources they need to address their challenges over the course of a school year. It is necessary to take a realistic view of the possibilities of ensuring the same teacher density throughout the country. Settlement schools need support and resources to deliver on their educational obligations. Transitions from settlement to urban schools are challenging and require special attention. Initiatives for

settlement pupils coming to urban schools should have a clear focus on their well-being and level of academic achievement. This is an area where school residences play a pivotal role.

A key criterion for the success of primary education is whether pupils have acquired skills and motivation for further education and employment. Schools have a responsibility to provide both advice and guidance in this regard, including being able to monitor and report on the progress of school-leavers. Responsibility should not end when a pupil leaves the school. School guidance practices vary greatly from one institution to the next. It is recommended that measures are taken to strengthen the collaboration between schools, Majoriaq, the National Guidance Centre and the business community to provide pupils with the right tools to advance in the education system. This could be done by establishing — in cooperation with Majoriaq and the National Guidance Centre — registration and outreach guidance systems for pupils who do not enter the workforce or pursue further education after completing compulsory schooling.

2.4 Reforms and economic policies

Inflation and economic policies

Rising inflation has sparked a debate on the need and options to mitigate the impact on household budgets. Soaring food and energy prices are driving inflation, and they reflect a growing scarcity of goods and services. In terms of energy, these are price increases that would have come sooner or later due to the need for climate action, but have now been precipitated by the war in Ukraine. Escalating scarcity requires adjustments and the repercussions cannot be reversed for all households. These developments will lead to higher costs for society and put the brakes on necessary adaptations. The lessons learned from the inflationary period of the 1970s also show that income policies, price freezes and the like did not have the intended outcomes, but instead delayed much-needed reforms, resulting in high socioeconomic costs. For low-income groups reliant on income support payments, an unexpected surge in inflation can pose acute problems, and when this occurs, targeted and short-term subsidies can address this issue.

Current reform initiatives

A reform of public assistance and labour market benefit has been implemented, which provides for the introduction of a job-search allowance to replace the labour market benefit. The new benefit is higher and available for a longer period than the old labour market benefit. The benefit is set at 90% of the SIK trade union's minimum wage for the first 26 weeks and is then reduced depending on how long the worker has been searching for a job. To be eligible to receive job-search allowance, an individual must be available to the labour market and show a willingness to accept relevant job offers, receive job training, take skills development courses (for example, PKU), apply for relevant jobs, attend meetings convened by Majoriaq, and so on. Until now, in cases of involuntary unemployment, recipients have been entitled, under certain conditions, to receive labour market benefits for up to 13 weeks, and thereafter advised to seek public assistance. The new job-search allowance will have no time limit, nor is there a requirement that the jobseeker be an employee. Until now, public assistance has been granted on a discretionary basis, which has led to differences between municipalities. Now, this benefit has been changed to a flat rate. In the draft budget, DKK 11 million per year is earmarked to cover additional expenditure resulting from the new legislation on public assistance and job-search allowance. Introducing a flat rate for public assistance is a step forward. The new labour market benefit combines aspects of financial security in the event of unemployment with

incentives to actively seek new employment in view of the declining payment profile. It is essential that the associated active labour market policies are effective and can be properly administered. The positive impact on job search incentives is to a certain extent offset by the higher benefit.

Work on tax reform has been announced. There are a number of problems with the tax system and reform should be a priority. In previous reports, the Economic Council has pointed to a number of problems in the tax system as well as in the interplay between the social benefits system and housing policy. Total effective taxation is high for some groups (close to 100%), which creates disincentives, and there may also be politically unintentional consequences when it comes to distributing benefits. Accordingly, tax reform should also assess the balance between the high taxation of work-related income and the very low taxation of various forms of capital income (including housing). A tax reform should also be seen within the context of a green reform and the need to achieve more sustainable development. A number of countries have introduced "green" taxes and have made great strides in the area of carbon taxation. Sustainable development in Greenland also requires prioritising environmental and climate issues. Moreover, the overall structure of the system is complicated and difficult to understand for individual taxpayers. This makes tax reform urgent, but it is also important to maintain stability in tax regulations and conditions, and that makes it all the more important to introduce a coherent reform that puts an end to ongoing debates and uncertainty about taxation rules.

Sustainability and Growth Plan II

Greenland can look forward to an ambitious reform agenda. In the 2023 budget, the coalition has prioritised several initiatives in the areas of i) employment and increased job opportunities, ii) measures to support the development of existing occupations and the development of new professions, iii) combating poverty, iv) tackling the maintenance backlog in all relevant sectors over a span of several years and v) ensuring that unallocated funds in the area of construction are prioritised on the basis of the sectoral plans.

The draft budget does not include major reform initiatives because a comprehensive plan will be presented under the Sustainability and Growth Plan II, which is expected to be released in early 2023. A coherent reform strategy and plan is crucial to ensuring sustainable economic development and a transition toward a more self-sustaining economy. Thorough groundwork is essential to developing an understanding of the need for reform and the concrete actions to be taken. But it is also important to act swiftly and initiate a reform process. The problems associated with an ageing population are well known, and additional demands are imposed by new economic activities, educational requirements, social conditions and services like healthcare.

Ever since the first Sustainability and Growth Plan, very few reforms have been implemented, including reforms of the pension system (mandatory pension savings and raising the retirement age) and early retirement (clarifying processes and focusing on the use of working capacity). While these reforms are important, they are not sufficient to effectively address the fiscal sustainability problem (see Chapter 3), nor has there been a decisive move toward a more diversified economic structure.

In the long term, education stands out as the key challenge. There are a number of social problems related to the care and education of children and young people, unequal opportunities, economic poverty and inequality. Raising the general level of education and achieving a more equal distribution of education, as

discussed above, is an absolutely vital milestone on the road toward a more self-sustaining society, as also highlighted in previous reports by the Economic Council.

Not only is the population ageing but demands on public services — including health and education — are increasing. In its March 2022 discussion paper, the Health Commission identified financing challenges linked to delivering satisfactory healthcare services to the entire population, both in terms of new demands and opportunities, but also in light of Greenland's dispersed settlement pattern and ageing population. Major investments are required along with ongoing operational challenges, not only of a financial nature but also in terms of training and recruitment of staff. This underscores that the imperatives of the Sustainability and Growth Plan go beyond securing funding for today's welfare programmes and services and include measures to address future demands.

