Brain Drain in the Arctic: The Retention of Local High-Skilled Labour in Nuuk, Greenland

A comparative case-study on Nuuk, Greenland and Charlottetown, Canada.

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Abstract

The term ‘brain drain’ describes the outmigration of high-skilled labour. Brain drain presents a current challenge for many Arctic towns, which struggle to retain their local high-skilled labour. This study investigates into brain drain and the retention of local high-skilled labour in the Arctic. It shows that an Arctic town like Nuuk, Greenland, can benefit from knowledge and experience from a similar town outside the Arctic, in regards to their approach to turn the development of brain drain. In a comparative case-study, Nuuk is compared to Charlottetown in Canada. During fieldwork in both towns, knowledge about the respective initiatives against brain drain was gathered.

The study shows, that Nuuk could benefit from the knowledge and experience in Charlottetown with their solutions to tackle brain drain. A few initiatives would be beneficial if they are implemented as they are, others in turn just showed some elements that would be beneficial to implement, and finally some if the incentives would be beneficial in connection with existing initiatives in Nuuk. It is especially in the areas of youth brain drain, the link between young high-skilled and the labour market, and communication between local actors where Nuuk could learn from the experience and solutions in Charlottetown.

Keywords: *Brain Drain, Arctic, Nuuk, Greenland, Charlottetown, Prince Edward Island, Retention, High-skilled labour*

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III. List of Abbreviations

AG	Air Greenland
CNV	Center for National Vejledning (Centre for National Counselling)
DGH	De Grønlandske Huse (The Greenlandic Houses)
HR	Human Resources
KS	Kommuneqarfik Sermersooq (The Municipality of Sermersooq)
PEI	Prince Edward Island
RAL	Royal Arctic Line
UPEI	University of Prince Edward Island

1. Introduction

The Arctic is hot. It literally is hot because of global warming, but also discussing and debating other challenges Arctic societies is facing is hot. This paper focuses on the human dimension in the Arctic, and discusses the increasing outmigration of high-skilled labour in the Arctic, also called 'brain drain'. Brain drain and its consequences is a challenge all over the Arctic, and governments, companies, conferences and seminars regularly pick up on the topic. Usually, high-skilled labour contributes more to the economy than lower skilled labour, and keeping the high-skilled in the Arctic is crucial for the Arctic economy in order to grow. Yet, there is little specific research literature on brain drain in the Arctic. This study aims to contribute to the research about brain drain in an Arctic context and solutions to it, focusing on how to retain local high-skilled labour.

This study sets out to investigate how the challenge of brain drain and the retention of high-skilled labour is approached by an Arctic town, and how this Arctic town can learn from a similar case that is experiencing the same challenges. This is analyzed through a comparative case-study on the cases of the town of Nuuk, Greenland and the town of Charlottetown, Canada. Through analysis of circumstances and experiences, the study discusses how Nuuk might apply solutions developed in Charlottetown.

The cases studies are based on the following research questions:

1. *What is the extent and the consequences of the brain drain in this town?*
2. *What is causing it?*
3. *Which initiatives and solutions are established in the respective town? Which initiatives have had a positive effect? Which initiatives have had little or no effect?*

The analysis of how Nuuk possibly could apply Charlottetown's approaches is based on the research question:

4. *Which of the Canadian initiatives might be beneficial if applied in Nuuk, and how might the actors in Nuuk learn from Charlottetown's approach?*

As many other Arctic societies, Greenland is facing brain drain and for Nuuk, brain drain is a relevant topic as possible consequences could lead to a decrease of human capital, decrease in economic growth, an aging population, rising influx of external labour, and the local living conditions. Geographically, Nuuk has a remote and rural position, especially from

an outside perspective. The town can only be accessed by plane or ship, which makes diverse employment and education opportunities difficult to provide. Furthermore, like in many Arctic societies, food and housing are expensive, and the societies often face social issues. Compared with other, non-Arctic societies facing brain drain, those conditions do not make it easy for Nuuk to tackle brain drain.

The focus of this study is on the solutions of brain drain through retention of local high-skilled labour. It is acknowledged that there are other solutions for brain drain, which for instance concern local labour abroad and external labour, however those are not discussed. Putting a focus on retention is an active choice of this study, both for practical reasons, as it allows a more thorough analysis in regards to the length of this paper, but also as local retention is seen as the most important of all theoretical approaches to solution of brain drain. This is further discussed in the beginning of chapter 3.3.

In the process of this study, a total of 12 weeks of fieldwork has been conducted in Nuuk and Charlottetown, in order to obtain local knowledge about the cases and to talk to local experts about the extent, causes, consequences of and solutions to brain drain. The interest and engagement in the topic, which was shown by the experts and locals who were contacted during this study, shows the relevance of the topic. Moreover, the fact that research on brain drain in the Arctic, and data on brain drain is limited and/or difficult to access makes this paper even more important, as even though actors and the public in Nuuk discuss brain drain and possible solutions, research on it is often not available and incentives in order to turn the brain drain are met with critique as they not are based on proper research, but assumptions.

After this introduction follows a chapter on methodology where the research design, data collection and limitations of the paper are described. The theory chapter starts out with a section on brain drain in general and in the Arctic, and moves on to theoretical approaches on how to retain high-skilled labour. Chapter 4 and 5 present the case studies, where the extent, consequences and causes of brain drain are investigated, followed by the analysis of initiatives of retention in each town. Finally, chapter 6 discusses how the actors in Nuuk could benefit from Charlottetown's approach to retain local high-skilled labour, and chapter 7 concludes this study.

2. Methodology

A. Research Design

For this study, the research design of a comparative case study was chosen in order to "gain greater awareness and a deeper understanding of social reality" (Hantrais 1996, cited in Bryman 2012, 72). In the initial phase, it was contemplated to use a whole country, region or municipality as a case, aiming at having a broader option for data collection and the option to include more diverse actors. It was decided to narrow down the focus to a single town for each case instead, in order to be able to look intensively in both cases. Both Nuuk and Charlottetown are governmental and municipal capitals, which enables the inclusion of several actors, and at the same time the small size of the towns and the amount of collected data fits better the length and depth of this paper.

B. The Choice of the Case Studies

The town of Nuuk was chosen as the main case for this study. Brain drain is a current issue for Greenland and presents a challenge for the society and local actors. After some years where the resource industry and mining were seen as the saviour of the Greenlandic economic future, the perspective today has changed and other sectors, amongst others the tertiary sector and tourism have come to be seen as more important for Greenlandic economy. Human capital and human development have always been in the focus as well, but nowadays this focus is stronger and the lack of skilled labour and brain drain are more discussed.

Nuuk is the capital of Greenland and counts 1/3 of the total population of Greenland. The town is constantly growing and is Greenland's governmental and educational centre. Not only is Nuuk a relevant case because of its population share and status as a capital, but also the fact that in average 50% of the current total outmigration from Greenland is based from Nuuk. In addition to that comes a local focus on brain drain and its consequences, which is reflected in recent studies initiated by the government and the municipality. In contrast to the paper at hand, those studies are mostly qualitative studies focussing on the reasons for individuals to leave Greenland, which adds to the relevance of this paper.

It was aimed to find a similar case in Arctic Canada and to compare it to Nuuk. Existing studies on brain drain in the Arctic tend to look at one region at a time when investigating in the topic, whereas the secondary literature talks about the same trends in regards to brain drain all over the Arctic. With a comparative study, it was aimed to analyse if the same preconditions have the same solutions for the topic, or if Nuuk could benefit from knowledge

from other towns with the same challenges. The selection process of the second case was firstly based on the question, if the town experienced or is experiencing brain drain, and secondly, if there was enough empirical data on brain drain. To be a "good" case for this study, there needed to be measurable and reliable data about brain drain. The extent of brain drain is hard to measure, and often more based on qualitative data than on quantitative data, which was the reason for this study to be based on a mixed methods approach, as explained later on.

The final choice was the town of Charlottetown, a comparable case outside the Arctic, as promising candidates from the Arctic regions did not provide enough data to investigate into brain drain. Charlottetown is the capital of the province of Prince Edward Island (PEI) in Atlantic Canada. PEI has the average highest outmigration rate of all Canadian provinces. Three quarters of the province's outmigration happens from Queens county, where Charlottetown is located. The city of Charlottetown is the residence of approx. 25% of the total population (StatCan 2012), and the number grows up to 50% adding the agglomeration. Charlottetown suffers from youth out migration, an aging population and a declining birth rate, which make the topic of brain drain an important issue for the town.

With the initial aim to compare Nuuk with a town in Arctic Canada, it was tried to "think outside the box" and to take a less obvious choice of comparison, with the same preconditions but different characteristics. The theoretical approach was developed for an Arctic context, but is also used to analyse Charlottetown. As described in the following, Charlottetown is highly comparable to Nuuk. However, when investigating into the case of Charlottetown, it was acknowledged that it is not an Arctic town and the investigation was open for other approaches.

Nuuk and Charlottetown are comparable for the following reasons: Both towns experience brain drain and have both in the past and currently worked on turning the development. They are the seat for the local government, and the capital of their region. This makes both towns a local administration center, in addition to both towns being the local primary center for postsecondary education. Politically, both towns have a current focus on brain drain and outmigration in general, and the administrations in both towns recently have launched surveys in order to investigate the issue. Strategies and policies have been developed by private and public actors, in order to turn the development of brain drain. Both cases are small communities, where actors and political agendas can be interrelated which is why it is important to know the agenda in regards to demographic issues like brain drain. The freedom to establish incentives in order to tackle the brain drain often depends on political

preferences and priorities, but in the chosen cases the political focus on the topic is beneficial for the development of measures against it.

Charlottetown with approx. 34,000 inhabitants is bigger than Nuuk with approx. 17,000 inhabitants, but still the towns show a similar population structure and are both classified as an urban space in a regional sense, and a rural space from an outside perspective. The main sector of employment for both towns is the public sector, followed by the employment in the tertiary sector and agriculture and fishing for both cases (cf. first sections in chapter 4 and 5). The nature of the labour force in both towns is similar, both in regards to the share of the total population and the share which has a postsecondary education. The average unemployment rate is similar in both towns, whereas a difference can be observed looking at the unemployment rate for individuals with a postsecondary education. The latter is at 0.8% for all of Greenland, compared to 4.1% for PEI (StatGL 2016e, LMI 2014a). This shows one of the biggest differences for the cases: Whereas Nuuk struggles with an insufficient production of local high-skilled labour and is currently depending on external labour to supply the labour market, Charlottetown is producing more local labour than there are employment opportunities for new graduates.
Other differences of the two cases are the infrastructure and housing. Charlottetown is easy and cheap to access from outside, and commuting within the island or to other provinces is possible. Nuuk is not connected by road to any other town, and is only accessible by plane or ship, which makes travelling to and from Nuuk expensive. Charlottetown has good availabilities and prices for housing, compared to other Canadian provinces, whereas Nuuk is having troubles in providing enough housing for the growing population.

In order to be able to compare the two cases, it is important that both cases experience or experienced brain drain. In the present cases, several additional similarities between the two towns can be observed, such as similarities in the labour market and population structure, as well as their rural-urbaneness. The fact that the causes for brain drain differ in the two cases is a strong advantage for a comparative study like this, as it increases the probability of different remedies for the two cases, and thus an interesting analysis. If the causes for brain drain also would have been similar, there would have been a risk of not being able to compare the remedies, as they could have been to similar.

C. Theory and Analysis

The analysis of the cases and the initiatives is based on the theory chapter, created on the base of secondary literature, and no high level theory. The chapter is used as a toolbox

throughout the case studies and the analysis and its content is discussed critically in regards to its relevance to the Arctic in general and the cases.

The theory chapter starts out with theories on brain drain in general and in an Arctic context. Its nature, causes and consequences are identified and discussed. The final part of the theory chapter is describing and discussing theories on the retention of local high-skilled labour. It was challenging to find data specifically on the Arctic in regards to the retention of labour, and thus a more general approach on remedies to brain drain was used. Consequently, the theories were described and discussed in regards to their relevance to the Arctic. Finally, an analytical framework was developed in order to be able to analyse the empirical data on the retention of local high-skilled labour.

The main theoretical approaches 'Resource', 'Matching Employment and Education', and 'Partnerships' have been chosen as variables for the analytical framework, which consequently were put in analytical questions which can be answered by empirical evidence, as shown in figure 1 below.

Fig. 1: Analytical Framework

Theoretical variable	Analytical questions	Empirical evidence
Resource	How to provide individuals with resources in order to retain them?	Local financial, social, professional incentives
Matching Education and Employment	How are the needs of the employees, the employers, and the society balanced?	Identifying needs and overproduction; identifying employees and employers needs
Partnerships	How is it tried to fulfill the demand of education and training which can not be provided locally, without losing the skills?	Beneficial agreements for both sides; return incentives; graduate incentives; student incentives

The analytical framework is used both for the third part of each case study, and for the analysis in chapter 6.

Chapter 4 and 5 present the case studies. The two cases are presented by using the same methods and research questions for each case in order to be comparable. The investigation of the cases is based on the research questions *What is the extent and the consequences of the brain drain? What is causing it? Which initiatives and solutions are established in the respective towns?* In the first parts of the respective case study it is discussed the extent, the

causes and consequences of brain drain, in order to be able to understand the strategies and initiatives presented afterwards. For the last question, a full coverage of all initiatives and strategies could not be reached due to the issue's complexity. Due to this restriction, the chapter is called “Selected Relevant Examples of Initiatives and Strategies”. The initiatives have been analyzed and assessed by using the theory and existing measurements and evaluations, in order to discuss the expected/probable outcome of the initiatives.

In chapter 6 the findings from the Canadian case are compared with the case of Nuuk, in order to analyse to which extent Nuuk can benefit from Charlottetown’s experiences and solutions, based on the research question *Which of the Canadian initiatives might be beneficial if applied in Nuuk? How could the actors in Nuuk learn from Charlottetown’s approach?*
As the problem formulation implies, the focus of this study lays on how the development through brain drain can be turned, and therewith on the third part of the case presentation and afterwards in the analysis and comparison of the initiatives and strategies found in the two cases.

D. Data Collection

The data collection uses mixed methods. The mixed methods research is controversial and discussed by many scholars. According to Johnson and Onwuegbuzie (2004), arguments for the use of it are that mixed methods give better insight, understanding and precision than only applying one method would, and that an effective use of mixed methods can complement strengths and dismiss weaknesses of the respective single method (ibid.). Arguments against using mixed methods are primarily the paradigm war, claiming that quantitative and qualitative paradigms can not be used at the same time, but also practical reasons as time and finances, and the fact that scholars, in order to properly be able to use mixed methods, need to learn and understand them (ibid.).

For this research, mixed methods was chosen in order to obtain a more complete analysis. The cases are presented using both primary and secondary data of quantitative and qualitative nature, constantly referring back to the theory of brain drain and brain retain, which together with the research questions build the frame for the presentations of the cases. Data on the topic of brain drain in Nuuk and Charlottetown is limited, and by supporting qualitative data with quantitative data those limitations are reduced. This study has an overall qualitative research objective. Qualitative data has a dominant position, as for the topic it shows a better availability. Quantitative data is used in order to support the qualitative findings, as it is more reliable, however for the case of brain drain it shows a lack of

measurements and is therefore hardly usable on its own. Whereas quantitative data gives access to a bigger data set, qualitative data is more detailed and context-based.

Primary qualitative data was collected through semi-structured interviews or email communication with local experts. Qualitative data collection was carried out in two ways: research online, which provided insight and inspiration in which actors to contact; and the snowball system after a primary contact with the local actors. The snowball system was an easy way to get in contact with many actors in a short time, and often provided fast access to the experts as a reference or recommendation would be provided. It is acknowledged that snowball sampling has disadvantages. In order to make the analysis in this study valid, it was tried to be as representative as possible when choosing interview partners and no coincidental interviews have been conducted. In order to have a holistic approach, it has been tried to include as many different actors as possible.

The interviews conducted during the process of this study were semi-structured and based on the research questions *Which initiatives and solutions are established in the respective town? Did the initiatives have had a positive, little or no effect?* By choosing a semi-structured approach it was possible to adjust the questions during the interviews, depending on the interview situation and the knowledge of the interviewee. As the aim with the interviews was to gain knowledge about retention initiatives, the interviews were open minded to new approaches, but still based on the knowledge from theory and the research on the respective case.

Experience showed that some experts preferred email conversations as communication, and mostly claimed time limits as a reason. It is acknowledged that brain drain and the retention of labour is a rather sensitive topic, both for governmental institutions and companies. This is why in addition to interviews, email conversations are used as sources as well. In interview situations, the interviewees tend to be more aware of the implications of their sayings, which is less the case in email communication. The data collected through an email conversation differs from an interview, in that way that it is not a real time answer and that there is a lack of context and situational judgement (Bryman 2012, 677f.).

A couple of considerations have been made when collecting the primary qualitative data, as for example on the snowball sampling as described above. The expert's background has been considered when talking to them, because of the small communities many experts are or had been associated to different actors at the same time, which can be positive as they gather a lot of knowledge, but also negative as it can influence the expert’s objectivity. The

primary data is thus influenced and limited by the experts' knowledge, affiliation, and opinions. This influenced also the primary data's reliability. It has been tried support the provided information by either secondary qualitative or quantitative data, in order to make it more reliable. Finally, it has been secured that the experts agreed on the use of the collected data.