A diversified economy — the private and public sectors

It is essential to implement a reform of the fisheries sector. Establishing quotas in excess of what researchers recommend may temporarily boost the fishing industry and solve employment problems for some, but in the somewhat longer term it is neither biologically, socially nor economically sustainable. There is an urgent need for structural adjustments in the sector, including reductions in inshore halibut fishing capacity to bring it into line with sustainable catch levels. The Fisheries Commission issued its report in autumn 2021, which contains the following key recommendations:

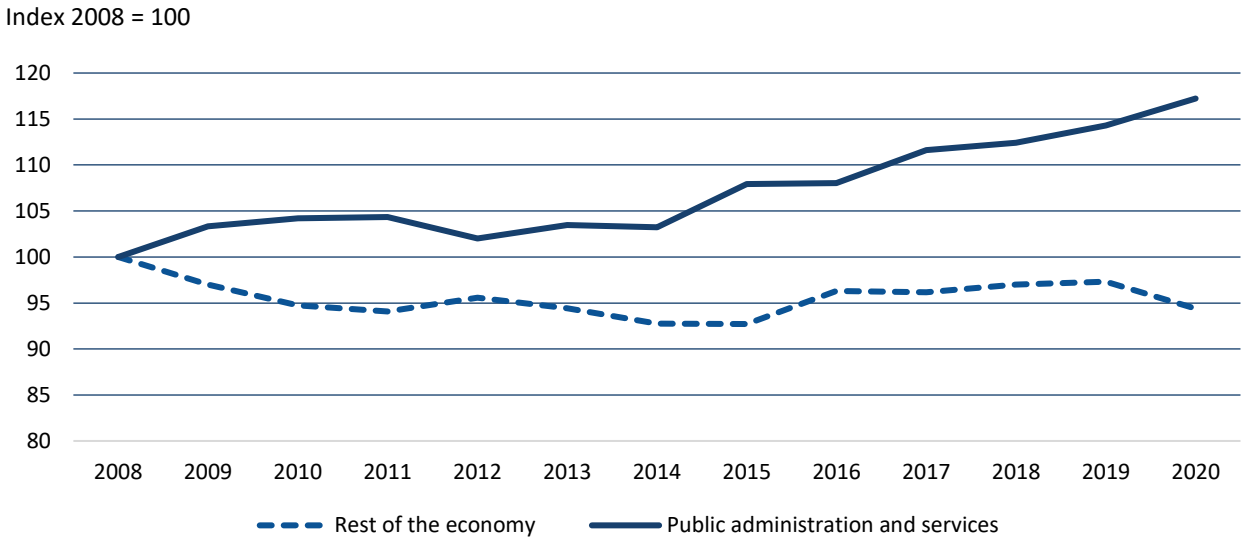
- Preserve resources for the future to foster employment, earnings and prosperity
- Provide stable and predictable conditions for the fishing industry to invest in ongoing development and target any subsidies toward the general objectives of the fisheries policy
- Structure fisheries management so that individual fishermen can earn a good living and the overall resource rent in fisheries can be increased, allowing for a fair distribution of resource rent through appropriate resource rent taxation
- Implement management according to the arm's length principal to ensure transparency and equal treatment
- Expand ownership of resource use to shipowners, and not by adding fishing capacity
- Implement labour market and education/training initiatives in conjunction with fisheries policy changes to ensure socially sustainable transitions

Aside from the extensive body of scientific evidence in support of a fisheries reform, such a move would send a more general signal about the willingness to embrace reforms in order to achieve sustainable economic development. Hence, it is vital that the recommendations of the Fisheries Commission are implemented to ensure more sustainable fisheries and greater socioeconomic returns from natural resources. Reform of the fisheries sector requires changes and will consequently take time, but the current labour market situation with its shortages of workers offers a favourable window for implementing such a process.

A reform of the fisheries sector and increased productivity/efficiency in the public sector will be crucial to tackling the labour challenge; *see the Economic Council, 2021.* The main barrier to continued economic growth is a shortage of labour. There are many aspects to addressing the labour problem and they must be considered in conjunction with other reforms.

With respect to solving the sustainability problem (see Chapter 3) and ensuring a diversified economy, it is interesting to note that — backed by consistently good economic performance by the Treasury — there has been a gradual growth in public employment. Figure 2.5. illustrates the employment trends in public sector services and administration compared with the rest of the economy, i.e. the private sector. Over the period in question, there has been an overall increase in employment of just over 3%, but this growth has been concentrated in the public sector, while there has been an overall decline in the level of activity in the private sector. The size of the public sector is essentially a political decision. At the same time, however, a large public sector that is a heavyweight player in the economy places high demands on both economic policy and the management of the public sector and public enterprises.

Figure 2.5 Employment in public services and administration and in the rest of the economy, 2008-2020.



Note: Employment measured by the number of persons mainly employed in the sector on average each month, other sectors include all areas other than public services and administration.
Source: Statistics Greenland

Lending institutions are well aware of the Treasury's overall risk exposure, which places limits on total borrowing. Hence, a political desire for public sector involvement sets a ceiling on the total volume of investment, making it more difficult to achieve a diversified economic structure. A high level of public sector involvement also creates an expectation that the state will either act as an initiator or provide support to private companies that encounter financial difficulties. Business policies should focus on providing the right conditions to support the private sector, which must then identify the potential markets and associated risks. This is also true of government-owned companies. Political micromanagement of business development is a top-down approach, and there has not been much positive experience with this approach, either internationally or in Greenland. Redistributive policies and similar concerns should be addressed through economic policy and regulation, and not by conflating business and political agendas. The current heightened risk exposure underscores the importance of exercising ownership of the Government's public limited companies in a manner that engenders robust and professionally managed businesses. This requires continuity, for example, and is challenged by the high rate of turnover on the boards of several companies in recent years.

The reform agenda is sweeping and challenging, with many policy issues to take into consideration. It is not realistic to propose a massive and comprehensive reform package designed to address every problem, but it is important to initiate a reform process as soon as possible.

Chapter 3 Fiscal sustainability and the need for reform

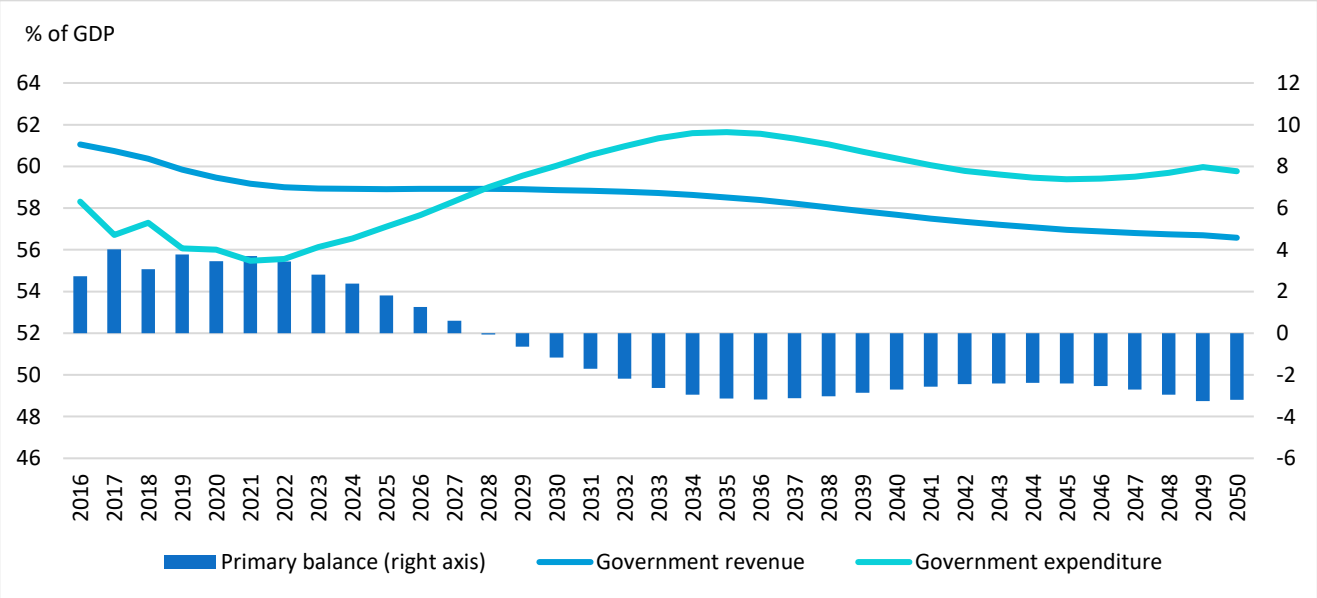
This chapter presents a new long-term prediction of economic development and public finances. This is based on the latest population projections and new forecasts of educational attainment and labour market participation. A primary objective of this exercise is to assess the sustainability of fiscal policy over the long run. If expenditure outpaces revenue growth in the future, reforms will be necessary to ensure balanced public finances over the long term. These can either be through reforms that limit expenditure growth or through measures that generate new revenues. This chapter presents examples of reforms that can help to achieve a long-term balance between public expenditure and revenue. It concludes with a review of the changes in projections of population size and composition, educational attainment and labour market participation that have an impact on sustainability.

3.1. The sustainability problem

Economic developments over the coming decades will be characterised by a decline in the labour force and employment, resulting from a shrinking population, with more elderly and fewer young people. At the same time, the educational level of the population will gradually increase. Both of these developments will have an impact on public finances. Figure 3.1. shows the projected trends in public revenue and expenditure up to 2050 based on the latest information on population dynamics, educational behaviour, labour market participation, etc. and the institutional framework of Greenland's economy.

On the expenditure side, rising demand for public consumption is pushing up spending, with most notably more elderly citizens by 2035 driving demand in the elderly and healthcare sectors. On the revenue side, the downward trend is mainly attributable to the declining importance of the block grant as a percentage of GDP. Viewed over a long number of years, Greenlandic growth is slightly higher than Danish growth. This implies that nominal GDP will grow slightly faster than the Danish price and wage adjustments of the block grant, and that the block grant will thus slowly decline in size relative to GDP; *see box 3.1.*

Figure 3.1 Projection of government revenue, expenditure and primary balance up to 2050, in % of GDP



Note: Government revenue and expenditure do not include net interest receivable and payable.

Source: "Økonomisk fremskrivning for Grønland" (not available in English), August 2022.

These combined factors will put mounting pressure on public finances and lead to recurrent budget deficits. The deficit will be around 3% of GDP from around 2035, when the ratio of elderly to the general population is anticipated to reach its peak. This corresponds to an annual financing shortfall of around DKK 1 billion (measured at 2020 levels), if the trend in public finances is sustained over the long term. As a percentage of total output, the sustainability problem amounts to -5.3% of GDP. This trend is similar to previous estimates of Greenland's sustainability problem and illustrates the need for a reform of public finances.

The projection is based on the Greenlandic macro model that the DREAM (Danish Research Institute for Economic Analysis and Modelling) model group developed for Naalakkersuisut in collaboration with the Economic Council and Statistics Greenland; *see box 3.1.* The model is based on Greenlandic conditions and data on future population trends, education levels, employment and public finances. The future labour market participation of the population plays a particularly important role in the country's long-term economic development. Individuals with a tertiary education are almost always closely tied to the labour market and are less likely than others to receive income support. This is why education is so important for employment and for maintaining balanced public finances.

Box 3.1 Underlying assumptions for the macro model of the Greenlandic economy and sustainability

The projection of economic development up until the year 2050 is based on the macro model of the Greenlandic economy, *see Economic Council 2021.* The model reflects Greenland's economic structure and data, and the model's projections ensure a coherent and consistent long-term description of the economy and trends in government revenue and expenditure.

The projection is based on adopted policies, such as education programmes, housing benefits and subsidies, healthcare, pension plans and tax regulations. Non-adopted policies and objectives without specified funding have not been included in the calculations. These include policy objectives in the field of education.

Public consumption consists of individual and collective consumption, both of which are determined by population trends. Individual public consumption includes health services and education, where demand depends to a large extent on the size and age distribution of the population. Collective consumption is not directed at individual citizens, but at society as a whole, as is the case, for instance, with administrative bodies. Public expenditure also consists of income support to households and public investment. Government revenue consists of taxes, duties and the block grant. Domestic taxes and duties depend on employment and the evolution of income. The block grant is stipulated by the Act on Greenland Self-Government and follows the movement of the general Danish price and wage index.

The model provides a projection of government revenue and expenditure. Fiscal policy is sustainable when government revenue and expenditure are balanced over the long term. There is no need to balance the budget every year, but over a number of years the net present value of public expenditure must not exceed the net present value of revenue and the government's initial net worth. Consequently, fiscal policies are not sustainable if the net present value of all future budget deficits exceeds the government's initial net worth. In the model, the sustainability indicator is defined as the continuous improvements in the primary government budget balance, measured as a percentage of GDP, that are needed to ensure that the public sector adheres to its long-term budget.

Additional key assumptions of the macro model:

- The demographic forecast is based on Statistics Greenland's population projection 2020-2030 (2050), May 2020. The population is expected to fall to around 48,400 by 2050 as a result of net migration that will exceed the birth surplus.

- Educational attainment is projected on the basis of young people's educational behaviour in the period from 2015 to 2020, i.e. data from actual transitions from compulsory education to upper secondary education, choices of study, educational pathways and drop-out rates.
- The model is a structural model, based on an assumed long-term structural productivity growth of 1.25% per year, an inflation rate of 1.8% and a nominal interest rate of 4%.