During the research in Greenland, another consideration was made. It was an advantage to be a German instead of a Danish researcher, as Danes can be met with negative anticipations, possibly based on the history of Greenland. Belonging to neither the Greenlandic or the Danish community enabled a position outside possible tensions. It enabled both a more objective research as well as a more relaxed situation when talking to the experts. It was always made clear for the experts that they were talking to a German master student.

Secondary qualitative data consists of scientific studies, reports and papers, governmental documents, and newspaper articles. It consists mostly of recent data, as the topic of brain drain and the retention of labour is an ongoing debate in both cases. Its reliability in regards to the sources, purposes and its consistence were kept in mind when analysing it. Data from the government or companies in general needs to be treated carefully, as it might reflect the subjective interests, such as political and profit interests.

Quantitative data in form of statistics was primarily used in order to describe the nature, extent, causes and consequences of brain drain in the two cases, as well in order to analyse the success of the brain retain initiatives. Only secondary quantitative data is used. Due to time and financial restrictions, no primary quantitative data could be collected, even though the study would have benefitted from it, as the availability of relevant quantitative data is limited.

For Nuuk, the statistical data comes from Greenland Statistics, which has a quite comprehensive online accessible database. Data from 2014 was the most available and comprehensive and thus was used primarily. In some cases, no data for the town of Nuuk was available. In those cases, data for either the municipality or all of Greenland was used, if it could be argued for its relevance to prove a point.
The statistical data on Charlottetown was more limited, even though a national census is conducted every five years. The newest accessible data would be the 2011 census. However, this census is not as comprehensive as the 2006 and 2001 censuses due to respective different governmental focuses. The 2016 census will be more detailed, but is not

available before next year. Provincial data turned out to be newer and more detailed than the federal data, however often it is limited on PEI and has no separate data for Charlottetown. For better comparability, it was mostly tried to use data from 2014, as far as it was available. Similar as in the case of Nuuk, some of the data was on PEI or the County of Queens instead of Charlottetown.

By using statistical data from 2014 and qualitative data which is more recent, as well as the fact that regional data instead of data on the towns was used, is not perfect for the comparability, but optimal in regards to the availability of the data. Those limitations are considered in the analysis and discussion, as they possibly present a limitation for its validity.

E. Limitations

A limitation of this study is that the results are not generalizable. This study aims to generate specific knowledge about how a specific case in the Arctic and its solutions to brain drain. Nevertheless, the research design of this study could be applied in other cultural settings and with different cases.

Furthermore, the study is limited by restricting the investigation to two very specific cases. On the one hand, a different setting of the cases would have been interesting, for instance including all the municipality instead of only the town. On the other hand this would also have complicated its comparable aspect.

Other limitations concern access to data. During the research period, data was collected locally both in Nuuk and Charlottetown, in order to obtain as much local knowledge as possible. This approach was beneficial for the work, as experts could be met differently when meeting them in person and not via email or telephone. However, a locally based scholar might have had deeper and other insights to the topic. In addition, as there is a rather few number of Arctic scholars, the fact that it is often the same scholars who are involved in research papers also presents a limitation in the reliability of the secondary data on Arctic issues.

Finally, by using selected relevant examples of initiatives, a limitation is that the recommendations and results in the analysis are based on best knowledge. It was tried to investigate as many incentives as possible, but due to the issues complexity and given that the knowledge of initiatives is mostly based on the knowledge of experts and interviewees, it was not possible to get a full overview, and there is a risk that the results of the analysis are misleading and point to already existing initiatives.

3. Theory

This chapter starts by defining 'local labour' and 'high-skilled labour', as a clear definition of these terms is necessary for further process. It follows a chapter on brain drain in general and in an Arctic context, presenting theoretical approaches to the nature, consequences and causes of brain drain. The chapter ends with a short description of the different types of brain drain. In the fourth part of this chapter, general counter-initiatives to brain drain are presented, and their relevance in an Arctic context are outlined.

3.1. Definitions

3.1.1. Local Labour

A challenge when studying local labour is the question on how to define the term 'local'. Greenland's statistic gives the option to chose between persons that are born in Greenland, or born outside of Greenland when looking at data (StatGL 2016f). This distinguishment gives no indication about if the person should be counted as local labour or not. In a law about the regulation of external labour in Greenland, local labour is defined as persons that are born and lived the first 5 years of their lives in Greenland; persons that were permanent residents in Greenland for 7 years out of the last 10 years; persons that are married or partner with somebody from the latter groups (LJA 1992). The varying definitions above shows the complexity of how to define local labour in Greenland.
In PEI, the statistics do not distinguish between local and non-local labour, and moreover, the question in the Canadian case is if people from other parts of Canada should be seen as local or non-local labour, or if all labour from Canada can be seen as local. The term 'local' implies a relation to the regional area, and an understanding of local structures, cultures and traditions, as seen in the Greenlandic definition above.

For the purpose of this study, local labour is defined as the labour with a link to Nuuk or Charlottetown. Local labour is not distinguished into categories like 'duration of stay' or 'place of birth'. It is in the interest of both towns to retain their current labour force, which at that point of time is local labour and thus having a link to the local place.

3.1.2. High-skilled Labour

In research literature about brain drain, skilled labour is defined differently from scholar to scholar. In some publications brain drain is the migration of "well-educated" (Papademetriou

2015, 1), “middle and high skilled” labour (ibid. 3; Milio et al. 2012, 7), whereas others define it to be workers with a postsecondary education (Clemens 2013). In the literature about brain drain in the Arctic, it stands out that brain drain in the Arctic mainly concerns outmigration of high-skilled labour. Amongst others, the publication *Arctic Social Indicators* (2010) includes an extended definition of the term: ‘Skilled labour’ is defined as postsecondary education, in order to include all forms of qualifying education “at an advanced level, including the development of vocational, technical, and subsistence skills and expertise as well as the completion of certificate and degree programs that benefit the individual and the community.“ (Larsen et al. 2010, 82).

From the above it is shown, that the term ‘skills’ is very broad and includes all types of human capital. For the purpose of this paper, ‘high-skilled’ labour is defined as workers with a postsecondary education, which is a university degree or similar. It is acknowledged that the term ‘postsecondary education’ it varies in the two cases, as the structure of their educational system is different. The Canadian definition includes more educations than the Greenlandic, and also the statistics on education in Greenland are more precise. However, this does not present a challenge for the data of this paper, as the existence, causes and consequences of brain drain are more in the focus than the precise educational background of the migrants.

3.2. Brain Drain

A. Term and Definition

According to Docquier and Rapoport, the term ‘brain drain’ first appeared in the late 1960s (ibid. 2012). It was used to describe the outmigration of high-skilled labour from developing countries to developed countries. As the increased mobility of labour has been observed all over the world, so has the amount of research on the topic. In the 1960s, the focus was on the economic effects of brain drain for the source countries. It was not seen as a negative issue, as migrants continued to support their countries of origin through remittances (ibid. 682f.). In the 1970s the research started to focus on social effects as well, and negative welfare consequences and increased inequality worldwide caused by brain drain came into the focus (ibid. 683). In the late 1990s, the focus became more balanced. More data on migration and its effect became available, and nowadays, brain drain is seen as a major aspect of globalization with both positive and negative implications for the source country (ibid. 682).

Migration from and within the Arctic is not a new phenomenon. In *The New Arctic* it is stated that "the North is generally a sending region" and "most parts of the circumpolar North share similar migration experience". (Evengård et al. (eds.) 2015, 165) The *Arctic Human Development Reports* from 2004 and 2014 (AHDR; Einarsson et al. 2004; Larsen et al. 2014) and the publication *Arctic Social Indicators* (ASI-I, Larsen et al. 2010) were among the earliest social science reports focussing on the human dimension in the Arctic. Also reports such as *Megatrends* (Rasmussen 2011) and *The New Arctic* (Evengård et al. 2015) give an overview on trends that are connected with brain drain in the Arctic.

The term 'brain drain' itself is for instance mentioned in the second *AHDR* from 2014, stating that "with an increased level of education the ability (and desire) of local residents to find employment or new educational opportunities elsewhere grows as well." (Larsen et al. 2014, 369) Brain drain in the Arctic occurs when the most productive residents in a region move away and take their skills with them (Evengård et al. (eds.) 2015, 166). It is not only residents with skills who emigrate, but also residents who emigrate in order to obtain skills. The mobility in the Arctic is increasing for young residents and females, and occurs mainly from rural to urban places (Larsen et al. 2014, 476; Evengård et al. 2015, 165; Rasmussen 2011, 9f.). The increasing mobility of youth is certainly also connected to the locally limited education opportunities. The gender issue is discussed further later on in this chapter.

A challenge for the scientific approach to brain drain is how to measure it. Significant data limitations, both in regards to the number of migrants as well as the demographic profile of who is migrating, make it difficult to measure. The migrant's motivations and educational attainment are rarely documented. Often brain drain is more visible through qualitative data than through quantitative data (Papademetriou 2015, 2; Clemens 2013, 7). The fact that brain drain is hard to measure is an important fact, especially for the presentation of the case studies, as it might influence the perception of brain drain in Nuuk and Charlottetown.

Many of the described causes and consequences are connected to brain drain, but not only to brain drain. What is clear, is that brain drain relates to skilled labour in its causes and consequences, it is not only connected to human capital, but also to social and cultural capital as showed in the following.[1]

[1] The terms human, social and cultural capital refer to the french scholar Pierre Bourdieu's understanding of capital. Bourdieu divides capital into economic capital and symbolic capital. Economic capital, which includes human capital, has no intrinsic value in itself, and aims at profit or interest. Symbolic capital, including social and cultural capital, is of a more transparent nature and implies a self-interest (Grenfell 2012, 100f.).

B. Causes for Brain Drain

In general, today's brain drain is connected to diverse factors of social, economical and political nature, both in regards to its reasons and consequences (Milio et al. 2012, 6). Papademetriou (2015) claims it a "routine strategy" for individuals in order to seek new opportunities (ibid. 3). The increased connectivity of the world has made it easier to move and migrate and a lack of local jobs and opportunities accelerates the process (ibid.). Brain drain occurs especially when the migrants "see few or diminishing opportunities for themselves and their families at home" (ibid. 2). Leiman (2004) argues: "[…] most professionals and graduates do not emigrate simply to earn more money" (ibid., 691) Apart from economic opportunities, better education, infrastructure, healthcare and taxation play important roles as well, and urbanisation not only challenges urban locations, but also rural places in providing their residents good living conditions (Maharaj 2014, 133; Filipovic et al. 2012, 16). In addition comes, that the residents expectations to a community may increase, as through globalisation more information from outside the community gets accessible, as well as it gets easier to leave a community (ibid.).

Also in the Arctic, the reasons for brain drain in the are complex and often different for every migrant. Rasmussen (2009) sees the brain drain in the Arctic as a "response to unacceptable options" (ibid. 527). He claims that the same patterns can be found all over the Arctic, as the communities fail to provide their inhabitants with education or job opportunities (ibid.). It stands out that scholars repeatedly connect brain drain in the Arctic with education or employment, even though other causes are acknowledged as well (Larsen et al. 2014, 476; Evengård et al. 2015, 165). Larsen et al. (2010) argue that if brain drain occurs in an Arctic society, it shows that there is a missing link between educational opportunities and local jobs, and thus a discrepancy between the production and the need for human capital (ibid. 84). Even existing education can lead to brain drain, if there is a lack for opportunities for the educated residents afterwards (Larsen et al. 2010, 84).

Brain drain in the Arctic not only happens because of employment and education, but also because of the lack of social and cultural capital and the lack of a feeling of belonging. Rasmussen (2009) particularly mentions factors such as services, cultural opportunities and family well-being that motivate Arctic residents to move (ibid. 528). In *Megatrends* (2011), Rasmussen claims that:

> People move for many reasons, often attracted by the promise of work, higher salaries and a better social life, as urban areas usually offer better opportunities, a diversity of economic activities and more options for education and social networks. (ibid. 24)

In addition to that, Evengård et al. (2015) claim that young Arctic residents are attracted by "the bright lights of larger places" (ibid. 166). In a study by The North Atlantic Group in The Danish Parliament (2011) about why Greenlanders make the move to Denmark, the participants' main arguments for leaving Greenland are the housing situation, the lack of education opportunities, the conditions for children and health care. (NAGDP 2011, 21f.) Looking at more specific literature from cases in the Arctic, these factors are described more thoroughly and match the above described connection of brain drain with human, cultural and social capital and therewith connect not only monetary profits to brain drain, but also self-interest.

In the study *SLiCA: Living conditions in the Arctic* (Poppel 2015), one chapter focuses on mobility in Northern Sweden. As reasons for moving away, the most common reasons were studying or working, but also family, housing, health or just to see something new. (ibid. 353f.) *Megatrends* (2011) refers to a study on mobility in Greenland, and family and networks are mentioned as the most important reasons (Rasmussen 2011, 52). People do not only migrate for their own well-being, but also for their family's and children's well-being. Rasmussen argues that this factor especially influences the duration of the migration. Establishing a family often defines where the family stays (ibid.). This argument is supported by Heleniak (2009), who argues that the longer people stay in their host country, the less likely they will return to the source country (ibid. 33). Migration that is potentially influenced by family and networks is also called "chain migration"[2], and in an Arctic context it can especially be observed in regards to Greenlanders who move to Denmark, and who begin their move by staying with friends or family.

The trend of increasing youth migration makes the issue of return migration and measurements in this regard relevant, as a large number of young Arctic residents leave the Arctic in order to obtain education. Often, they stay abroad permanently, and some scholars anticipate that this is mainly for social and family reasons. For the aim of this study it is therefore interesting to look at special measurements for students in regards to their relation and return to the source country, and also if the measurements focus on social, cultural or human capital aspects.

Brain drain in the Arctic can be connected to the state of the local economy, but does not necessarily need to be connected to it. According to Evengård et al. (2015), brain drain in the Arctic can occur even though the economy is growing. The northern job market shows differences in regards to other job markets because of the resource development and the influx of external labour (ibid. 2015, 166). An Arctic economy can grow with the help of

[2] Chain migration can be broadly understood as "that movement in which prospective migrants learn of opportunities, are provided with transportation, and have initial accommodation and employment arranged by means of primary social relationships with previous migrants" (MacDonald and MacDonald 1964, 227).

external labour at the same time as increasing outmigration (ibid. 165f.). Also Rasmussen (2011) argues that a current Arctic trend is the diversification of the economy and more employment in the tertiary sector, as well as the influx of skilled labour, which enables the economy to grow at the same time as out migration increases (Rasmussen 2011, 9ff., 115).

Globalization and with it increasing mobility and connectivity in the Arctic gives increased access to opportunities outside the Arctic and results in the flight of human capital (Larsen et al. 2014, 369). Urbanization plays a role in the Arctic, as brain drain especially occurs when residents move from rural to urban areas, which are more developed and offer more opportunities (Rasmussen 2011, 9). Ensign et al. (2011) claim further, that local migration from rural to urban spaces is often the first step for youth in order to finally leave the Arctic for even more urban spaces (ibid. 201).
The Organisation for Economic Co-Operation and Development (OECD) defines 'urban' as an area that contains a town with at least 50,000 inhabitants (OECD 2013, 26). This might be a useful definition in an international context, but it does not seem to work in an Arctic context. Taking the example of Greenland, the capital Nuuk can certainly be seen as an urban space, even though the city counts under 20,000 inhabitants. And even the second biggest town in Greenland, Sisimiut, could be defined as an urban space with its around 6,000 inhabitants, as it serves as such for the surrounding villages. The migration stream from rural to urban in the Arctic needs to be seen in a broader perspective and can also include spaces, that might be rural in an international context, but urban for Arctic residents. The urbanity of a town in the Arctic seems to be less connected with its size, but more with the opportunities and the development it gives its residents.

As mentioned earlier, a higher number of women than men are migrating from and within the Arctic, and there is a difference in the motivation to migrate for both genders. Nowadays, women can earn as much or even more than men and often more women than men obtain higher education. Women in the Arctic are much more open to change, whereas men stick to traditional activities like hunting and fishing (Rasmussen 2009, 527f.). The same is argued Rafnsdóttír, who claims that women move as they are looking for more challenges in their everyday life (Rafnsdóttir (Ed.) 2010, 47f.). Women leave rural areas in order to get education or employment in more urban areas, but also in order to have more services and cultural opportunities (ibid.).
For this study, this development is relevant to consider. Women represent an important part of the skilled labour force in the Arctic, and the fact that women and men have different motivations to migrate needs to be considered when looking at the retention of labour in the Arctic, as there might be gender differences in their needs and expectations.

C. Consequences

Consequences of brain drain can both be both negative and positive. As seen above, historically there was a focus on both extremes, and today brain drain is seen in a more neutral sense, although the term itself has negative implications, as it implies a drain, e.g. a loss, of skills. In contrast to the international view of brain drain, the Arctic view seems to focus on the costs of brain drain, and is not (yet) aware of possible benefits from it. This matches Papademetriou's (2015) argument who claims that in the short term, brain drain has negative implications for a country, however it can bring long term benefits. (ibid. 14) Brain drain in the Arctic is a relatively new phenomenon, and measurements or reforms fighting brain drain and turning it into a gain for the country take time.

In general, the ***costs of brain drain*** for the country of origin include the loss of talent and skills, the lowering of the source country's employment level, the loss of return on investment in education, and thus negative welfare implications in general, as with a lower level of human capital the social welfare for the remaining residents can be difficult to sustain (Papademetriou 2015, 6; Lien and Wang 153f.; Beine et al. 2001, 275). However, Clemens (2013) argues that the lack of skills in the countries of origin is not a consequence of brain drain, but the result of structural causes which go beyond the emigration of workers (ibid. 1). Certainly, brain drain is causing a loss of skills, which possibly can result in a lack of skills in the country of origin. This depends on the economy's need for those skills. The lack of skills can be counteracted by educating more people with these skills, and working towards retaining these people where they are needed. The above presents a vicious circle as brain drain can be caused by structural challenges but it can also create these structural challenges itself.

The costs of brain drain in the Arctic can especially be seen in the economy, as it decreases human capital, which is essential for economy growth. The Arctic has a small population in general, which results in brain drain having a strong influence on the society. (Larsen et al. 2014, 89) In *The New Arctic,* the consequences of the brain drain in an Arctic society are explained:

> Migration affects a local economy through its effect on a community's scale, which in turn determines the size of the local market and the cost of producing goods and services. If out migration causes population decline, this will reduce the market for goods and services and increase the cost of local production. This affects the provision of public services as well as the private market. [...] Since economic well-being is influenced by the local provision of goods and services, the link between migration and

> scale creates a vicious cycle leading to continued population decline. (Evengård et al. 2015, 166)

The brain drain has a negative effect on the local economy and eventually leads to more migration, as the smaller a community becomes, the worse the local living conditions and the provision of services and goods becomes. Also, the need for human capital leads to an increased influx of external labour. (ibid.) This makes investigating in how to reverse the negative consequences of brain drain and the vicious circle described above so important, as it otherwise can lead to a chain reaction where more and more emigrate. It also refers back to Clemens' argument about brain drain not being a cause for the local lack of skills, but a consequence (Clemens 2013, 1).

The Arctic population is both declining and aging, and with the ongoing brain drain in combination with a low birth rate, it will not only decline further but also age further in the long term, resulting in a decreased local workforce (Evengård et al. 2015, 165; Larsen et al. 2014, 476; Rasmussen 2011, 10) The departure of women and young residents in particular leads to a gender imbalance in gender in their home community, and consequently to a further decline of the population. Moreover, external labour that substitutes local skills, affects the ethnic composition of the population in many Arctic societies. External labour and its consequences are not the focus of this paper, but it is acknowledged that the influx of external labour presents a challenge for both the labour market as well as the society, as it needs to be integrated and efforts to retain external labour should be made, in order to achieve brain gain. Further, the existence of external labour can have an influence on the locals' motivation to emigrate, as it might let locals feel less valuable for the labour market (Papademetriou 2015, 11).

Even though this study's topic focuses on how to change the negative development through brain drain, an overview on the ***benefits of brain drain*** contributes to the understanding of the initiatives against brain drain, as those could have the aim to gain benefits from brain drain, instead of stopping the brain drain.

The main argument for beneficial brain drain for the country of origin is about human capital formation: with the prospect of migration, the population of a community is enlarging their investments in education, which possibly fosters a country's economy. The negative effect only occurs if the educated actually migrate (Beine et al. 2001, 277). It is further argued that return migration of educated migrants presents a benefit of brain drain, which is higher than its costs, which is why migration should not be hindered, but instead return migration should be facilitated, also called 'brain circulation' (Beine et al. 2001, 276; Stark et al. 1997, 233). Apart from the rise of education levels and economy growth, other possible benefits from brain drain include: a higher level of average human capital per worker through external

labour; intergenerational transfer of human capital; the transfer of new industries and technologies through workers abroad; an out pool of new skills in the host countries, from which the source countries can benefit in the long term; the transfer of remittances (Lien and Wang 2003, 154; Papademetriou 2015, 6; Clemens 2013, 4).

Even without specific literature on the benefits of brain drain in the Arctic, some benefits can be pointed out from the above. Human capital in the Arctic grows through the influence of external labour (Rasmussen 2011, 11), which is beneficial for the Arctic economy as long the educated residents do not migrate. Also, the influx of external labour can be seen as beneficial for the Arctic economy. In some Arctic regions, like for instance the Faroe Islands and Iceland, brain circulation can be observed, which contributes to a region's development, as graduates return to the Arctic after their education and use their skills locally (Rasmussen 2011, 11). And finally, the general awareness about the causes and consequences of brain drain in the Arctic can eventually also be beneficial, as it raises awareness of how to approach the challenge, and also how for instance improving structural factors, employment and education can be of benefit for all part of the Arctic region.

3.2.1. Types of Brain Drain

The outmigration of high-skilled labour has different forms and outcomes. In the AHDR (2014), the term ‘brain turnover’ (intense in- and outmigration of labour at the same time) and ‘brain waves’ (surge and dips of human capital, often seen in connection with seasonal labour and resource extraction industry) are mentioned (Larsen et al. 2014, 367, 389). Both ‘brain turnover’ and ‘brain waves’ can be observed in the Arctic, as outmigration of local labour happens at the same time as immigration of external labour in order to substitute the missing skills. ‘Brain waves’ in the Arctic are mainly observed in regards to seasonal labour, which is a minor issue in the present case-studies, but nevertheless relevant to consider, especially when looking at quantitative data. Another term is ‘brain waste’ which describes the deskilling of labour in the host countries, when they are not able to use their qualifications abroad. (Milio et al. 2012, 8) There are studies on how out-migrants ‘waste their brains’ on host countries, also from an Arctic perspective (SFI 2015, NAGDP 2011).

Terms to describe the benefits of brain drain are ‘brain circulation’ and ‘brain gain’. ‘Brain circulation’ describes temporary migration in order to obtain education and the return to the home country afterwards. (Milio et al. 2012, 8) In the Arctic, this can especially be observed in the Faroe Islands. (Rasmussen 2011, 111) The term ‘brain gain’ describes how host countries profit from brain drain, as they gain human capital, skills and competences through the immigration. ‘Brain gain’ is also used in connection with the skills a country can obtain

through external labour. In the Arctic, this can especially be observed in bigger cities or towns, which experience an immigration of external labour.

3.3. Retention of Local High-Skilled Labour

The retention of high-skilled labour is not the only solution of brain drain, but was chosen as the approach for this paper as it is argued to be the most important approach for the cases of this paper. This is shortly discussed in the following, before moving on to the theories on the retention of local high-skilled labour.

As seen in the above, the causes and consequences of brain drain are very diverse, and there is no easy solution to tackle the brain drain. Rather it needs a combination of approaches to tackle the brain drain and its negative implications. In a report from the International Labour Office, policy responses to skilled migration are suggested and called for “The Six R’s”: Restriction, Return, Resource, Recruitment, Retention and Reparation (Lowell 2001, 3). Other scholars, like for instance Clemens, sum up measurements against brain drain in two focus areas: The retention of local labour and the return of migrated labour (Clemens 2013, 6). In an Arctic setting, Hansen et al. (2011) point out two options for policy makers to turn the demographic changes, whereof brain drain is one of them: either the closure of the region, or to revitalise the region (ibid. 15f.).

Having a closer look on the scholar's arguments, it can be argued that from the above suggested, a focus on the local retention of labour is the most important. First of all, the causes of brain drain are local, which makes a problem-based local approach relevant. Several scholars argue that it is the conditions in the home country that should be improved in case of brain drain, as they not only will make it easier to retain residents, but also to return those who are migrated (Maharaj 2014, 133; Leiman 2004, 691; Papademetriou 2015, 8f.). Focusing on strategies on how to retain the locals will make them feel valuable and motivate them to stay, whereas incentives in order to return locals from abroad, or in order to recruit external labour, might make locals feel less valuable and result in more brain drain (Papademetriou 2015, 11). An additional argument for putting a focus on the retention of local labour is that it is easier to convince skilled workers to stay, than recruiting migrants back (Leiman 2004, 688ff.).

Neither the restriction of the mobility of the local labour, or the recruitment of external labour are long term solutions for brain drain, as Papademetriou argues (2013, 13). He calls immigration for a part of the answer, but never the main solution (ibid.). Moreover, retention policies aim at long term improvements of opportunities, which matches the earlier

introduced argument of Papademetriou, saying that the challenges through brain drain in the long term can be used to implement greater reforms (Papademetriou 2015, 14; see chapter 3.1.). Retention of local high-skilled labour is a long term strategy in order to solve the brain drain, and to tackle the causes and consequences of it, which are most severe at a local level (Papademetriou 2015, 6). This is why an important part of policies working with brain drain should have a long term focus at a local level.

By this, it is not claimed that policies in regards to return, restriction, reparation and recruitment are not important in order to solve the brain drain. However it is claimed that a problem based approach in order to retain the local labour force, and to make them stay before a brain drain occurs, is the most beneficial long term solution of brain drain. In addition, some of the approaches regarding the retention of locals also do touch upon measures about return, recruitment and restriction, which thus are not completely excluded.

The policies and measurements are deeply connected and therefore difficult to see separate from each other, which is also visible in the sections which follow. It needs to be remarked that policies on how to retain local high-skilled labour focus mainly on human capital, economy, employment and education. Looking back at the causes for brain drain from the previous chapter, structural problems played an equally important role looking at the motivations for migrants to move. It might be that researches in brain drain see those structural problems as a general development problem of the affected countries, which need to be approached through more general strategies like housing, childcare, infrastructure and transport. As Papademetriou puts it: “Structural reforms should focus on the needs of the broader society and not just target immigrants” (ibid. 13). Nevertheless, it is clear that the policies against brain drain described in the following are deeply connected to the general structure of a region. Residents can have the opportunities for a good education and employment, and still migrate if the housing, transport, childcare, etc. situation is poor.

In the following, theories on the retention of high-skilled labour are presented. Due to the lack of literature on the Arctic specifically, a more general approach is presented and the relevance of the presented theories is argued in regards to the cases of this paper. The lack of concrete examples in the theories is connected to that concrete incentives depend very much on the individual situation of the community, and the causes for the brain drain. Therefore, more concrete examples of policies and measurements follow later on in the analysis of each case.

An important condition in order for retention incentives to be beneficial is that they are ***addressing the needs and priorities of the migrants*** (Papademetriou 2015, 11). Whereas Papademetriou's focus is on returnees, this is also valid for local, prospective migrants. It is important to gain knowledge about the needs of the locals, and their reasons for leaving, in order to create retention strategies that work. As brain drain is hard to measure, it can be difficult to obtain knowledge about reasons for leaving, nevertheless this should be the first step in the process for the actors.
After creating the incentives, the actors also need to find a way to ***communicate*** them with the emigrants and the locals (Papademetriou 2015, 11). Papademetriou suggest to create platforms in order to communicate incentives and opportunities, and to update those platforms continuously. If communicated right, favourable local conditions not make it only easier to keep locals, but also to return locals who left (Maharaj 2014, 133; Leiman 2004, 691; Papademetriou 2015, 8f.).

Furthermore, it is important to be aware of the differences between ***long term and short term strategies.*** Lowell argues: "Brain drain can be accelerated by rapid development in the short term. Over the long run, economic development is the best means of reducing outflows of people and maximizing inflows of knowledge" (Lowell 2001, 17). Incentives should focus on long term development, as those can slow down migration and at the same time create opportunities, with the goal to build a solid economic foundation from which both locals and returnees profit (Papademetriou 2015, 10f.).
Focussing on long-term strategies instead of short-term strategies could be difficult for the public sector and governmental actors, as they might be influenced by political decisions, the need for fast results and limited finances. As Papademetriou puts it, long term reforms are "less politically popular" (ibid., 13). The private sector however could be more successful implementing long-term strategies against brain drain, as the decision-chain might be shorter.

Human capital is the ultimate ***resource*** of a country, and economic success requires growing, attracting, retaining and rewarding human capital through education and good employment opportunities (Lowell 2001, 4; Papademetriou 2015, 14). With good economic and education opportunities, residents are provided with resources. Those local resources can lead to development and growth, both for the individual and also the society or country (Rasmussen 2011, 108ff.). Policies and strategies for the workplaces should be developed, in order to make the employees feel valuable and useful and a proper salary and contract should be part of these (Ensign et al. 2011, 196). In addition to that, policies in order to attract businesses and entrepreneurs should be created (Clemens 2013, 2). Papademetriou

suggests tax reforms by the governments in order to attract businesses and individuals (2015, 11).

As showed in the theory chapter on brain drain, human capital is the key for economic growth and development in the Arctic nowadays (Rasmussen 2011, 106). According to Rasmussen, the Arctic needs more investment in human capital in order to enhance economic productivity and success in the Arctic (Rasmussen 2011, 9; 115). Rasmussen also claims that Arctic regions need to attract more businesses in the private sector to create growth in the economy (ibid. 126). Moreover, companies in the Arctic nowadays should focus on lifelong learning, providing the residents with further training and the option to switch careers locally instead of migrating (Hansen et al. 2012, 34). And Christiansen argues that the benefits of working and taking an education should always be higher than welfare-benefits (Christiansen 2012, in Hansen et al. 2012, 26). However, good welfare benefits can certainly contribute to retain individuals in the Arctic, but do not solve the brain drain challenge.

The above suggests a focus on training and opportunities for local skills, both in regards to education and employment, in order to equip the society with resources. This includes skilled employees, good employers and workplaces. It is important to point out, that education opportunities not only concern professional education, but should start from elementary school and should continue all the way through their working life, with continuous training. This is in order to both give the individuals the necessary skills to start a postsecondary education, but also in order to retain families with children by providing a good elementary education. In addition to that the society only profits from human capital if the structures beside the professional life also are satisfying. Those can amongst others include health, housing, childcare and recreational activities, and can, as will be shown later on in the case analysis, both be approached by the employers, the municipality and/or the government.

Further, the ***correlation between education and employment*** is another theoretical approach in order to retain local high-skilled labour. Human resource development is the key to economic development (Lowell 2001, 17) and "[...] the support and development of higher institutions of education is certainly one of the best ways to offset brain drain" (Lowell 2001, 16). Education gives opportunities, but also the opportunity to leave. This is why investment in education is only beneficial if local employment opportunities are waiting after graduation. The focus should be on offering relevant education with the possibility of employment afterwards, that means an alignment of education and employment in order for the society to be able to make use of the gained skills (Ensign et al. 2011, 196). After their education,

graduates should be assisted in finding suitable and appealing employment opportunities (Filipovic et al. 2012, 16; Leiman 2004, 689). This could both be a task of university, but also of public services, and could include career counselling, an Alumni network or similar. Leiman (2004) argues further that not only the offered educations should be relevant, but also strongly focussed on local skills. First of all, this will make the skills less marketable outside the society, and secondly it will make graduates feel valuable for the society, make them want to stay and decrease the brain drain (ibid. 688).

According to Larsen et al. (2010, 84), that there is a missing link between educational opportunities and employment opportunities in Arctic societies, and better education and/or employment opportunities are frequent reasons for brain drain. This is surely connected to the Arctic's geographic situation and limited opportunities compared to the regions the migrants mostly leave to. The importance of policies and strategies in order to develop relevant education and employment opportunities is thus underlined by a low educational level in combination with the ongoing brain drain all over the Arctic. Rasmussen (2011) argues that even though Arctic actors do have an understanding of what should be relevant in regards to education policies, the knowledge is not used efficiently (ibid. 106). He does not elaborate on the reason for this, however anticipated reasons could be either political, financial or also social. As Rasmussen's claim is from 2011, this could have changed since, and also the term 'Arctic actors' is very broad, and there might be some actors who use their knowledge efficiently.
Matching the educational opportunities with the needs of the labour market should in theory be an approach for every community. The theoretical approach to it is rather ambiguous with no specific goals, leaving it up to individual interpretation what concrete incentives it could consist of. Investment in further education offers and graduate assistance are only two examples of concrete incentives for the correlation of education and employment. A regular dialogue between the business community and the education institutions should be another approach. However, it depends on the individual labour market and its needs, how to establish a good cooperation between the educational sector and the employers.

Clemens (2013) and Papademetriou (2015) suggest increased ***partnerships*** between countries or regions in order to take advantage of the brain drain and to retain local high-skilled labour in the long run. Clemens suggests to see the brain drain as a "two way flow" (Clemens 2013, 2), and argues that, instead of trying to stop the brain drain, countries should rather involve in partnerships between countries to manage the skill flows between the host country and the destination country. Partnerships can involve the creation of emotional links between the countries and the migrants, limits on recruiting from a partner country,

promoting national self-sufficiency in skill creation, policies that make it easier to find work back home, collaborations in education (Papademetriou 2015, 8). Collaborations in education could for instance be partnerships with educational institutions abroad, if the local education opportunities are limited. An example would be financial aid for education abroad, and an obligation to use the obtained skills in the home country (Leiman 2004, 692). Leiman offers the African country Eritrea as an example. Eritrea supports local residents in their education abroad, and afterwards obliges the graduates to work in Eritrea twice as long as the time their education lasted (ibid.). There are practical problems on how to oblige graduates to return. Options could be a monetary deposit or the withholding of the degree until the obligations are fulfilled (ibid.).