The growth assumption of 1.25% per annum is slightly higher than the projected long-term productivity growth in Denmark of around 1%. One reason for higher growth in Greenland than in Denmark is a catching-up effect from the diffusion of technology from the outside world. The growth differential is supported by data collected since 2003, which is the first year with internationally comparable data on the Greenlandic national accounts; *see Figure A.*

With a slightly higher growth rate and with price developments roughly in line with Denmark, the block grant will gradually decline as a share of Greenland's GDP. This is because the block grant is adjusted according to Danish wage and price developments, and long-term wage increases will reflect productivity growth. The projection thus shows a gradual erosion of the block grant's value, which in itself is a contributing factor to the sustainability problem. This steady decline in the value of the block grant can be observed in data since 1994, which is the first year with available public finance statistics; *see Figure B.*

Figure A. Danish and Greenlandic GDP, constant prices

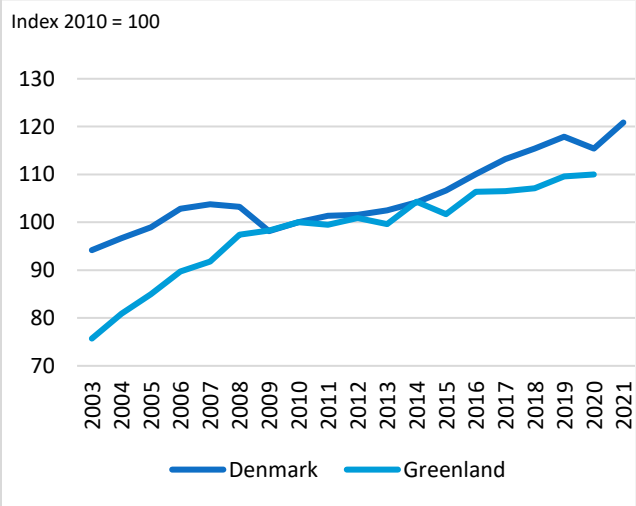
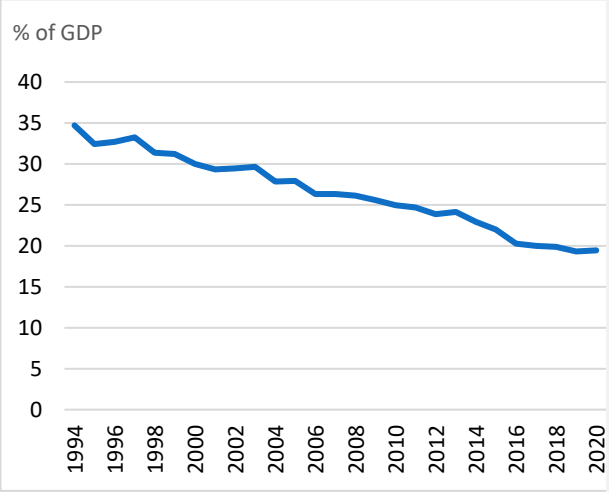


Figure B. Block grant as a % of GDP, 1994-2020



Source: Statistics Greenland and Statistics Denmark. (A) GDP in 2010 prices, chained values, index 2010 = 100. (B) Block grant as a share of GDP at current prices, where GDP is break-adjusted in 2003-2007.

3.2. Reforms that enhance sustainability

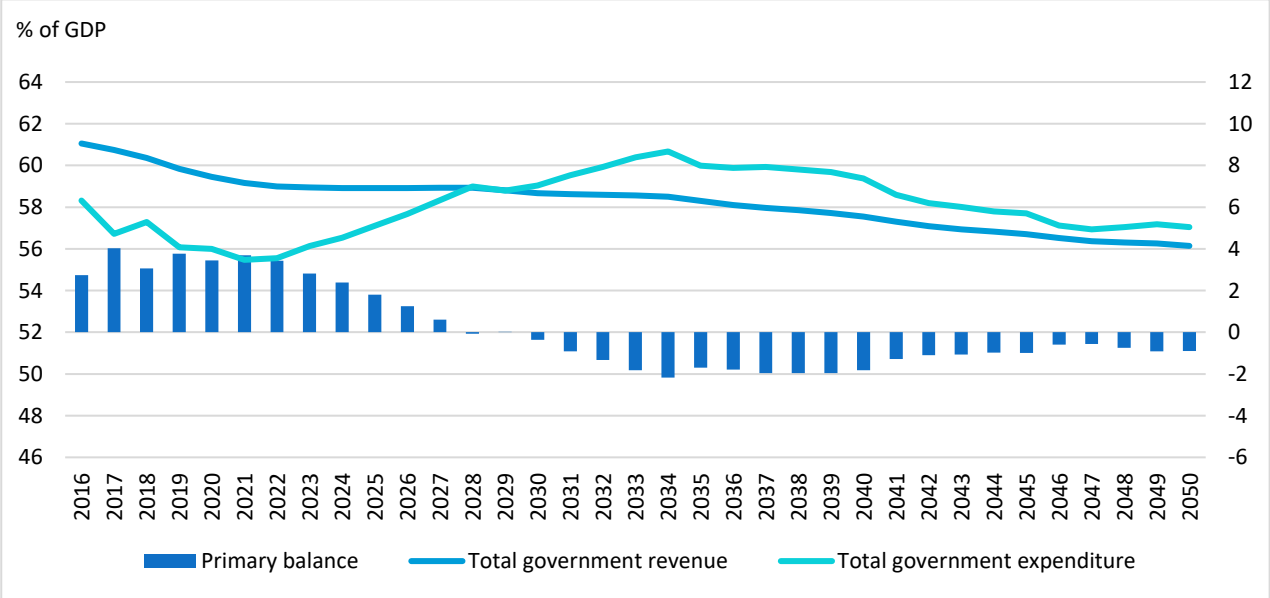
The fiscal sustainability challenge requires policy priorities that can both rein in expenditure growth and generate increased tax revenues. Achieving a long-term balance between public expenditure and revenues will, realistically speaking, require reforms in several major areas of public welfare. This section looks at three main areas — pensions, education and the management of public expenditure — where reforms can help to alleviate the fiscal sustainability problem. It only examines the impacts of policy changes and not how these changes can be implemented in practice. Accordingly, calculations using the macro model of the Greenlandic economy show the potential of reforms to resolve the sustainability problem.

Pensions: indexation of the retirement age

The retirement age is currently defined by law and is not directly linked to life expectancy. As life expectancy increases, the retirement age could be gradually raised as well, so that the number of years as an old-age pensioner would remain roughly at the same level as today. In concrete terms, it would be possible to progressively raise the retirement age by four years up to the year 2050, which roughly corresponds to the projected increase in life expectancy among the general population.

Reforming how workers withdraw from the labour market, so that the number of expected years of old-age retirement remains roughly constant compared to present figures, would boost sustainability by 1.7% of GDP. This would significantly help to resolve the sustainability problem. An indexation of the retirement age would lead to a major increase in the workforce and in employment, and thus also to an increase in tax revenue. At the same time, the cost of old-age pensions would be reduced. In concrete terms, this means that trends in expenditure and revenue would follow each other more closely and public deficits would be reduced; *see Figure 3.2.* Figure 3.2 is comparable to the projection in Figure 3.1, which shows the most likely evolution of public finances under currently adopted policies.