Partnerships can both be seen as an incentive for retention and return. It is a try to turn the brain drain into a brain circulation, and can be especially important in order to supply the labour market with those educations which are not offered locally, which makes this approach relevant in regards to the Arctic. Because of the remoteness and the sparely population, the educational system in the Arctic is not able to offer all educations that are needed locally, thus partnerships with institutions abroad can help to supply the labour market with all needed professions.
Partnerships are also important in regards to Clemens (2013, 12) argument about encouraging individuals to leave, but still being able to recruit them back. Partnerships can in the best case enable easier communication with local labour abroad and also be used as a tool in order to communicate local developments and incentives, in order to recruit locals back home. However, partnerships require effort from both sides in order to be beneficial, which is the most critical about them as an incentive as they easily can come to a standstill.

The above theories can be summarized in the main theoretical approaches 'Resource', 'Matching Employment and Education', and 'Partnerships'. Those have been chosen as variables for the analytical framework, as introduced in the methodology chapter.[3] Moreover, the following questions are to be considered for the analysis of the incentives:

- Is the initiative fitted at the needs and priorities of the migrants? Do actors know what is relevant, and do they use their knowledge?
- How are the initiatives communicated?
- Is the initiative long-term or short-term, and what would be the difference in its outcome?

By that, the body of theory serves as a frame to analyse the incentives, together with the empirical data which was collected.

[3] cf. Figure 1, page 6.

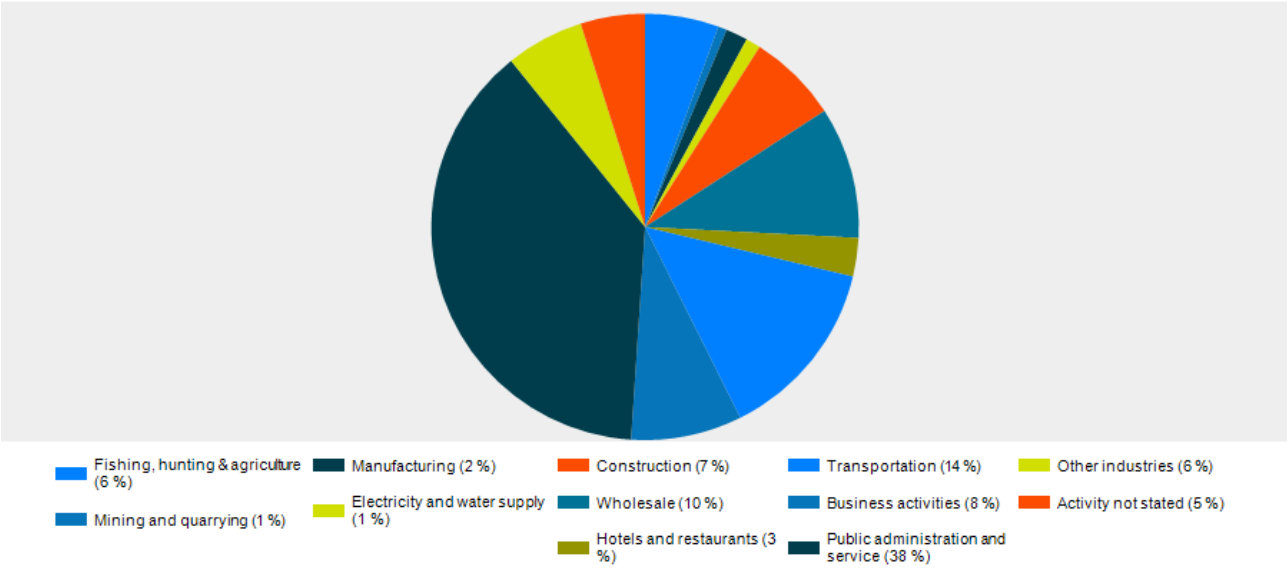
4. The Case of Nuuk, Greenland

In the following chapter, the case of Nuuk in Greenland is presented. The chapter starts with a short introduction to Nuuk, its population, the GDP and composition of economy, and labour market characteristics. This is in order to gain some basic knowledge, which will be used to investigate the brain drain in Nuuk in the next chapters.

The town of Nuuk is the capital of Greenland. As of 1st January 2014, the population in Nuuk counted 16,818 inhabitants, which is approximately 30% of Greenland's population (StatGL 2016f; Larsen et al. 2014, 96). The population has been constantly growing during the last decades, both because of a stable birth rate and a high number of internal migrants, compared to the rest of Greenland. Currently, the capital foresees the population increasing to 30,000 people by 2030 (Larsen et al. 2014, 96; KS 2016a).

As seen in figure 2 below, the main sector of employment in Nuuk is by far the public sector, with approx. 40% of the labour force. Other important employment sectors are transport, wholesale and business activities with over 10% of the labour force each, followed by the sector of fishing, hunting and agriculture (StatGL 2016a) In comparison, Greenland's economy also has the highest employment in the public sector (40%), followed by fishing, hunting and agriculture (15%), wholesale (12%) and transportation (10%) (ibid.).

Fig. 2: Main employment for permanent residents by industry in 2014, Nuuk district



Source: StatGL 2016a; inventory variable: Average employment per month.

The GDP for all of Greenland grew from 2009 to 2012, and decreased afterwards. In 2014 the rate was at -1.6%. The change from an increasing to a decreasing GDP can be explained through changes in the mining sector. Until 2013, prospective mining sites and projects boosted the economy whereas most of the projects were shut down in 2013 (EC 2014, 10). The most up-to-date figures for the GDP are from 2014, and there is no separate data for Nuuk. In 2014, 50% of the population of Nuuk on average belonged to the labour force, with a slightly higher amount of men than women. That number is slightly higher than the average labour force share for all of Greenland which is 45% of the population (StatGL 2016b). At the same time as the population of Nuuk is growing, the labour force is also increasing (ibid.). However, when checking the unemployment rate for Nuuk, it can be observed that it almost doubled from 4.5% in 2010 to 7.9% in 2014, with a slightly higher amount of unemployed men than women (StatGL 2016d). For all of Greenland, there was an increase from 7.8% in 2010 to 10.3% in 2014.
It is difficult to conclude on the economy of Nuuk on the basis of this data. Knowing that the labour force in Nuuk counts around 35% of the total labour force in Greenland, and in addition that Nuuk has a higher average share of labour force and less unemployment than Greenland in general, a growth of the local GDP could be anticipated.

In a Greenlandic context, Nuuk itself can be defined as an urban space. With a population that almost counts ⅓ of the total population of Greenland, and the status as the capital of Greenland it has a very central position. This is also reflected in the infrastructure, the seat of the government and other central institutions as named above. Especially in regards to education, Nuuk plays a central role in Greenland as the secondary and postsecondary educational institutions are located there. Seen from the outside, Nuuk is a small town and compared to the migrants destinations, which are mainly cities in Denmark, it does not offer the same amount of opportunities. Nuuk can therefore be seen both as an urban, central space (from a Greenlandic perspective) and as a rural, peripheral space (from an outside perspective) (Grydehøj 2014, 218).

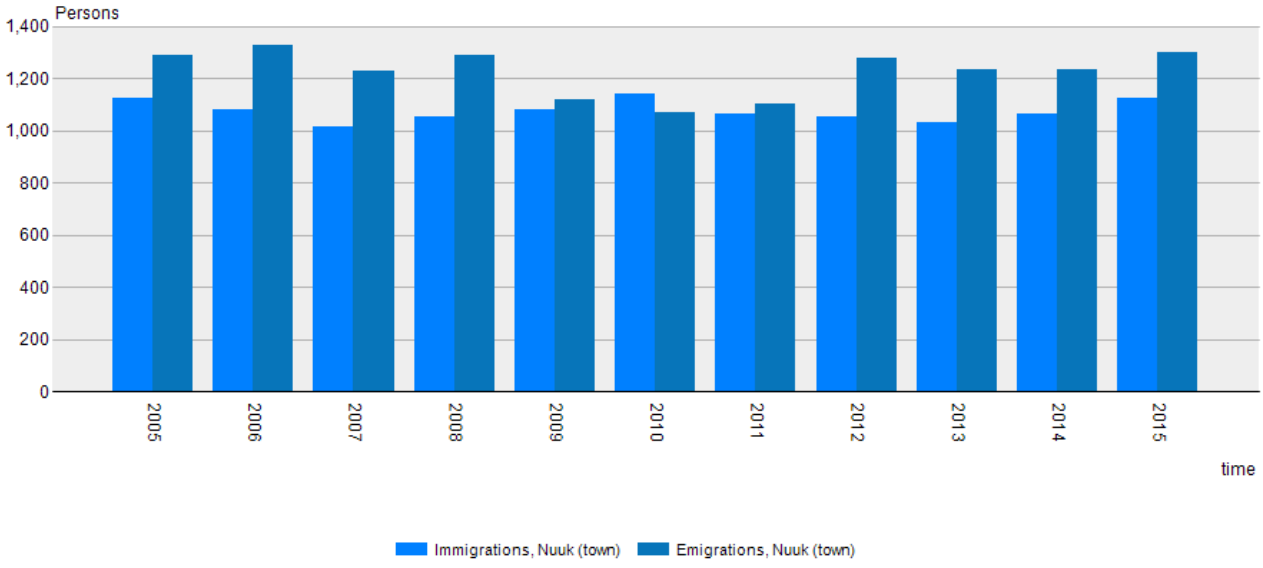
4.1. Nature, Extent and Consequences of Brain Drain in Nuuk

As seen in the theory chapter, it is difficult to measure brain drain. For the present case, this is also acknowledged by several studies about brain drain in Greenland. The Ministry of Education and Research in Greenland for example argues, that “Brain Drain is by many observers of Greenland considered as a major problem, but no official statistical data can qualify this presumption” (DUF 2011, 4, my translation) In the following, a mix of quantitative and qualitative data is used in order to try to determine brain drain in Nuuk.

The existence of brain drain in Greenland is claimed by several reports and studies (amongst others EC 2013 and 2015, FD 2015, Larsen et al. 2014). These studies base their findings on the official data of Statistics Greenland and/or data they collected themselves. As none of these sources deal with brain drain in Nuuk specifically, this chapter starts with an analysis of statistical data about brain drain in Nuuk, and then moves on to other sources in order to determine the nature and extent of brain drain. As Nuuk counts ⅓ of all Greenlandic population, sources on brain drain in Greenland in general and their findings can be argued to be relevant to a certain extent and thus included in this chapter.

Looking at the quantitative data for migration to and from Nuuk and from and to places outside of Greenland, the data shows a similar number of emigrants annually in the last decade.

Fig. 3: International migration to and from Nuuk, 2005-2015, total



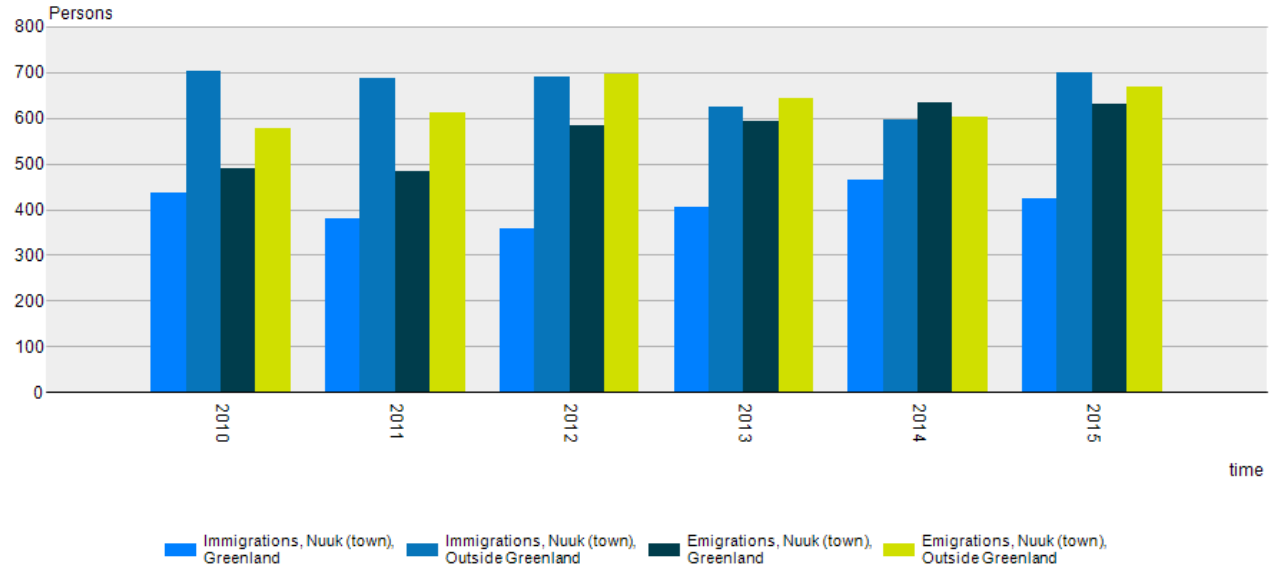
Source: StatGL 2016g

The figure also shows that, apart from in 2010, emigration was higher than immigration. Compared to the total population of Nuuk, the total outmigration rate was around 8% in 2014 and slightly higher than the immigration rate. Compared to the outmigration of all of Greenland in the same time period, on average 50% of the total outmigration was based from Nuuk.

The above numbers include both migrants born in Greenland and born outside Greenland. When extracting separate data for those two groups, it shows that in the last decade, there

was a rise in both outmigration and in-migration (as in return migration) of Greenlandic-born residents, whereas the number of incoming non-locals decreased (StatGL 2016g).

Fig. 4: International and internal migration to and from Nuuk, by place of birth



Source: StatGL 2016g

Taking a more detailed look at these numbers, it stands out that the in- and outmigration of people who are not born in Greenland is almost the same and thus neutral, and that the higher number of Greenlandic born residents that migrate cause negative net-migration. From 2010 to 2015, the annual net-migration rate for this group was around -200, which means an annual loss of 200 local residents.

Whereas these numbers do not tell much about brain drain, they give a first picture of the outmigration tendencies in Nuuk. Is it high-skilled labour that migrates from Nuuk, and do the characteristics of the migrants, such as gender and age, match the concept of brain drain in the Arctic?

As seen above, approx. half of the population of Nuuk belongs to the labour force. In 2014, 17.3% of the labour force of the municipality which Nuuk belongs to, had a postsecondary education[4], compared to 14% of the total population of Greenland (StatGL 2016c). There are no numbers available just for Nuuk, but taking into account the fact that Nuuk counts for ¾ of the population of the municipality the above can be seen as representative for Nuuk. From this number, approx. ⅔ are born in Greenland and thus considered to be part of the local high-skilled workforce (StatGL 2016i).

[4] Education in Greenland in general is free of charge, and postsecondary students receive a student grant of 4,500DKK a month while studying (Sunngu 2016a).

The unemployment rate for the local high-skilled workforce is stable throughout the last decade and counted 0.8% in 2014 for all of Greenland, which is a very low number compared to the average unemployment of 10% (StatGL 2016e). This number shows that there must be a high demand for persons with postsecondary education - which could be caused by brain drain. As there are no numbers on the above just for Nuuk, two hypotheses for can be drawn up: the unemployment rate for high-skilled labour in Nuuk is higher, as people move to Nuuk from other parts of Greenland, educate themselves and hope for a job, *or* the unemployment rate for high-skilled labour in Nuuk is the same or lower, as there is a higher need of high-skilled labour in Nuuk in general compared with the rest of Greenland, as the town is the governmental and administrative centre of Greenland. As more people in the labour force in Nuuk do have a postsecondary education, the last scenario seems to be more realistic, which would anticipate a lack of high-skilled labour in Nuuk. This is also expressed by an expert at the University of Greenland in Nuuk, saying that students do not have problems finding a job in Nuuk after graduation - sometimes even without finishing their degree as they get headhunted by companies before graduating (Arnfjord 2016). Nuuk seems to have a general lack of skills and insufficient production of new local skills, which makes the issue of brain drain even more significant as high-skilled labour is much needed.

Looking at the age of the Greenlandic born out-migrants from Nuuk, it is mainly the age group from 18-24, followed by the age group 25-34 who are out-migrating. There is no significant difference between the number of men and women migrating, but the above mentioned age group contains a slightly higher number of women. 71% of the out-migrants are aged between 18 and 64, and therefore probably belong to the labour force (StatGL 2016g). These numbers indicate a probable brain drain, as they match the concept of brain drain in the Arctic in regards to age and gender, as well as the theory that younger people migrate in order to obtain education.