Figure 3.2 Public finances through indexation of the retirement age



Note: Government revenue and expenditure do not include net interest receivable and payable.
Source: "Økonomisk fremskrivning for Grønland" (not available in English), August 2022.

Education: strengthening the transition from compulsory to upper secondary education

The transition from compulsory to upper secondary education is difficult for many young people. This is a problem for individual young people, but it is also a major problem for society and constitutes a barrier to the long-term development of employment and vocational skills in society. So there are many good reasons to promote the transition to secondary education for young people, so more of them embark on an educational pathway and fewer drop out.

In the education model, the annual flow of young people through the education system is determined based on a set of transition probabilities. This could reflect, for example, the likelihood that a young person who has completed compulsory education and is not yet enrolled in upper secondary education will enter

upper secondary education next year. These probabilities are calculated on the basis of observed educational behaviour in recent years. The data are from Statistics Greenland's register data, and transition probabilities depend mainly on the person's age and current educational status.

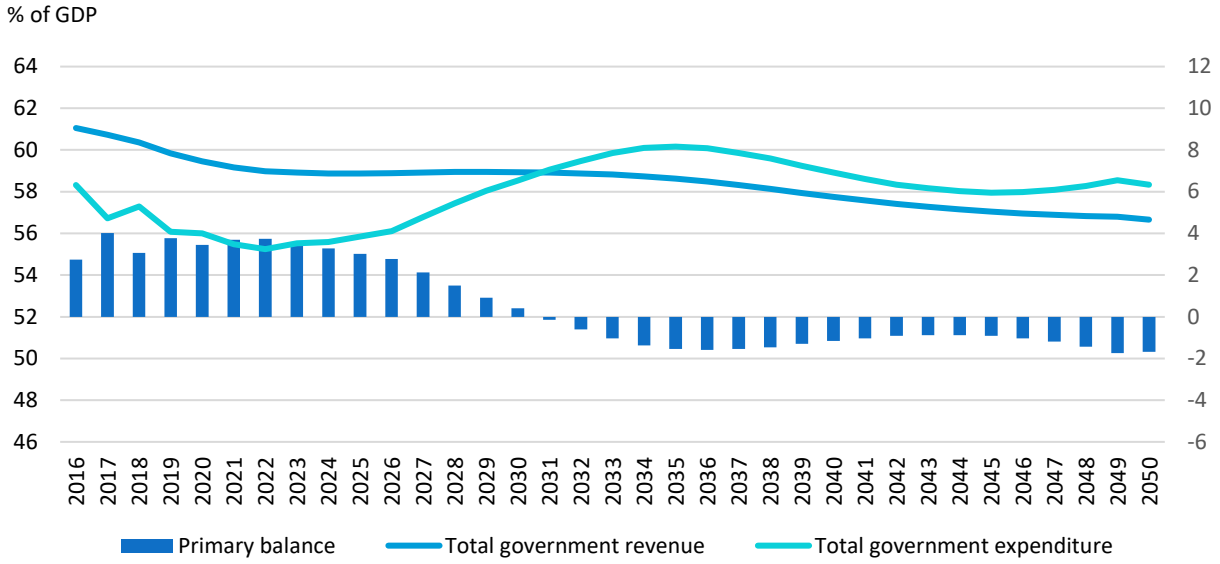
Strengthening the transition from compulsory to upper secondary education would consequently increase the probability of a transition to upper secondary education for young people between the ages of 15 and 18. If it is assumed that it is possible to increase the transition probability by 50% for young people between the ages of 15 and 18, this would directly lead to an increase in enrolments in upper secondary schools and vocational education and training. Later, the number of students entering higher education would also increase as more people move through the education system. There are over 2,000 young people between the ages of 15 and 18 who are not in education or training. Increasing the transition probability of starting upper secondary education by 50% would mean that around 150 more young people between the ages of 15 and 18 would enter upper secondary education each year.

Over the years, the educational level of the population would slowly increase, bolstering the workforce and employment, as more people with a higher level of qualification are integrated into the labour market. By 2050, there would be roughly 820 more people[10] completing tertiary education, and the impact of increased employment, higher incomes and fewer income transfer payments alone would boost sustainability by 0.25% of GDP. If additional enrolments were assumed to increase education expenditure, though, the immediate impact on sustainability would be negative, i.e. more students in upper secondary education would, viewed in isolation, cause public spending on education to rise faster than public tax revenues. The example in this section includes additional expenditure on educational grants (the State Educational Grant and Loan Scheme, or "SU"), but excludes additional expenditure on the education sector, as a strengthened transition to upper secondary education is also assumed to mean fewer dropouts and fewer transfers within the education system. The example illustrates the importance of keeping education reforms within current spending frameworks, so that spending on education can be contained and can keep pace with long-term trends in the number of young people. Greenland already ranks among the countries in the world that spend the most resources on education, measured by education expenditure as a percentage of GDP. The example also shows that education reforms can help to address the sustainability problem, but they do not in themselves resolve the entire problem.

Figure 3.3. shows the impact on public revenue and expenditure of strengthening the transition to upper secondary education for young people between the ages of 15 and 18, specifically by increasing the transition probability by 50% for these cohorts. Sustainability would be improved by 0.25% of GDP, and it has been assumed that increased enrolments etc. would be contained within existing education spending. It should be stressed that this calculation illustrates the possible magnitude of the impact of increased enrolment, etc., and not how to enhance social well-being and academic skills in practice, so that more young people are motivated to apply for and complete upper secondary education.

[10] The impact on education levels in 2050 depends both on the additional annual intake of students and on the drop-out rate from education, emigration, smaller cohorts of young people in the coming decades, etc.