Qualitative data, such as the report *The Economy of Greenland* (EC 2013) claim a negative net-migration from Greenland, a low return rate, and a higher education of those who return in general, basing its findings on an internal report (ibid. 6). It is also claimed that emigration patterns in Greenland are linked to education, and are thereby also related to residents who are about to acquire qualifications that are relevant for the labour market (ibid. 41). It is claimed that many of those who obtain skills abroad do not return and thus make no use of their skills in the home labour market (ibid. 42). Also, the Financial Department (FD 2015) argues that a high number of Greenlanders leave for Denmark in order to take a postsecondary education (ibid. 91). This points at outmigration in order to undertake postsecondary education, which would suggest brain drain. Apart from that, there have been

established several research projects about brain drain in Greenland, but none of them aim specifically at Nuuk (DUF 2011, Clausen 1998, Inatsisartut 2015, Naalakkersuisut 2016).
A closer look at the educational sector in Greenland and Nuuk shows that more than ⅓ of all Greenlandic students do take their postsecondary education abroad. In 2015, 731 students were enrolled in a postsecondary education in Greenland, whereas 446 Greenlandic students were enrolled at a university abroad (StatGL 2016h). The average return rate for Greenlandic students abroad after graduation is estimated at around 50% (DUF 2011, 15). The same source calculates that the real number of Greenlandic graduates annually is on average 60 persons, which would result in a total number of 30 persons for all Greenland, who take their education abroad without returning to Greenland and thus causing brain drain (ibid.). The findings are based on numbers regarding how many persons received Greenlandic student grants abroad between 1980 and 2010, and how many of those had their residence in Greenland in 2011. It is not said which source the report used for these calculations, but assuming that it is based on the personal registration number register, the data can be seen as reliable. This example shows the extent of brain drain caused by students who migrate in order to take their education abroad, and does not indicate how much of this brain drain is relevant to Nuuk. The number would indicate that of the 446 students mentioned above, only half of them can be expected to return, which is a significant number as this would be 20% of all enrolled students in 2014. The fact that on an annual basis, 50% of the brain drain does not return is quite a high proportion. With Nuuk being Greenland's educational centre, the main part of the non-returnees can be anticipated to be carried by Nuuk, which is also reflected in its high amount of external labour. Even though the source above argues that 30 persons per year is insignificant, it is a significant number for Nuuk, as Nuuk seems to carry the main part of this number and has a lack of high-skilled labour.

As described in the previous section, Nuuk can be seen as an urban space in a Greenlandic sense, and a rural space from an outer perspective. The Economic Council (2015) argues that an increasing number of young Greenlanders move from rural to urban places, which is why Nuuk experienced an increasing internal immigration in the last decades (ibid. 6). According to Ensign et al. (2011), the movement from smaller villages to Nuuk can be seen as sort of a trial for young people in order to make the move from rural to urban. Finally, they will leave Nuuk for an even more urban space, thus creating brain drain (ibid. 201). This could explain the statistical fact that half of the total migration from Greenland happens with Nuuk as a base.

As a positive development it must be mentioned that the number of local high-skilled labour is increasing, for instance the number of students in Greenland in general has been increasing constantly in the last years (StatGL 2016h). Yet, this does not imply that the high-skilled labour stays in Greenland, as brain drain towards a master's degree or a job abroad still could occur. For example, the number of Greenlandic students in Denmark has increased throughout the last years (ibid.).
As it will be shown in the final section of this chapter, local companies in Nuuk have established programs in order to attract local high-skilled labour, and municipal strategies approach the problem as well, which speaks for the existence of brain drain. In addition, the government of Greenland initiated several analyses which focus on the outmigration of high-skilled labour, one of them especially focussing on the movement between Nuuk and Copenhagen, which could point at the existence of significant brain drain or brain circulation between the two places (FD 2016, Naalakkersuisut 2016).

By combining the findings from quantitative and qualitative data, it can be argued for the probability of brain drain in Nuuk. The analysis makes probable the existence of significant brain drain. However, the exact extent remains unclear as there are no solid numbers available. The constant in- and outmigration of both local and non-local high-skilled labour points towards a brain turnover for Nuuk, as well as a brain circulation with regard to residents who leave Nuuk in order to obtain an education, and return afterwards. The brain drain for Nuuk implies either a brain gain or brain waste for the migrants destinations, however neither of those can be measured through the statistics above. For Nuuk, the influx of external labour implies a brain gain, which could be seen in the high number of external high-skilled labour in Nuuk.

Due to the fact that the extent of brain drain in Nuuk is, for the most part, unmonitored, the consequences of brain drain are hard to identify. Looking at the general consequences of brain drain in the Arctic, most of them are either non-existing for Nuuk or cannot be solely identified in connection with brain drain, but are rather connected with outmigration and the lack of local skills in general. According to the theory, brain drain has an influence on the composition and age of the population in the Arctic. Even when taking into account not only brain drain but also the outmigration in Nuuk, possible consequences seem to be out-balanced by the high birth rate and high internal migration to Nuuk. As stated in the beginning of this chapter, the town’s population is growing and has a young population in average. Another theoretically claimed consequence of brain drain in the Arctic is a gender and age imbalance caused by the outmigration of mainly young women. Whereas this

certainly is a problem for the rest of Greenland (ØR 2015, 6), it is no issue for Nuuk, where there is no significant difference in gender throughout the age groups (StatGL 2016f).

Furthermore, scholars claim brain drain decreases the local human capital, which can possibly have consequences for the economy. As there are no solid numbers on the extent of brain drain in Nuuk, no conclusions on its influence on the local human capital can be made. However, in Nuuk, even though there is outmigration and brain drain, the population, economy and labour force is growing as seen in the above. This matches the argument of Evengård et al. (2015), who claim that northern economies can grow through external labour, even though they experience out migration (ibid. 166). However, the high amount of external labour can have consequences for Nuuk. In Nuuk, about 30% of residents are not born in Greenland, and ¾ of this group are aged from 18-64 and thus possibly part of the labour force. It is amongst others a challenge to integrate non-locals into a society that is still characterized by its past as a Danish colony. Even though some efforts are made in order to make integration easier, the meeting of the Danish and Greenlandic culture cannot always be claimed to be smooth. Also the retention of external labour is a challenge. Statistically, the average stay of a non-Greenlander in Greenland is 13 months, which leaves employers with the recurrent challenge of finding new employees, and with less motivation to integrate the new employees properly, as from the beginning there is an anticipation of employees leaving again, and neither contributes to a positive workplace atmosphere (Pedersen 1999, ASG 2015).

A positive consequence of brain drain is the generally rather high attention to the topic of brain drain in Nuuk. As it will be shown in the chapter on initiatives and measures against brain drain, there is a high awareness on the topic, which is treated in studies, reports, seminars, debates and the media in general. This awareness is positive, as it highlights the need to focus on the education, recruitment and retention of local skills. Also, the return of high-skilled migrants adds human capital to the town, which is a brain gain and thus a positive consequence.

Brain drain is still a challenge for Nuuk, even though its consequences are difficult to measure and not (yet) visible. Currently, those people leaving Nuuk get replaced by internal migration, but on the long term this will turn out as a challenge, as the skills who are leaving are not replaced with the same skills, but often lower skills, and it takes time to upgrade these. Currently, it is external labour that contributes to the stable human capital in Nuuk. Employers and the government in Nuuk started to focus on limiting external labour, which results in a higher requirement of local labour and thus an increased focus on brain drain and

its consequences. Due to urbanisation, the consequences of brain drain in Greenland are currently more visible in places outside Nuuk, but will become more visible in Nuuk on the long term, if the development is not turned.

4.2. Causes of Brain Drain in Nuuk

As seen in the theory chapter, the causes of brain drain in the Arctic are diverse and hard to determine, as the reasons for migration in general are not monitored. This issue is also valid for Nuuk. The following is an attempt to determine the causes of brain drain in Nuuk, according the causes of brain drain which were identified in the theory chapter.

First of all, globalisation and urbanisation in the Arctic (Larsen et al. 2014, 369) certainly can be seen as influencing the brain drain in Nuuk, as in the rest of Greenland. Clausen (1998) argues that increasing globalisation leads to brain circulation, as more and more Greenlandic residents leave Greenland in order to obtain an education elsewhere (ibid. 83). More access to information, transportation and an increased connectivity with the outside world makes it both easier and more attractive to leave Greenland. As a consequence of urbanisation, Nuuk is currently growing which results in structural challenges as for example long waiting lists for housing, availability and quality of childcare and healthcare, and internet access, which can be factors that influence the motivation for high-skilled labour to migrate or to remain abroad after completing education (Larsen et al. 2014, 96). The topic is highly discussed in the media (see for example Troelsen 2013a). An expert at Ilisimatusarfik, the University of Greenland, states that it is mainly because of bad structural conditions that Greenlandic students do not return to Greenland after an exchange with another university, and not because of the education or employment opportunities. The expert mentions especially housing and conditions for children (Arnsfjord 2016). During the election in 2013, better and cheaper childcare for recent graduates with children that return from abroad was discussed, but not implemented (Troelsen 2013b), showing another attempt for a measure to increase brain circulation. A critic from Greenlanders abroad is that currently, it is only possible to subscribe on the waiting list for daycare six months before moving to Greenland, whereas the waiting list for day care institutions is often 1-2 years (Sullissivik 2016). This makes it difficult to move to Nuuk for families with small children.

What is most critical about structural conditions is that they build a barrier for realistic job prospects, as they keep high-skilled labour from taking local jobs and make use of their skills. This is not because there are not enough attractive employment opportunities, but because the structural conditions are not attractive. This tendency finally not only causes brain drain

but could also lead to brain waste, and is not only valid for Nuuk but for all of Greenland (EC 2013, 43).

Another structural factor, which cannot be defined as a cause for brain drain, but definitely is an influence, is the easy migration to Denmark for Greenlanders. All Greenlanders are Danish citizens, which makes it easy to emigrate to Denmark (which is the most common destination for emigrants) and gives access to several welfare benefits (EC 2013, 40). In studies conducted among Greenlanders in Denmark, structural reasons are amongst others claimed as reasons for migration (NAGDP 2011 3f., SFI 2015, 24). The challenging structural conditions at home and the expectation of better conditions abroad are causing a brain drain.

Evengård et al. (2015) argue that outmigration seizes down communities which makes it challenging to keep up the communities' standards and retain the remaining residents. This vicious circle can also be observed in Nuuk. On one hand, the town is growing and struggles with internal and international immigration and the increased need of services, infrastructure and housing, on the other hand Nuuk experiences brain drain because of a lack of the community standards mentioned. As argued by Clemens (2013, 1), it is not brain drain which is causing the structural challenges, but it occurs as a consequence.

Larsen et al. (2010) amongst others claim that education and employment opportunities and a poor fit between those as the main cause of brain drain in the Arctic. Nuuk has a wider range of education and employment opportunities than any other place in Greenland. Instead of a discrepancy between the production of skills and the employment possibilities, in Nuuk there are more employment opportunities than available high-skilled labour, resulting in recruiting external labour and a general lack of high-skilled labour. A lack of relevant employment opportunities, as argued by Rasmussen (2011) and Larsen et al. (2014), does not seem to be the reason for brain drain in Nuuk, as unemployment for persons with a postsecondary education is very low, and in fact indicates a lack of employees and a high availability of jobs for high-skilled labour. The quality of the workplaces however could be argued as a cause of brain drain. As already touched upon above, when looking at the consequences of brain drain, the lack of high-skilled labour and the high amount of external labour influences local working conditions. Workplaces experience a high fluctuation on the one hand, and a high responsibility and demanding tasks for employees on the other hand. Especially for recent graduates this can be challenging (Pedersen 1999, 20; Clausen 1998). In addition comes the clash of cultures through the influx of external labour, which is specially influenced by the colonial history in Greenland. This will not be discussed more in detail, but

still acknowledged as a cause for brain drain, as it can have influences on society in general and the labour market conditions especially[5] (Pedersen 1999, 20).

Education is another cause for brain drain in Nuuk. Even though the education opportunities in Greenland and in Nuuk are increasing, there are still some programs for which students need to leave Greenland (amongst others medicine and law). The Economic Council argues: "As a large proportion of emigration in Greenland is linked to acquisition of educational qualifications, and as many of those who qualify do not return, it is clearly likely that emigration will be less if more educational qualifications can be obtained within Greenland." (EC 2013, 42). Also the OECD (2011) argues that the lack of education opportunities in Greenland in general produces a brain drain. Nuuk experiences both immigration from other places in Greenland because of educational reasons, but also outmigration of residents in order to take an education elsewhere, mostly in Denmark.
It is not only the educational opportunities, but also the quality of education that causes the brain drain in Nuuk, and makes individuals take an education abroad, even though there is the option to take it at home. The reputation of the educational sector in Greenland is not yet as good as these abroad, which can cause a brain drain, especially as Greenlanders abroad receive the same student grant as if they studied in Greenland (Terpstra 2015, 96). And finally, education as a cause for brain drain must not only concern the migrants' education, but also for example the education of their children (ibid. 94).

In regards to different causes for brain drain for men and women, as well as how family and social networks do play a role in regards to the decision to move, there is very little data in regards to Nuuk. Rasmussen (2009) claims that brain drain of women is caused by employment and education, whereas brain drain for men is caused by the conditions with regards to infrastructure and housing. This cannot be proven to be the case in Nuuk, due to the lack of data on the issue. It can be acknowledged that there is a higher number of women taking a postsecondary education, but as this is valid for both Nuuk and students abroad, this argument cannot serve as a cause for brain drain (StatGL 2016h).
The same is the case for Rasmussen's (2011) argument on the importance of family and social networks as a cause for brain drain (ibid. 52) It can be proved in a Greenlandic context, but not for specifically for Nuuk. In the afore mentioned studies about Greenlanders in Denmark, family and social networks did play an important role as a reason to migrate (NAGDP 2011, 6). Also other sources claim that the brain drain from Greenland can be connected to relations abroad (FD 2015, 91).

[5] Pedersen (1999) refers to Fleischer (1999), p. 205ff. for a more detailed discussion; also Akademikernes Sammenslutning i Grønland (2015) gives a detailed analysis of the issue (both in Danish).

4.3. Selected Relevant Examples of Initiatives of Retention in Nuuk

This chapter presents and analyses selected relevant examples of initiatives and measures of retention in regards to the research questions *Which initiatives have had a positive effect?, Which initiatives have had little or no effect?* The chapter is structured according to the theoretical approach from chapter 3.3., and analysed with the help of the analytical framework.[6]

The initiatives that are analysed in the following, come from different actors, such as private and public actors and NGOs. Depending on the actor, there are different resources, goals and influences behind the initiatives, which are, as far as it was possible, acknowledged and considered in regards to the respective initiative. The assessment of the initiatives has been made with the help of evaluations and theories used in this paper as described in the methodology chapter.

A. Resources

'Resources' is divided in the three target groups 'students', 'recent graduates' and 'general'. Even though this was not an aspect claimed by any of the scholars used in the theory chapter, in practice this is relevant as different initiatives are focussed on different target groups and in addition it gives a better overview on the measurements.

Students are an important target group for retention initiatives in Nuuk, as the lack of education opportunities and the quality of educations are named as common reasons for brain drain. The offering and accessibility of education is one of the main aspects of building an educated labour force. In regards to postsecondary education, Ilisimatusarfik, a public institution, is the main provider of education in Nuuk. ***Ilisimatusarfik*** has several strategies to improve their offers and the quality of the educations, stated in their strategy which runs from 2015-2020 (Ilisimatusarfik 2016d). Part of the strategy is for Ilisimatusarfik to create new educations. For instance, in 2017, a bachelor education in Natural Science will be opened, which is a field that before has not been possible to study in Greenland (Ilisimatusarfik 2016d, Bang 2016). Further, in 2015, a new bachelor education in Business Administration has been established successfully, based on its enrolment numbers (Magnusdóttir 2016, 10:18).

A common reason for brain drain in Nuuk is the lack of education opportunities. Lowell (2001, 17) argues that the development of higher education institutions is one of the best ways to fight the brain drain. The development of relevant local study programs and more local

[6] OBS

education opportunities could turn the brain drain development in Nuuk to some extent. The above mentioned measures can be expected to have a positive effect, especially if the educations are created according to the labour markets needs.

Providing postsecondary educations is the first step of decreasing brain drain. In addition, the ***quality of the provided education opportunities*** needs to be good in order to make locals want to take them. The quality of education in Greenland has been discussed publicly and academically over the last years, and is one of the reasons for young people to obtain their education abroad (Terpstra 2015, 94ff.) Several proactive measures are also part of Ilisimatusarfik's strategy, in order to improve the quality of their educations and help the students to complete their studies. Amongst others attendance in classes and seminars has recently been made compulsory as experience showed that students had a hard time attending classes where attendance was voluntary, and this had an influence on their performance (Magnusdóttir 2016, 35:07). Also Ilisimatusarfik organises seminars where students can learn how to tackle fear of exams and to improve structuring of their time (ibid. 33:59). From past experience, actors at the university learned that they need to be more proactive in order to support the students in their needs as it is difficult to have the students reaching out for help (Magnusdóttir 2016, 39:50, 33:59). With those measures, a focus is set on growing and rewarding human capital, as suggested by Lowell (2001, 4) and Papademetriou (2015, 14). It makes students and the future labour force stronger, and as the quality of education is claimed as a reason for brain drain in Nuuk, it matches students needs and makes a positive outcome of the measures probable.

The university recently implemented new ***stricter admission rules***, aiming at improving the quality of the study programs by requiring higher qualifications from their future students (Ilisimatusarfik 2016b). The approach is highly discussed in public, as the demand for high-skilled labour is so high that on first sight, it does not seem to make sense to restrict the admittance to university (KNR 2016). Experts at Ilisimatusarfik express, that with the new rules, they expect the same amount of applicants, but a higher number that complete their studies as they have better qualifications (Arnsfjord 2016). The experts acknowledge that the new rules show the paradox of a society, which has a high lack of skills, and at the same time makes it more difficult to take an education locally. On the other hand it is important to secure the quality of education on the long term, and stricter admission rules are beneficial for that (Magnusdóttir 2016, 21:05; 49:40). The earlier mentioned Centre for National Counselling expresses that they appreciate the new stricter admission rules as it has been too easy to access university, and the centre experiences in their counselling that many students struggle to complete their studies due to a lack of qualifications (Poulsen 2016).