Figure 3.3 Public finances with a strengthened transition to upper secondary education for 15- to 18-year-olds

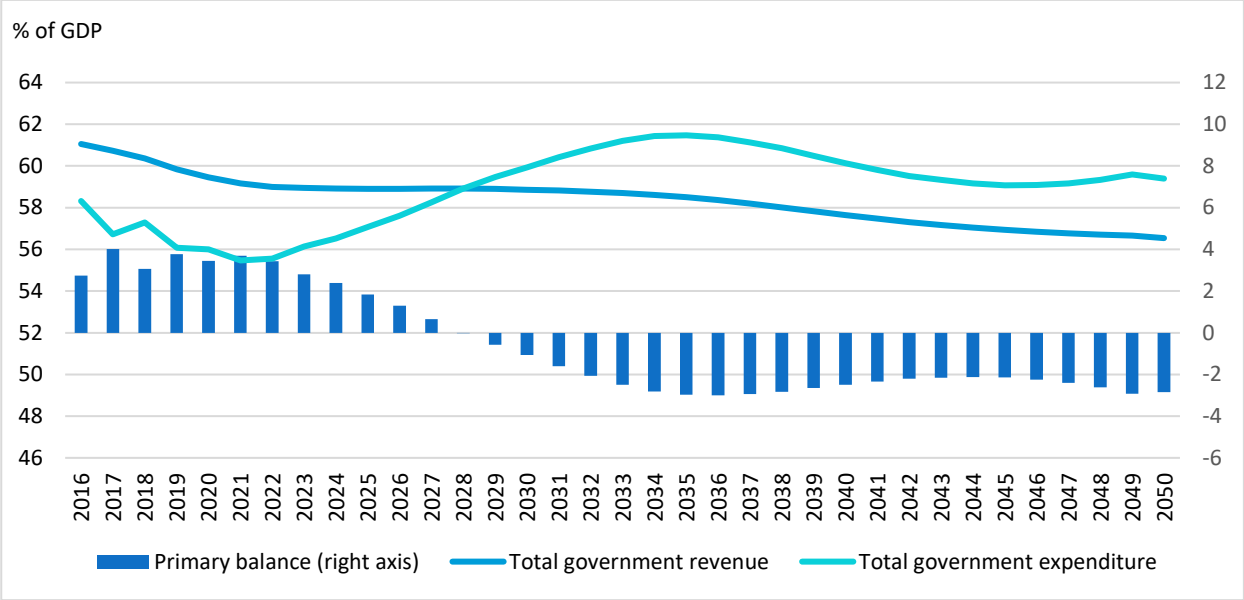


Note: Government revenue and expenditure do not include net interest receivable and payable.
Source: "Økonomisk fremskrivning for Grønland" (not available in English), August 2022.

Public expenditure control: lower real annual growth in public consumption

The sustainability problem can, in principle, be addressed by ensuring sufficiently strict public expenditure control over a number of years. If, for example, real growth in public service production could be reduced by 0.5% annually over the five-year period from 2021 to 2026, this would be roughly equivalent to zero growth in public consumption until 2026. A sustained rigorous expenditure control over a five-year period would reduce the sustainability problem by 1.3% of GDP, mainly by reducing government spending as a percentage of GDP; *see Figure 3.4.* Lower real public growth releases labour from the public sector and allows it to migrate to the private sector, leading to lower unit costs in the public sector. Plans to reduce real public growth are often an important element in ensuring a balance between revenue and expenditure, as in the 2016 Sustainability and Growth Plan. In reality, however, it has proved difficult to achieve savings and efficiency gains in the public sector because of the high demand for services in healthcare, education, social services, care for the elderly, training for young people, etc. If strict expenditure control is to help to address the sustainability challenge, it is essential that these fiscal policies be underpinned by effective instruments and a broad political commitment to use these tools. One broadly applicable mechanism would be a reduction in the price and wage adjustments to operating and subsidy appropriations, which is a measure that has been included in the 2023 draft budget; *see Chapter 2.* Effective expenditure control measures will require in-depth reviews of all spending areas and tailor-made approaches to address specific needs.

Figure 3.4 Public finances with lower real growth in public consumption



Note: Government revenue and expenditure do not include net interest receivable and payable.
Source: "Økonomisk fremskrivning for Grønland" (not available in English), August 2022.

3.3. The importance of population, education and the labour market

The macro model for Greenland's economy was updated in August 2022 with the latest population forecast from Statistics Greenland, a new projection of the population's future education level and a new estimate of the population's future degree of labour market participation. This section describes the importance of demographic developments, educational attainment and labour market participation for long-term projections of the state of the economy.

New population projections

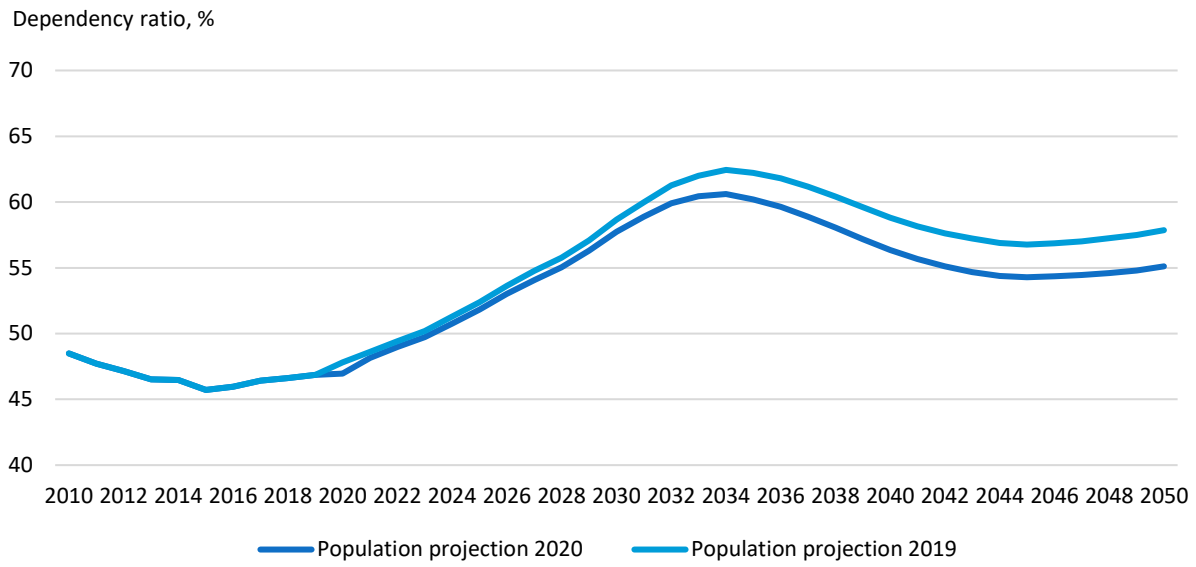
The macro model is updated with new projections of population and age composition up to 2050; *see population projection 2020-2030 (2050), Statistics Greenland, May 2020.* According to the latest calculations, the population is expected to decline to just under 48,400 in 2050, compared to 56,100 in 2020. This reduction is due to the fact that every year 350 more people emigrate than immigrate. Net emigration thus exceeds the annual birth surplus of around 300, causing the population to slowly decline. In the new population projection, annual net emigration is lower than in previous calculations due to a slight slowdown in the emigration rate over the past ten years.

The age composition of the population will also change, with more people over the age of 65 and fewer children and young people. Figure 3.5 shows the dependency ratio, which is calculated as the number of children and young people (aged 16 or under) and elderly people (aged 65 or over) compared to the number of individuals in the 17–64 age group. This ratio shows the proportion of children/young people and elderly people who require support compared to the proportion of people of working age. The total dependency ratio is projected to rise from below 50% today to over 60% by the mid-2030s. This increase reflects an anticipated decrease in the proportion of children/young people and a major increase in the

proportion of elderly in society, driven by a declining birth rate, large 1960s birth cohorts, increasing longevity and net migration from Greenland.

The dependency ratio is smaller in the new population projection calculated in 2020 compared to the projection from 2019. This follows from the assumption that net emigration will decrease, with the effect on the age composition of the population observable from 2035 onwards; *see Figure 3.5.* The reduced dependency ratio will help to ease the pressure on public coffers and, viewed in isolation, help to improve fiscal sustainability. Calculations based on the macro model of the Greenlandic economy show that sustainability improves by 1.6% of GDP, due solely to the newly revised projections of population composition and size.

Figure 3.5 Dependency ratio, 2010-2050



Source: Statistics Greenland, population projection for 2019 and population projection for 2020 (both main alternatives). The dependency ratio is defined as the number of persons under the age of 17 and over the age of 65 relative to the number of persons between the ages of 17 and 65.

New education projections

Projections of the level of educational attainment of the population are updated with the new population projection (*see above*) and with new data on educational behaviour in the period from 2015 to 2020. The previous education projection from 2018 was based on educational behaviour in the period from 2010 to 2015. This focuses on young people's choice of studies, their admission and drop-out rates, length of studies etc. The future educational attainment of the population is determined by the educational choices and behaviour of young people today, which is the underlying hypothesis of the education model[11].

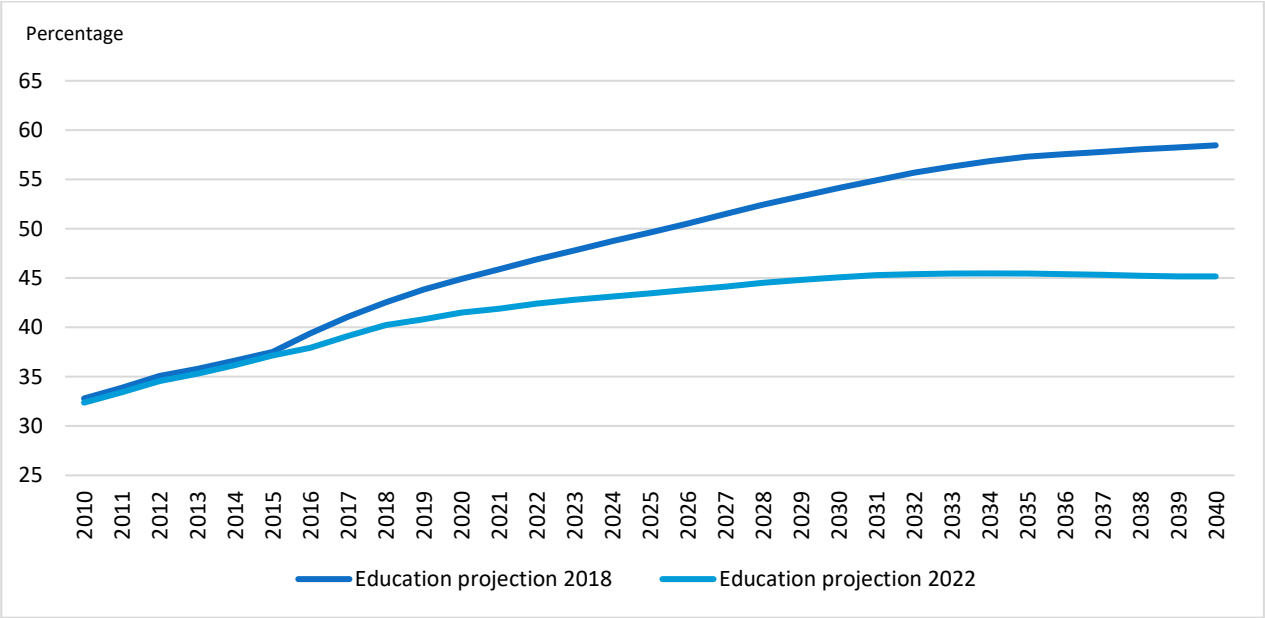
This latest forecast shows that a larger proportion of young people will pursue an education beyond compulsory schooling than older segments of the population, and educational attainment will rise accordingly, as younger generations replace older ones in the labour market; *see Figure 3.6.* Based on current trends in educational attainment, by the year 2040 approx. 45% of the population aged 15-64 will have completed

[11] The model is documented in *Uddannelsesfremskrivning for Grønland 2017 – Fremskrivningen af befolkningens uddannelsesniveau i Grønland* (not available in English), T. Markeprang and P. P. Stephensen, DREAM, August 2018.

post-compulsory education and training by 2040. This proportion was around 41% in 2020 and 33% in 2010.

The pace of this increase in educational attainment will thus diminish over time. This is partly because young people's access to upper secondary education has not expanded as rapidly in recent years. The difference is most evident in the 2018 education projection, which included the trend in young people's educational behaviour toward higher educational achievement. These trend calculations suggested a doubling or tripling in the number of people with the highest completed qualifications, such as professional bachelor's degrees, university bachelor's degrees and short-term higher education qualifications, up to the year 2030. In view of current study behaviour, this must be interpreted as an unrealistic increase in educational attainment, and the education projection for 2020 is consequently based on actual observed educational behaviour and without any trend toward growth; *see Economic Council, Policy Brief 2022-2.*

Figure 3.6 Percentage of population with post-compulsory education, population aged 15-65 years