The new admission rules address local critics on the quality of education. They also match the theory of the need of providing locals with resources in order to retain them (Lowell 2001,4), and the theory that in order to decrease the brain drain, the society needs to invest in education even if this could result in a further brain drain on short term (Beine et al. 2001, 277). With stricter admission rules, the human capital is grown more targeted by also considering the individual's qualifications, which might not always be high enough for postsecondary education. On short term, the new rules could cause more brain drain as it might be easier to access education elsewhere, especially regarding the beneficial admission rules for Greenlanders in Denmark, which will be thoroughly discussed later on. On long term, the initiative probably has a positive effect and leads to better quality of education and a higher number of completed studies as the average qualifications of admitted students are higher.

Even though a society offers relevant and good quality education, there can still be other factors which are not connected to education which result in brain drain. An initiative that addresses social causes for brain drain is the ***Center for National Counselling*** in Nuuk (Center for National Vejledning - CNV). It is a governmental institution that has existed for 1.5 years, and reflects the governmental interest in a higher number of students that complete their education. Amongst their task is the social and psychological counselling of students, as well as the education of study counsellors, who counsel at high schools (Poulsen 2016). The centre can be characterised as an initiative for brain retain, as it informs and supports students before and during their education, and thus in the end helps to build and retain a skilled workforce. It has a close collaboration with other counselling and educational institutions and also has cooperation with institutions in the Faroe Islands, Iceland, the EU and the Nordic Council (ibid.). Another of the centre's task is the education of counsellors and through that raise of awareness for the issues in the educational sector in Greenland, in order to support the students as good as possible. The centre is evaluating their work annually. Since its opening in 2014, it developed fast and is currently planning on how to improve their work. The high number of students who reach out for the centre shows an increased demand for psychologists, and the center is planning to employ more, as currently they work at their limits. Other new future incentives derived from evaluating the center, such as group counselling, self-help groups and IT-systems in order to reach more towns and villages (ibid.). Those are currently in the planning. A similar approach is established by the university, which engages in more proactive measures with a focus on the students' professional challenges (Magnusdóttir 2016, 42:55), showing the relevance of being proactive both for CNV, Ilisimatusarfik and in general, as students not always are reaching out for offers, but rather need to have their options presented. As seen in the previous

chapter, social challenges present causes for brain drain in Nuuk. With its offers, the centre assists students to complete an education. Whereas social measures are not mentioned in the theory as an incentive against brain drain, it is an incentive based on needs of the migrants and the causes of migration, working on more favourable conditions for students (Papademetriou 2015, 8ff.). The success and high demand for its offers shows that the CNV is a necessary and relevant institution, and that it is not enough to offer high quality educations without the help to complete them. The high demand for psychologists show that the initiative has a probable positive effect, but it also shows that proactive measures might be necessary for some students, whereas others are also able to reach out themselves, as long as they are informed about the existence of the offers.

Despite the above presented initiatives and the fairly beneficial options to study in Greenland[7], many young Greenlanders move abroad in order to study. Clemens argues (2013, 1) that restrictions of movement do not solve the problem of brain drain, and states should rather prepare their residents for mobility. For Greenlandic students it is financially beneficial to take their education in Denmark or other places which acknowledged by the Greenlandic government (LJA 2011a). In addition to a monthly study grant, they receive several other benefits when studying abroad. This is for instance tax benefits, beneficial study loans, annual free travels back home, health care benefits, grants for travels and books (Sunngu 2016a). Also, there are beneficial admission rules for Greenlandic applicants for an education in Denmark. Through a special agreement, applicants from Greenland profit from lower grade requirements than other applicants (Sunngu 2016b), which is especially important in connection to the stricter admission rules the university in Nuuk just implemented. The benefits from moving abroad for an education are connected to the limited education options in Greenland. For many decades, moving abroad was the only way to obtain postsecondary education. Nowadays, there are more local postsecondary education, for instance the university in Nuuk, Ilisimatusarfik, which has existed since 1983, and today consist of four departments and a growing number of students and programmes (Ilisimatusarfik 2016a). The benefits from studying abroad should be re-assessed and it should be made more attractive to take an education in Greenland, or secured that the skills obtained abroad are used back home. The latter is especially important given that even though the educational sector is growing, there are still a couple of educations which are not offered in Greenland (for instance law and medicine).

[7] Students receive a free monthly study grant of 4,500 DKK; Student accommodations in Greenland cost only 850 DKK a month; Students who move to another town for education purposes are guaranteed housing; Kindergarten is free for students, and their children have priority on the waiting list (Sunngu 2016b; LJA 2012; LJA 2011b).

Whereas the above focuses on students, the following initiative focuses on retaining or returning recent graduates. The Government of Greenland offers a ***financial aid for paying back student loans***, if the recent graduates stay in Greenland or move back to Greenland after finishing their studies. In addition to the monthly study grant every Greenlandic student receives and which does not have to be paid back, students can take a study loan, which needs to be paid back after finishing their studies. The government offers a grant for students who took a study loan and have their residence in Greenland after graduating (LJA 2016, chapter 8). The grant consists of 50% of the amount that the applicant has paid during the past year, and can be raised by another 50% if the student has completed his studies no later than one year after the standard time (ibid. §31). Numbers from 2006 show that approx. 69% of all students (both in Greenland and abroad) did take a student loan (Landstingets Erhvervsudvalg 2008). The use of the governmental financial aid has been rising in the last years and the law recently got changed resulting in a change of the interest rates in order for the government to save some expenses, as well as a new rule giving extra financial benefits to students who finish their education within one year of the standard time of their study program (LJA 2016, §31). The changes come into effect on August 1st, 2016. It is not clear how many of the above mentioned 69% of students make use of the above law, but in a remark to the law proposal, it was claimed that "The real costs [...] have been increasing rapidly in recent years, so it is reasonable to assume that the scheme will eventually approach the full use of the potential candidates." (Lovgivning.gl 2016, 7, my translation). This initiative matches Leiman's argument (2004, 692) about how governments can offer financial aid to students abroad with the obligation to return home afterwards, where in the case of Greenland the return is not obliged but financially beneficial for the graduates. In 2014, there were approximately 1,100 students in total, whereof 60% studied in Greenland and 40% in Denmark. If the above numbers of 69% students taking a student loan still are valid today, partly those must be students in Denmark. How many of the students are returning to or staying in Greenland because of the law can not be assessed statistically. Financial reasons were not claimed as reasons for brain drain, and thus not necessarily a reason for graduates to return. A positive effect of the initiative is thus questionable, as there is a probability that it is mainly students who would stay in Greenland anyways who take advantage of it, and thus not influencing their retention or return.

In a more general perspective, there has been an increased focus on the importance of local labour in Nuuk, instead of continuing to import external labour. An example is the new ***job platform suli.gl,*** which went online on April 1st, 2016.[8] It is an incentive suggested in the Strategy for Employment 2015 by the Government of Greenland. The job platform has the

[8] www.suli.gl

goal to help put focus on local labour force, as it collects all job announcements in Greenland on one site, and both has a the option for employers and jobseekers to create a profile free of charge (DEAH 2015, 8). Employers who apply for external labour, are by law forced to post the position on the new platform in order to get permission. However, this law excludes high-skilled labour (LJA 1992 & 2015). It is therefore a tool for both retention, recruitment and return, and can be seen as an incentive to inform about local employment opportunities and to attract and retain local labour (Lowell 2001, 4; Papademetriou 2015, 14). When checking the website on July 8, 2016, approx. three months after the portal went online, there were 15 job announcements for Nuuk whereof only one requires high-skilled labour. As seen in the causes for brain drain in Nuuk, brain drain is not caused by the lack of jobs for high-skilled labour. The only difference the job tool makes for high-skilled labour is a better overview of available jobs *if* the jobs are announced there. It thus probably has little or no effect on brain drain.

B. Matching Education and Employment

Amongst others Ensign et al. (2011, 196) claim the importance of matching educations with the local employers needs in order to supply the labour market with the needed skills. As analysed in the previous chapters, Nuuk is currently lacking high-skilled labour and is far away from being self-sufficient with high skilled labour. Matching the offered educations and employment could be a long term economic strategy for the town, in order to become more self-sufficient.

Ilisimatusarfik is developing its new study programs in close collaboration with the labour market. The B.A. in Business Administration is "developed and implemented in close collaboration with the Greenlandic business community" (Ilisimatusarfik 2016c, my translation). The study program is very much focussed on the current economic events and challenges in Greenland, in order to prepare students to work in a Greenlandic company with a focus on the private sector (ibid.). This matches amongst others the need in the Greenlandic economy to expand the private market (Rasmussen 2011, 126). According to the university, the program was developed based on the request of the local business community, who is lacking high-skilled labour and thus is working on a alignment of education and employment, as suggested by Ensign et al. (2011, 196). The program had a high number of applicants in its first year, and even more applicants in 2016, its second year of existence (Magnusdóttir 2016, 10:18). The B.A. in Business Administration is a good example of an educational institution reacting to the needs of the labour market, while at the same time establishing a dialogue with the local business community. As it was not possible

before to take a business degree in Greenland, it is probable that the new study program is attractive to students on short term, as already seen in the numbers of enrolment mentioned above, and, depending on the quality of the study program, also on long term.

Ilisimatusarfik also has the option for students to have so called ***'coaches'*** as their mentors. The coaches are persons from the business community, with a special coach education, and the goal with the pilot project is to reduce the dropout rates. Benefits from the project for the students are to have somebody to talk to about their goals, challenges and wishes, but also their contact to the business community is strengthened. The university is in a regular dialogue with the coaches, and thus benefits from their evaluation and comments (Ilisimatusarfik 2016e, Magnusdóttir 2016, 51:10). In 2014, four coaches were associated with Ilisimatusarfik, 25 students made use of the coaches that year, and ⅔ of the money set aside for the project was used (DUKKF 2014, 4; 8). In Spring 2016, the university had 7 to 8 coaches, probably showing an increase in the students' use of the option to have a coach (Magnusdóttir 2016, 55:13). Statistics show that the dropout rate at Ilisimatusarfik decreased from 119 in 2014, to 85 in 2015 (StatGL 2016j).
The increase of the numbers of coaches this spring, and the fact that the financial limitations of the project were not reached in 2014, show the project's potential for having a positive effect. The decreasing dropout rates from 2014 to 2015 also show a positive development. As the coaches come from the business community, they probably not only help to reduce the dropout rates, but also help to strengthen the link between education and employment and to make the students feel valuable for the labour market, which would decrease the brain drain (Rasmussen 2011, 108ff.). Whereas establishing a business degree as described above, focuses very much on employment and the students professional opportunities, the coaching project can both make a professional and social difference for the students, as the coaches are able to react on non-professional challenges the students might face, and at the same time serve as an external evaluator for the university. It is therefore assessed to have a positive effect on the brain drain.

An ***early connection of students with the labour market*** is another measure, which links education and employment better and could decrease the brain drain. Amongst employers in Nuuk, several offer summer jobs and internships for students, as part of their HR-strategy, such as Royal Arctic Line (RAL), Air Greenland (AG) and KS (Kristiansen 2016, KS 2016b). In addition to the temporary job, the students can additionally receive financial assistance and assistance to find housing. Offering relevant summer jobs or internships for students is a strategy for the students' first encounter with the labour market, and can be beneficial in order to decrease stereotypical opinions students might have towards the local labour

market. Through that, students gain experience, use their knowledge in practice and gain knowledge about the labour market and its developments, whereas companies profit from the newest academic knowledge in their field of work and cheap labour. For the students, it also helps to gain a local network and possibly the collaboration continues during the following semesters and eventually leads to an employment and thus the retention or a permanent return from abroad. Summer jobs and internships can therefore be seen as an incentive to align education and employment (Ensign et al. 2011, 196). The companies try to reach out for the students themselves, via institutions in Denmark like DGH and Avalak, but also announce it on their websites (KS 2016b, Avalak 2016).

Taking the example of KS, their wish to offer summer jobs and internships for students is based on a political and administral focus in the municipality. For KS it is a rather new incentive, which got implemented in 2015, and the first students are employed summer 2016. For the future it is planned to establish a script in order to make the recruiting process easier for both the municipality and also the students, as well as the municipality seeks to establish better contact to their target group through Avalak and DGH (Ottesgaard Petersen 2016). Workplace atmosphere is mentioned as a reason for brain drain. Summer jobs and internships can be beneficial in order to show students, that their perception of workplaces in Greenland is wrong, but depending on the workplace, it can also contribute to further brain drain. However there are no precise measurements on how summer jobs and internships influence brain circulation. Filipovic et al. (2012) and Leiman (2004) argue that in order to turn the development from brain drain, graduates should be assisted in finding a workplace - summer jobs and internships while still studying can be seen as part of this, and thus probably has a positive effect. Even if the measure had no influence on the real brain drain, it can be beneficial for a better understanding and communication between students and the business community, their needs and priorities.

As a last example for retention through a stronger cooperation between the educational sector and employers, the talent program offered by a private ***IT-company*** based in Denmark, is analyzed in the following. The program aims at retaining or returning local talents in Greenland and assisting them in developing their career, while they are associated with a local company (IT Minds 2016). It has been developed during early 2015, and has been ready to accept participants since fall 2015. It requires the companies to subscribe a young talent to the program and pay for their participation, and thus IT Minds provides an action plan, seminars and courses for the participants in order to educate them to become consultants and project leaders. According to IT Minds, local companies showed interest in the program once released, but not enough to actually make it run. IT Minds claims as a reason for this that the companies either did not have the right talents to participate in the

program, or just had invested in other measures and thus did not use the program due to financial reasons (Lemming 2016). They are planning to re-start the program again at another time as they see it as a relevant incentive, also according to feedback from the business community (ibid.).

The initiative is an example of Leiman's theory on focussing on local skills to decrease the brain drain (2004, 688). By offering continuous training and network, the program is framed at offering better career opportunities, and educating talents for the needs of the labour market. The current standstill of the initiative could express either the lack of the right candidates, as for instance it is currently not possible to study IT in Greenland, and it is difficult to get in contact with IT-talents outside of Greenland, or financial limitations of companies. The initiative could probably be beneficial and show a positive outcome in the future, once cooperation with companies come about.

C. Partnerships

As suggested by Papademetriou (2015) and Clemens (2013), partnerships are a good option to take advantage of the brain drain. For the case of Greenland, the Economy of Greenland (2013), calls partnerships between Denmark and Greenland "an obvious choice" because of the strong ties between the two countries (ibid. 42). Around 20,000 persons with a relation to Greenland live in Denmark, which makes partnerships with Denmark very relevant. It is especially collaborations in the field of education that stand out in the context of brain drain.

Ilisimatusarfik, the university of Greenland, has ***partnerships with several Danish universities***, one of them is Aalborg University (AAU). The agreement with AAU runs from 2012 - 2017 and includes collaborations in several fields, amongst others law, pedagogy and tourism, and aims for more fields in the future (AAU 2015). The purpose of the agreement is to be able to offer the students access to programs, which Ilisimatusarfik is not able to offer, and thus a collaboration in education as Papademetriou suggests (2015, 8). For instance, social workers can take their B.A. in Nuuk, and are guaranteed the admission for the M.A. at AAU (ibid., Magnusdóttir 2016, 11:28).

As education is one of the main reasons for individuals to leave Nuuk, a cooperation in study programs is very relevant. It gives access to more educational opportunities, and can result in a positive effect if the contact to students, a continuous association to Ilisimatusarfik and relevant local job opportunities are secured, and thus a brain circulation as suggested by Clemens (2013, 2). The agreement does not state special measures in regards to this. Another challenge is that Ilisimatusarfik experiences a lack of interest in study programs that are offered partly in Nuuk and partly in Denmark. Students rather move to Denmark

immediately (Magnusdóttir 2016, 8:30 - refers to a cooperation in law studies, which has been stopped due to a lack of participants). At this point of time it is very relevant to have partnerships with universities outside Greenland, as the locally offered educations are limited. Partnerships make it easier for students to obtain education abroad, however at the risk of them not returning, and thus creating brain drain. However, it is better to send students abroad where they can obtain education within the fields that can not be offered at Ilisimatusarfik, and hope for their return in order to create brain circulation, instead of not offering the chance for education. In order for partnerships to have more positive outcome, measures in regards to motivate brain circulation would need to be implemented.

Another example for a partnership is the ***friendship treaty between the municipalities of Aalborg, Denmark and Sermersooq, Greenland.*** The treaty was signed in August 2015, runs from 2015 to 2020 and includes six separate framework agreements in the sectors of business; education; welfare; healthcare; children; culture and sport (KS and AAK 2015). It is especially the framework on education that addresses the high-skilled labour and explicitly mentions consequences of brain drain (ibid. 5f.). The framework foresees initiatives for Greenlandic students that come to study in Aalborg, Denmark, both in order to retain them in their studies and also to assists them to return to Greenland once they are finished and thus to secure brain circulation. Whereas most of the initiatives in the framework concern the quality of life and studies of the Greenlanders in Aalborg, one stands out as a relevant initiative for the return and retention of local labour to Greenland: The technical department in KS lacks high-skilled labour such as architects and engineers, and thus is willing to invest in the friendship treaty in order to reach out for their target group with the help of the municipality of Aalborg by offering summer jobs, internships, and thesis collaborations (Stach Nielsen 2016, 17:53). The plan is to attach the students to KS in an early stage of their studies, in order for both sides to benefit the most from the cooperation. As mentioned in the second section of this paper, KS is currently taking the first students in and currently works on making the stay of the students and the access to the target group easier (Ottesgaard Petersen 2016).

For the students, the initiative helps them to get access to the labour market back home, shows possibilities and builds a network, as well as it makes the students being part of the development in Greenland, which probably is beneficial for their return as it creates emotional links (Papademetriou 2015, 8). The early and regular contact is especially important, as studies showed that the longer migrants stay abroad, the lower is the chance for their return (Heleniak 2009, 33). By keeping in contact with the students from an early stage, it is more probable to turn the brain drain into brain circulation.

D. Communication

Finally, the above mentioned initiatives need to be communicated to the target groups. Locally, the ***education and recruitment fairs*** *Uddannelseskaravnen* and *Seashow* inform about new education opportunities. Whereas *Uddannelseskaravanen* focuses on informing about educations and visits amongst others high schools, the focus of *Seashow* is on both education and recruitment, and includes participants from educational institutions and business communities in both Greenland and Denmark. *Seashow*'s target group is thus broader (DGH Aalborg 2016). *Seashow* was realised for the third time in 2015, and *Uddannelseskaravanen* has existed since 1997 (Krogh 2016). The educational sector in Greenland is developing fast, and the fairs keep the locals informed about their educational options. It is an interesting discrepancy that both Danish and Greenlandic educational institutions are participating and try to attract new students or recruit labour. This might be connected with the fact that it is not possible to take some educations in Greenland and/or the perception of the quality of the similar educations in Denmark is better. An advantage with the education fairs is the personal contact individuals can get with the institutions and businesses, which is important in a cultural setting like Greenland, where personal contact is of high importance (Magnusdóttir 2016, 45:50). The fairs have a partly focus on brain drain, as they inform about current local developments and opportunities, and thus can be seen as an information platform as Papademetriou (2015, 11) suggests, with a positive effect. However, the focus is more on the lack of skills in general instead of brain drain. Danish educational institutions that join the fairs are not bad in general, but a more long-term focus on local educations should be implemented in regards to the brain drain, as well as better measures in regards to return students after graduation.

As seen above, both Ilisimatusarfik and CNV claim that ***proactive measures*** are important, instead of letting the students find information themselves. This is not only a relevant aspect locally, but also for the labour force abroad in order to keep them informed about changes, developments and opportunities, and possibly motivate them to return. DGH and Avalak are engaged in communicating with the diaspora, and several actors mention the contact to those institutions as one of their main reach outs in regards to labour abroad. Partnerships, as both of educational institutions and the business community, can help the spread knowledge about new developments in regards to brain drain and retention, and usually communication and dialogue is such a big part of partnerships that they would not work if the communication is too slow or non-existent.

In addition, most of the initiatives and measures are communicated and discussed in ***newspapers or social media***. Some institutions as the Greenland Business Association or

the university inform through newsletters about new initiatives or laws (Ilisimatusarfik 2016f, GE 2016). There is no common contact portal for all of the target group, but good communication in the community itself. It stands out that existing initiatives often are applied by several actors, which speaks for a good communication between the actors and awareness of the challenges, but also the opportunities.

5. The Case of Charlottetown, Prince Edward Island, Canada

The town of Charlottetown is the capital of the Canadian province Prince Edward Island (PEI), which is Canada's smallest province, both in regards to population and size (excluding territories), and is located in Atlantic Canada[9]. The 2011 census counted 34,562 inhabitants for Charlottetown, which showed a raise of 7.4% from the census in 2006 (StatCan 2012). The growth for PEI was 0.5% (PSB 2015a). No newer numbers for Charlottetown are available. For all of PEI, the population on July 1st, 2014 counted 146,162 inhabitants. PEI consists of three counties, Prince, Kings and Queens, where Charlottetown is situated (PSB 2016, 25).

In "The State of Rural Prince Edward Island" (Randall et al. 2015) it is argued that

> PEI is Canada's most rural province [...]. In fact, it is the only province that does not contain a metropolis. The two largest municipalities of Charlottetown and Summerside, with 2011 populations of 32,545 and 15,654 respectively and one-third of the provincial population, would be considered small towns by many outside of PEI. (Randall et al. 2015)

Charlottetown is PEI's urban centre, counting approx. 25% of the total population of PEI (StatCan 2012). The town includes the main hospital of the province, the main airport, the main postsecondary educational institutions, as well as the seat of provincial, municipal and federal government institutions. Apart from that the town has a strong presentation of businesses of all branches. From an outside perspective, the town is of small size and offers fewer opportunities compared to the major part of other towns and cities in Canada and thus shows a status similar to Nuuk (Randall et al. 2015).

Similar to Nuuk, the labour force in Charlottetown consist about 50% of the total population (Charlottetown Department of Economic Development 2016), whereas the unemployment rate is higher than in Nuuk. It was at 8% in 2015, and 7% in the first half of 2016 (StatCan 2016a). No numbers for 2014 could be found. The entire province of PEI had an unemployment rate at 10.6% in 2014, which is the second highest rate in all of Canada's provinces (Randall et al. 2015, 2).

The GDP of PEI has been growing around 1.5% yearly during the last decade, 1.3% in 2014 (PSB 2015b, 7). As Charlottetown is the seat for some of the main industry sectors, a probable growth of the GDP in Charlottetown can be anticipated as well. Like in Nuuk, the public sector also dominates the employment in Charlottetown, followed by retail,

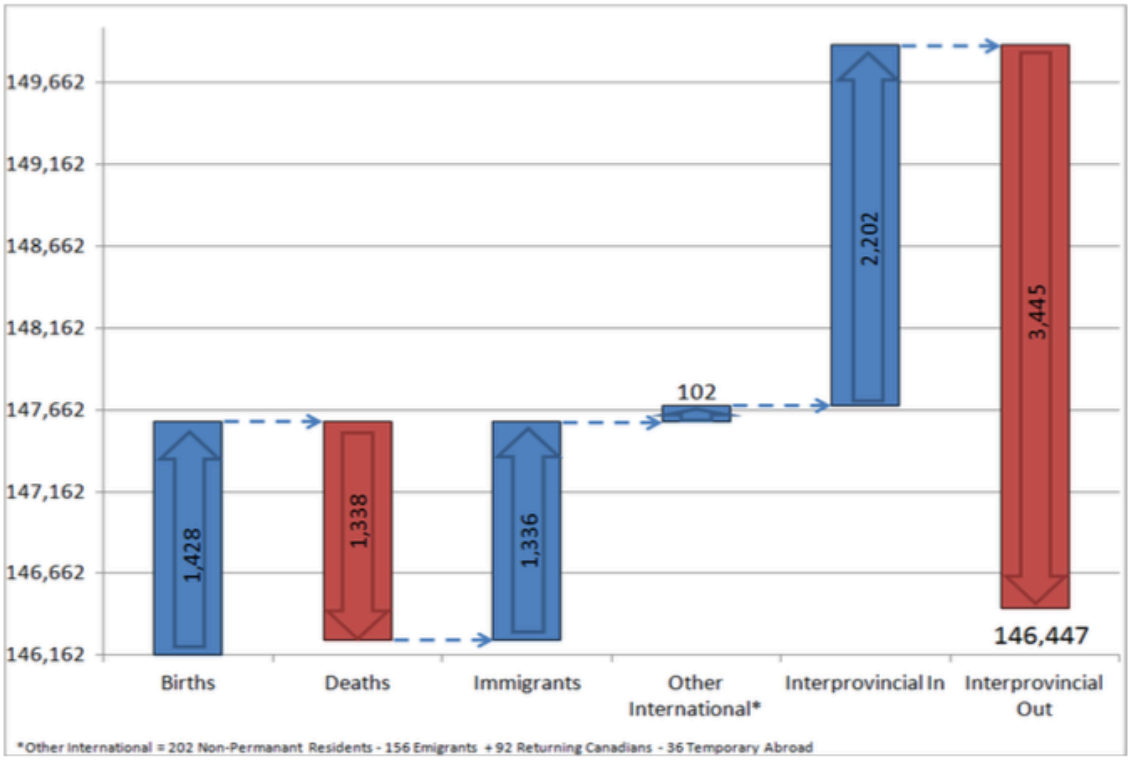
[9] Atlantic Canada contains Nova Scotia, New Brunswick, Newfoundland and Labrador, and Prince Edward Island

accommodation and the service industry. The fastest growing sectors are biotechnology and information technology industries (Rider 2015). No statistics on the size of the sectors where available for Charlottetown only. For PEI, the public sector, including health and education, was at 34% in 2013 and thus the main employer on the island, whereas experts in Charlottetown commonly estimate it at 50% of the labour force (Di Matteo 2015, 12).

5.1. Nature, Extent and Consequences of Brain Drain in Charlottetown

An often mentioned strength of PEI is the residents loyalty to their island. Nevertheless, outmigration and brain drain is characterizing the current demographics in PEI and Charlottetown (CKA 1999, 60). As shown in figure 5, PEI experiences a high interprovincial outmigration, which would let the population shrink if not the island also would receive a high international immigration.

Fig. 5: Prince Edward Island Components of Growth July 1, 2014 - June 30, 2015



Source: PSB 2015a

The intraprovincial migration on PEI is characterised by a rural-urban movement. The two other counties beside Queens show a shrinking population since 2005, and a negative intraprovincial migration, whereas Queens and Charlottetown profit from their loss (PSB

2016, 27). In addition, ⅔ of the total migration in PEI is from Queens county, which makes it probable that at high number of migrants make their move from Charlottetown (PSB 2016, 26). The rural-urban movement on PEI is thus similar to the movement in Greenland. Individuals move from smaller towns to bigger towns, and finally leave PEI, matching the theory of migrants moving locally from smaller to bigger places and finally leaving the region (Ensign et al. 2011, 201).

Rossiter (2010) states that especially young residents between the age of 20 and 24 are leaving PEI in general (ibid. 3). Looking at the age distribution in Charlottetown, it is clear to see that the population is aging. In the 2006-census, the median age for Charlottetown was 40.0 years, whereas it was 41.8 years in 2011, again indicating youth outmigration (StatCan 2012). The median age in the labour force is stated to be 43 by experts, which is also quite high and indicating youth outmigration (MacKenzie et al. 2016, 20:12).

The share of the labour force which has a postsecondary education is stated to be at 50% for Charlottetown in 2014 (Charlottetown Department of Economic Development 2016). The numbers have been rising the last years. Compared to Nuuk, which has 17.3% of labour with a postsecondary education, this is a high number. This on the one hand due to that the term postsecondary has a broader definition in the Canadian statistics than in the Greenland statistic, and thus includes more educations. On the other hand, it is acknowledged that Nuuk has a lack of high-skilled labour, and in a perfect scenario, the share of high-skilled labour force would be higher.

The unemployment rate for individuals with a postsecondary education is at 4.1% in PEI, compared to 5% in all of Canada (LMI 2014a). This could both be a consequence of the brain drain, as the rate is lower than the national average and thus indicates a lack of skills, which could be caused by brain drain, but on the other hand, Charlottetown has a bigger public sector than the national average, which offers many postsecondary employments, which also could be the reason for the unemployment rate being lower. No recent numbers for Charlottetown were available. Again, the town's status on PEI makes it probable that those numbers also are applicable there.

In regards to the migrants education, the OECD Territorial Review from 2002 states that statistically, 69% percent of those leaving Atlantic Canada have postsecondary training (OECD 2002, 78). From the statistics for PEI and Charlottetown, it seems like the high-skilled emigrants are replaced by high-skilled immigrants, as the share of high-skilled has been stable or even rising in the last years. However, Rossiter claims a difference between the age group that leaves, which is rather young, and the age group that immigrates, which has

a higher age, thus balancing the high-skilled labour, but resulting in a increase of the median age (Rossiter 2015, 3).

Having a closer look at secondary qualitative data on brain drain in Charlottetown, it is interesting that literature claims its existence both now and in the past, and that not much seemed have to changed in the last decades. In a report on knowledge assessment in PEI from 1999 it is claimed:

> The brain drain of young people, especially technically trained students, is one of the chief concerns of the knowledge and development community. Some feel that with new industry coming to the province the brain drain will become less of a problem; the wage gap with the rest of the Atlantic region has declined, and higher salaries are available in PEI in the aerospace and other industries. More graduates are tending to stay on the Island, except in technology-related areas, and in public administration, business, and nursing. There is little tracking of students who have left the province. (CKA 1999, 22f.)

The above indicated numbers show that still today graduates seem to leave the island after their education. From the universities statistics, it shows that the number of graduates were rising from 650 in 2010 to 905 graduates in 2014 (MPHEC 2015). In early 2016, the City of Charlottetown conducted a survey on youth retention, which indicates a still prevailing issue with youth outmigration and probably also brain drain from Charlottetown, including graduates moving away after finishing their studies (City of Charlottetown 2016). Experts in Charlottetown claim that many graduates would return to PEI at some point of their life, and thus create brain circulation (MacKenzie et al. 2016, 33:40). The experts refer to the local loyalty to PEI, as mentioned in the beginning of this section. There are no statistics to measure the extent of this claim.

No numbers could be found on the extent of brain drain, as it could be shown in the case of Nuuk. The current statistics on brain drain in Charlottetown are not extensive. However, the above shows that brain drain has been an issue two decades ago, and still is nowadays. The nature of the brain drain in Charlottetown and on PEI is mainly youth outmigration, which is similar to the brain drain in Nuuk. In addition to that, there is strong political and public policy focus on the brain drain on PEI currently, showing its relevance. The government recently established a new department for “Workforce and Advanced Learning”, which has its focus on “matching people from the Island workforce with job opportunities that exist in PEI’s labour market” (Kerry 2015) and amongst others works on a population and workforce strategy, and the issue of migration (repatriation, immigration, and retention) (ibid.). The department and its divisions are presented more detailed in chapter 5.3.

As most of the data on brain drain is on PEI in general, the consequences of brain drain in Charlottetown are difficult to extract. Even though a brain drain is probable for Charlottetown, as it is for Nuuk, both of the towns show no visible consequences yet.
Similar to Nuuk, Charlottetown experiences urbanisation through both internal and international immigration and thus probable brain gain through this. On the other hand a high internal outmigration can be observed, especially from rural PEI, but also from Charlottetown (Randall et al. 2015, 5) Rossiter claims that the youth brain drain is especially problematic as the youth between 20-24 are not being replaced by immigrants from the same age group (Rossiter 2015, 3). As seen in the above, an aging population can be claimed for Charlottetown, probably partly as consequence from brain drain.

Due to the positive immigration to PEI and Charlottetown, no decreasing trends in the labour force and human capital are visible in the statistics (StatCan 2016b). Currently, Charlottetown and PEI depend on the international immigration, in order for their population not to shrink. This and an aging population in general are the reasons for the local government, the City of Charlottetown and the local companies to focus on how to retain the youth, and turn the development through brain drain. A consequence from the focus on youth retention could be the higher enrolment in postsecondary education, as seen in statistics such as of the University of Prince Edward Island (UPEI) (MPHEC 2015). However, this is only a positive consequence of brain drain if the youth gets employed locally after graduation.
Charlottetown as a urban centre, that profits from international and internal immigration the consequences of brain drain are not substantial yet and outbalanced by other factors, comparable to the situation of Nuuk.

5.2. Causes of Brain Drain in Charlottetown

Similar to Nuuk, the main reasons for the brain drain in Charlottetown and PEI are claimed to be employment and economic reasons, but partly also due to structural reasons.
In regards to employment, the reasons stated by several sources are mainly the lack of (advanced) career opportunities, low wages, lack of job security and a lack of entry level positions for newly graduates (LMI 2014b; LMI 2015; Rossiter 2010; City of Charlottetown 2016). The Atlantic Provinces Economic Council (APEC) claims an increasing demand for skilled labour on PEI, but a mismatch in the numbers of job openings and graduates from postsecondary educations at the same time, which is a reason for brain drain as well (APEC 2012, iv). APEC claims further, that as a response to the mismatch, a higher enrolment to postsecondary educations was promoted on PEI (visible in the graduate statistics referred to

in the previous section), which finally might cause more brain drain as there still are not enough efforts to match education and employment (ibid. v).

As economic reasons, high tax rates on PEI are mentioned (Rossiter 2010, 22). Postsecondary education in Canada is not free of charge as in Nuuk, and graduates often enter the labour market with an obligation to pay back their student loans. Economic reasons, higher salary prospects and lower tax rates elsewhere seem to play an important role for the brain drain in Charlottetown (Rossiter 2010, 3).
As structural causes for brain drain high costs of living, access to health services and a lack of activities in general in the area are claimed (Rossiter 2010, 22).