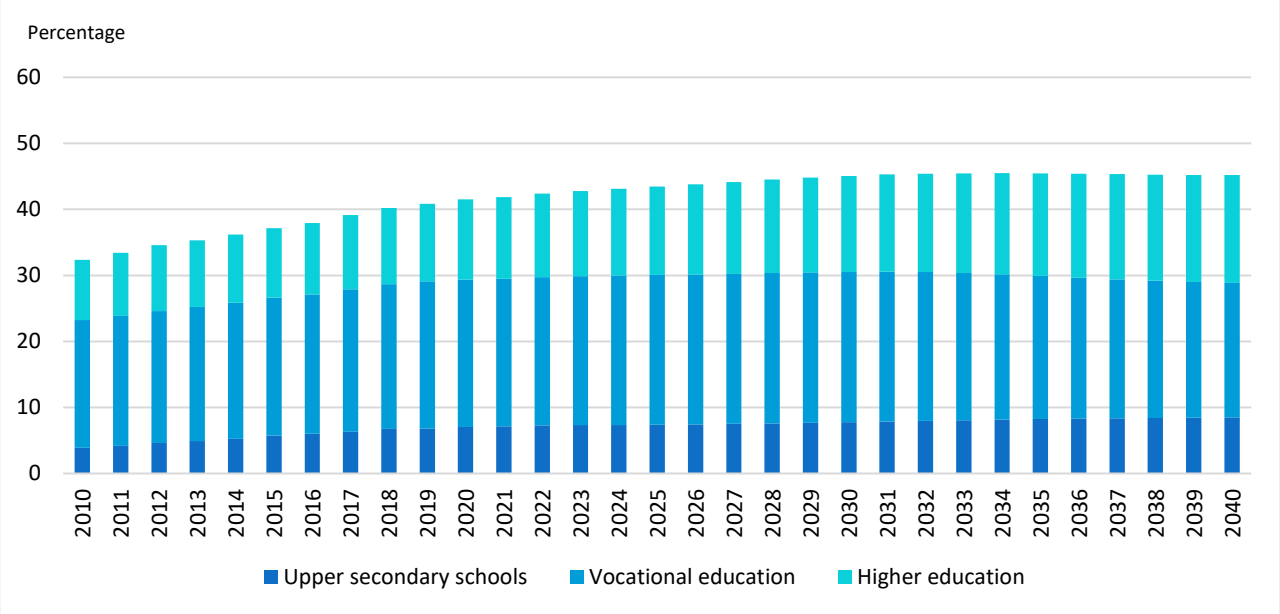


Note: Educational attainment is the highest level of education completed and is modelled on educational attainment in Greenland based on actual educational behaviour in the country and educational attainment among immigrants to the country.

The education projection shows that approx. 16% of the population will have a tertiary education and 21% a vocational education by 2040. The proportion of people with vocational education and training will thus remain roughly unchanged at around 20%, while the increase in educational attainment will occur among individuals with a tertiary education and among those with a secondary education, which is not in itself a vocational qualification; *see Figure 3.7.*

Individuals with a tertiary education are closely tied to the labour market and are less likely than others to receive income support. Consequently, the level of educational attainment affects both the workforce and employment, and it has an impact on the balancing of public finances. With a lower level of education in the macro model, the workforce and employment will decline, which means less public revenue in the form of taxes and duties, but also less public spending on youth training and education subsidies. Calculations based on the macro model of the Greenlandic economy show that, viewed in isolation, sustainability declines by 1.5% of GDP as a result of the revised education projections.

Figure 3.7 Projection of educational attainment in Greenland up to 2040, population aged 15-65



Note: Educational attainment is the highest level of education completed and is modelled on educational attainment in Greenland based on actual educational behaviour in the country and educational attainment among immigrants to the country.
Source: Statistics Greenland (data till 2020), the Economic Council 2022 (projection 2021-2040).

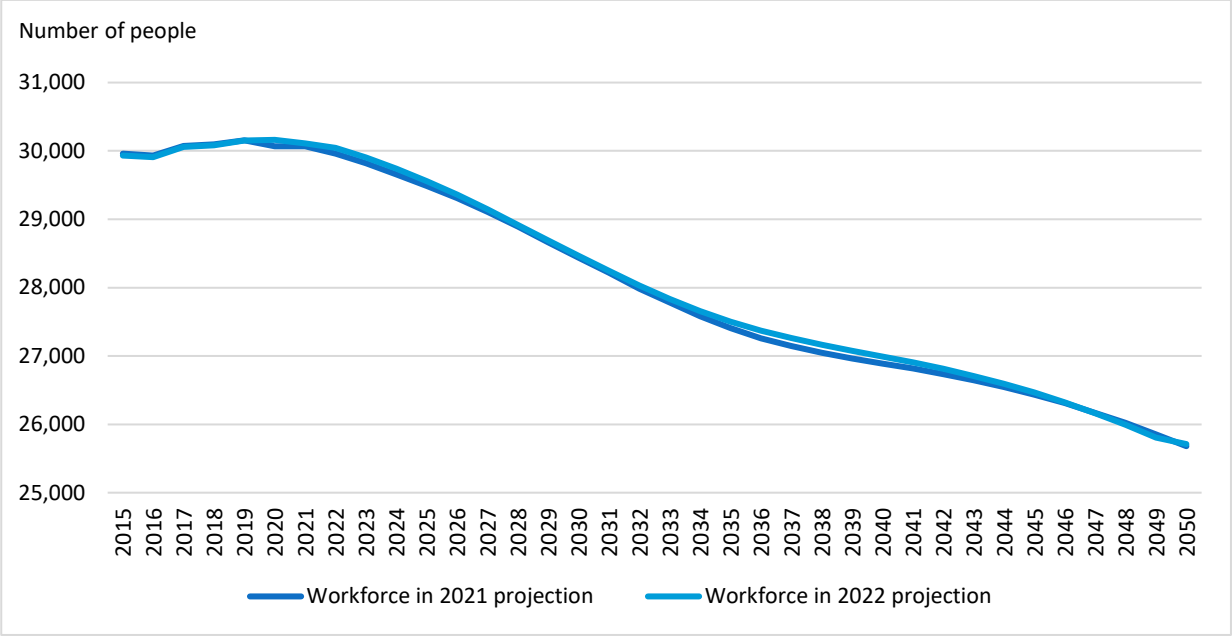
Workforce and employment trends

Trends in population size and distribution by age and education are important for the workforce, employment and the number of recipients of social benefits. Figure 3.5 shows workforce trends up to 2050, calculated on the basis of the macro model using data on population changes and projections of education levels. In addition, new data on workforce participation rates etc. have been used for the period from 2017 to 2020, whereas the previous projection of the population's participation in the labour market used data from the period from 2016 to 2019.

The decline in the workforce is mainly due to the fact that net migration will result in fewer people of working age. The decline in the workforce will be mitigated by rising educational attainment and the increase in the retirement age, both of which make a positive contribution to participation rates and thus to the workforce in the future.

Under the new projection of population and education levels, the workforce will decrease by about 4,500 persons from 2020 to 2050. This corresponds to a decline of 15%; *see Figure 3.8*. The projection of the size of the workforce is very close to the previous projection from 2021. A slightly larger population and lower dependency ratio indicates a tendency toward a larger workforce, while a lower level of education has the opposite effect. These two effects on the supply of labour would largely neutralise each other, which is the reason behind the roughly identical calculation of fiscal sustainability.

Figure 3.8 Workforce trends up to 2050



Note: The figure shows the anticipated workforce up to 2050 according to the 2021 labour market projection and in the updated 2022 projection.

The Economic Council

The Economic Council compiles independent analyses and appraisals of the Greenlandic economy. The Council is appointed by the Government of Greenland and is led by an independent chairmanship. Professor Torben M. Andersen serves as the Chairman of the Economic Council.

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The Economic Council's Report, 2021, Greenland's Economy – spring 2021, the COVID-19 pandemic, the economic outlook and structural adaptations

Economic Council's Report, 2021, Economic outlook, current economic policy, social change and fiscal sustainability.

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