Whereas the above reflects the employee's perspective, the employers in Charlottetown claim the new graduates unrealistic expectations in regards to future work, salary and career opportunities as a reason for the brain drain (LMI 2015, 2). As one experts puts it: “I think the trade-off is the new grads need to be willing to get that experience even if that means being on the phones for the first year of your job.” (MacDonald 2016, 27:36)

Between the experts in Charlottetown, the lack of entry level positions and positions in general, as well as a wrong perception of Charlottetown and PEI were predominant when talking about the reasons for brain drain (McGee 2016, 3:33; MacDonald 38:52, Baker and Smith 2016, 52:12). The need for a change in the narrative is a recurrent argument and mentioned by many experts and written sources:

> Priority should be given not only to regaining some of this talent, but also to retaining talent that has not yet left. If these goals are to be achieved, a change in attitude and a change in image may be required. (CKA 1999, 60)

This appeals to the theory that it is easier to retain individuals that did not leave yet instead of returning individuals that left, and to change both their perspective on staying, but also making them aware of their *local* opportunities. The lack of awareness for opportunities locally, both professionally but also personally also is a cause for brain drain claimed by many actors, and often also a reason for the migrants not to return, as they are not aware of the available opportunities and especially new developments, laws, etc.
On the other hand, this can also be connected to the causes for brain drain as stated in the theory chapter, saying that through globalisation and urbanisation, residents expectations to the local community increase, and often can not be fulfilled and result in outmigration and brain drain.

5.3. Selected Relevant Examples of Initiatives of Retention in Charlottetown

This chapter presents and analyses selected relevant examples of initiatives and measures of retention in Charlottetown. The approach and structure is the same as in the respective chapter on Nuuk.

As mentioned previously, a strong political and public policy focus on outmigration and brain drain can currently be observed in Charlottetown. Beside the traditional departments for Economic Development and Education, the provincial government of PEI established the "Department of Workforce and Advanced Learning" in spring 2015, with its four divisions *SkillsPEI, Post Secondary and Continuing Education, Labour Market Research* and *Office of Recruitment and Settlement.*

As a division under the Department for Workforce and Advanced Learning, *SkillsPEI* provides several incentives on retention of labour, whereof some are focussed on lower skills, some on all skills, and some on high-skills. SkillsPEI is almost completely funded by the federal government, that pre-sets the parameters and the target group for the program (Kemp 2016, 5:00). Its clients are both job seekers and employers (ibid. 35:26). Adjustments on SkillsPEI initiatives are made on the base of clients and staff members recommendations, but no formal evaluation yet (ibid. 37:39). The department has 70 employees. SkillsPEI is engaging youth and employers in their strategies and processes, by creating an Employer Group Survey, an External Youth Advisor Circle and a Youth Summit (MacKenzie et al. 2016, 20:30), which increased the communication amongst the actors but also to the outside. SkillsPEI also engages in focus group interviews with returnees in order to learn about why they left, and the Department for Workforce and Advanced Learning created a Committee of Retention that engages different actors from both the public and private sector in town in the population strategy (MacKenzie et al 2016, 46:54).

The establishment of the department and its subdivision can be seen as an incentive itself, as their work focuses on establishing incentives in order to retain or repatriate labour. Through focused effort, research in the needs and priorities of the migrants is conducted, and incentives are created and communicated to fit these, which could decrease the brain drain as argued by Papademetriou (2015, 11). In addition, the incentives analysed in the following show that the department has a positive effect on brain drain.

A. Resources

Whereas in the equivalent chapter on Nuuk, it made sense to divide the chapter into the three target groups 'students', 'recent graduates' and 'general', this is not the immediate case for Charlottetown. Issues and incentives concerning resources of students and graduates in Nuuk, such as counselling and coaching, are not predominant issues in Charlottetown. With this it is not to say that those offers do not exist in Charlottetown, but that these are well-established and not as connected to brain drain as in Nuuk.

Most of the initiatives targeting students and new graduates in Charlottetown are focused on how to attach them to the labour market and are therefore presented in the next section. Incentives that are offered for all of the labour force, including students and new graduates, are WorkPEI and the Human Resource Project, as presented in the following.

Similar to the website suli.gl in Greenland, PEI has recently created a new job tool called ***WorkPEI***[10], with the aim to make it easier to match job seekers with employers on PEI, and to collect all job offers on PEI in one place. The website offers both job seekers and employers to create a profile, and also offers information on education and training (Province of PEI 2016a). Its aim is not only to make it easier for locals to look for a job, but also to give labour abroad easier access to the opportunities that are on PEI (Kemp 2016, 27:10). It provides the labour force with resources, and is thus both a tool for retention and repatriation (Lowell 2001, 4). In addition, it is planned to use the website as a database for future incentives (MacKenzie et al. 2016, 46:00). WorkPEI was first launched in April 2016 in order to get the first job postings and fix bugs, and will have a second launch in summer 2016 with an extensive marketing campaign (ibid. 20:40). The tool is inspired by other provinces which have similar system and good results (ibid. 17:50).

Work PEI is connected to the federal job bank, and as per July 15, 2016 there were 169 registered job announcements for the Charlottetown area, whereof seven postings were created with the Work PEI platform. Four of these seven postings were targeting high-skilled labour. However, currently there are shown 162 job announcements from the federal job bank on Work PEI, whereas the same search on the federal job bank gives 218 jobs, indicating that there are still some bugs and that the website needs a good marketing campaign in order to have a beneficial result. In addition, some local companies express that the job banks not always fit their needs as their required skills are so specific, and therefore other ways of announcing jobs are used rather than job banks (Griffins 2016, 9:40). As the causes for brain drain in Charlottetown are amongst others the lack of awareness of employment opportunities, the job portal could have a positive effect on decreasing the brain

[10] www.workpei.ca

drain and/or increasing the brain circulation, given that the site has success in collecting the main job offers in town and on the island.

An incentive that has been assessed as relevant, even though its focus lies not on Charlottetown but on places outside the town, is the ***Human Resource Project*** under the Department for Workforce and Advanced Learning. Unattractive workplace atmosphere has been a cause for brain drain in Charlottetown. Therefore incentive has been assessed as being relevant for this study, as it advises small and medium sized businesses in human resources. In the project, a

> Human Resource Specialist provides basic and practical Human Resources Management advisory services to small and medium sized businesses in an effort to develop customized solutions to create an environment where employees work and remain with employers. (Praught 2016)

There are two specialists, one located in the East of PEI and another one in the West, who assist businesses in all HR-related task individually, and also offers free workshops. For the businesses, it costs 4000$ in project expenses. The HR specialist located in West PEI expresses that the feedback from last years participants was positive and says: “While HR needs are ever changing and ongoing, the participating businesses recognized the need for HR practices and improvements [...]” (Praught 2016). Currently five businesses signed up for the upcoming term in West, the same number of businesses as last year. The project showed good results and runs in its second year in West PEI, and just got launched in the East (Praught 2016).

The incentive can be counted as a strategy in order to make employees feel valuable and useful at workplaces (Ensign et al. 2011, 196). Several experts mentioned the need to improve employers practices to change the workplace atmosphere, instead of just focusing on their productiveness (MacKenzie et al. 2016, 27:45; Baker and Smith 2016, 43:30). Although the HR project has its focus on employers outside Charlottetown, it can have a positive effect on the narrative about PEI employers in general and thus have a positive influence on the brain drain or the brain circulation in Charlottetown and both retain or attract individuals and companies to Charlottetown. This positive effect is however only probable if the project and its outcomes are communicated in a better way, to reach both businesses and the labour force.

One local business offers a ***recruitment aid incentive*** for its employees. Employees are encouraged to recommend new employees to the company, and in case their recommendation gets employed, the person who gave the recommendation gets rewarded

with 1000$ (MacDonald 2016, 13:25). The business had 50 successful recommendations during the last two years (ibid.). With currently 344 employees, 50 new employees through the recruitment aid incentive is a high number and shows the incentives success, although it is no cheap incentive. On the other hand, the business claims that the benefit through the incentive is worth the money, as it encourages the employees to find matching co-workers, makes them feel valuable and has a positive influence on the workplace atmosphere (ibid. 9:07, 14:02).The incentive matches the argument of rewarding human capital in order to decrease the brain drain (Lowell 2001, 4). For the company, the incentive is beneficial, given the use and benefits from it as described above, and also the low turnover rate (ibid. 9:07). Looking at the causes for brain drain, the incentive probably has a positive effect on the lack of awareness of career opportunities, and the unrealistic expectations of graduates towards their future workplaces, even though it got established as a recruitment incentive and not in order to decrease the brain drain. Satisfied employees are the best advertisement for a company, and they can mediate the job in a different and more personal way than HR-recruiters could.

The last example presented under the topic of resources is concerning taxes. The Government of PEI is giving a ***tax rebate*** for businesses in the branches of BioScience or Aerospace that settle on PEI. This matches the theory of Papademetriou (2015, 11) that in order to decrease the brain drain, tax policies that aim at attracting businesses and individuals could be created. To be eligible, the companies must have a certain number of employees or amount of annual payroll[11] (InnovationPEI 2016a & 2016b).
In the Aerospace sector, the program was launched in 1993, and due to its success renewed for 10 more years in 2012 (GovPEI 2012). As the income tax for employees on PEI is higher than in other provinces, an Aerospace business in Charlottetown uses the tax rebate in order to recruit new employees. New employees from outside PEI get a lower tax rate for the first year, in order for the Aerospace company to be able to compete with employers outside of PEI (Griffins 2016, 12:40). In general, the Aerospace sector on PEI does well. The industry has 10 companies on PEI and employs over 1000 employees directly, and 1400 indirectly (McGee 2016, 0:13). The experts state further that the local labour supply is going well, also because of productive collaborations with the local education institutions, and a low turnover rate at the companies (McGee 2016, 13:59; Griffins 2016, 23:25). This indicates that the tax rebates not only created a good business environment for the Aerospace and BioScience industry, but also a good link between the employers and the education institutions, and secure and valuable jobs. However, both experts from BioScience and Aerospace claim that even though they have been in the area for almost 25 years, locals are still not aware of their

[11] > 20 employees or 700,000$ for Aerospace, >10 employees and 750,000$ in BioScience

opportunities in the branches and much needs to be done in order to make the locals aware of their opportunities (Griffins 2016, 3:25; McGee 2016, 2:58). The lack of career opportunities and job security, as well as high tax rates on PEI are theoretical reasons for brain drain. From the above, it can be concluded that the tax rebate incentive on PEI has a mostly positive outcome in regards to create local opportunities, also indicated by the fact that the program got extended. In addition, the examples on turnover rates in the businesses are rather low, again indicating a positive outcome of the tax rebate. However, the outcome could be even better if the awareness of the businesses would raise.

B. Matching Education and Employment

The mismatch of education and employment, as well as the lack of entry level positions and unrealistic expectations from the graduates are named as causes for the brain drain in Charlottetown, and indicate the need for better communication between the employers and the job seekers as well as a better reconciliation of expectations. Matching education and employment concerns primarily the alignment of skills. It also concerns giving the youth work experience and working against stereotypes, both in regards to the job seekers expectations, and employers' stereotypes against youth and newcomers (MacKenzie et al. 2016, 22:46, MacDonald 2016, 27:41). As an expert says, there is a disconnect between the youth and the labour market in Charlottetown, being young is no asset in the region, as it is in other regions of Canada, and employers prefer candidates with five to ten years of experience (Baker and Smith 2016, 10:08).

The following incentives are very similar and address students or graduates. They match the argument, that graduates and students should be assisted in finding relevant and appealing job opportunities (Filipovic et al. 2012, 16; Leiman 2004, 689).

The ***Graduate Mentorship Program*** **(GMP)** is an incentive under the SkillsPEI program by the provincial government, aimed at postsecondary graduates (up to 5 years after graduation). It connects the graduates with local employers in their field of study, who give the graduates a full-time job and relevant experience, and in return receive 50% wage subsidy for the first year of employment in order "to create long term employment opportunities and assist with the cost of hiring and training a new employee" (Province of PEI 2016b). The incentive was established as an attempt to reduce the increasing youth outmigration by encouraging employers to recognize the value of hiring youth (Kemp 2016, 6:10-7:50). For the graduates, it gives them the opportunity to get experience in their field of studies, as only then they are eligible to be sponsored (Kemp 2016, 36:20). The GMP was

first introduced in 2012, and by September 2015 it had sponsored 280 graduates. For 2015-16, the government extended the program with 50 more mentorships for graduates, due to its success (GovPEI 2015a).

An evaluation on the GMP showed the demand to be able to apply for the program all year round and not only once a year, as well as it resulted in a reduction of the subsidies from 70% to 50% because of a large uptake in the program (Kemp 2016, 9:55). The local education institutions advertise the program, and the local employers seem to welcome the program, especially with its new flexible intake (McGee 2016, 17:06). Even with no numbers on the retention rate of the participants in GMP, the frequent use of the program speaks for its success. The lack of entry level positions, low wages, and no interest in investing in youth from the employers side are common causes for brain drain in Charlottetown, and the GMP program probably has a positive effect on improving those conditions, giving the graduates the opportunity to get a relevant, local experience and the employers a money-wise beneficial opportunity to employ high-skilled youth and train them according to their needs.

A similar program to GMP is ***CareerPrep***, that got implemented in 2015 (Kemp 2016, 32:19). It is a tool for youth retention, financed through the Youth Employment Strategy by SkillsPEI. CareerPrep gives a temporary wage subsidy to private employers that employ students in their last year of studies, with the aim to prepare students to enter the labour market after graduation (Province of PEI 2016c). Students are employed full-time during summer, and then part time during their final year of studies (Welton 2015). Subsidies are paid for a temporary 40 hours full time job, for instance during summer, and a 10 hour part time job for the student's last semester (Kemp 2016, 34:23). The purpose of the part time subsidiary is to enable the students and the employer to keep the attachment with the aim of employment after graduation (ibid. 34:37). Initially launched to give students a full time job during summer, and continued attachment during fall, the program got extend with a flexible intake in Spring 2016 (ibid. 33:40). It is well received by both employers and students, although there are some criticism that it only gives subsidies for full time employment through a short period. Students perceive it as a challenge to only be able to work for 10 hours afterwards, as they depend on the money, which is often more important than a relevant job experience (Kemp 2016, 33:10).

A Charlottetown company argues that “The programs [GMP and CareerPrep] are a great way for someone to learn the business carefully the way you want them to and develop at an appropriate pace” (Welton 2015). Like GMP, the incentive is well received and adjusted according to the needs of the participants and is a good tool in order to connect students on

a early base with the labour market, and for the employers to minimize the costs of training. A big challenge in Charlottetown is the availability of entry level positions and at the same time the wish of the employers to have somebody with experience. CareerPrep and also GMP are incentives with a probable positive effect on high-skilled youth retention.

Another similar incentive is ***Career Pathways*** by the Career Development Service (CDS), a private institution funded and launched by the federal government in 2003 (Baker and Smith 2016, 21:46). In general, CDS offers career services for unemployed individuals, and their largest segment of clients are in the age from 22 to 34 (ibid. 23:09), which shows a struggling youth, matching the argument of a high youth brain drain in Charlottetown. With *Career Pathways*, CDS provides financial assistance to employers through wage subsidy when employing a postsecondary graduate. Whereas GMP offers subsidies for 52 weeks, and pays 50% of up to a wage of 19$ an hour, Career Pathways offers 50% subsidies for 18 to 22 weeks, up to a wage of 16$ an hour (CDS 2016). Since its launch in 2012, the program had approx. 100 participants, and a recent evaluation showed that 87.5% of all participants are employed in their field of studies after the program (Baker and Smith 2016, 26:12).

Whereas the GMP and CareerPrep depend on either students/graduates or employers to reach out to be part of the program, in Career Pathways it is CDS who has the role as mediator between the unemployed postsecondary graduate and the businesses, which is claimed to be one of the reasons for the high retention rate as CDS makes sure it is a good fit (Baker and Smith 2016, 1:19:49). Also, Career Pathways was the first of these very similar programs to be launched (ibid. 26:12). As GMP and CareerPrep, Career Pathways shows a positive effect on youth retention, and even might be a bit more beneficial as the individuals and employers are specially matched together, even though the program has a shorter time frame for the subsidiary. The fact that three similar programs exist at the same time, proves the beneficial outcome. The programs have different target groups and their benefits do not overlap.

Whereas the above introduced incentives are focused on skill-relevant jobs, there is also a retention strategy for secondary or postsecondary students in order to retain them and at the same time fill the ***gap in low skilled seasonal jobs***. The incentive will run for the first time this summer, and is based on the high demand of low skilled labour during summer, especially in the branches of fishing, agriculture and tourism. Postsecondary students who decide to work in a low skilled seasonal job during summer, receive a 1000$ bursary (500$ for high school students) in addition to their salary. The bursary expenses are co-shared by the provincial government and the employers (MacKenzie 2016, 25:12). Apart from filling the

low skilled jobs, the incentives aim is to bring the knowledge and the experience from a high-skilled perspective to the companies, but also to connect employers and students and fight against stereotypes (MacKenzie 2016, 26:45). This incentive could be connected with Leiman's argument (2004, 688) of focussing on local skills in order to make the workforce feel valuable for the society and retain them. On the other hand, the retention is only temporary and probably more of a benefit for the businesses. Summer jobs in agriculture, fishing and tourism are less relevant to the students and probably only the money makes them attractive. Canadian students in general are more dependent on working beside their studies, and as mentioned above, most students prefer a job all year round with a stable income, which they unlikely would give up during summer, not even for a relevant job experience (Hennessy 2016b, 13:45). Thus, the incentives probable effect on brain drain is assessed to be little and temporary.

C. Partnerships

In general, partnerships in Charlottetown are more between individual actors and with a local focus instead of having a broader scope as seen in Nuuk. For instance, several of the employers in Charlottetown have their own, rather informal agreements with UPEI and Holland College in order to have an influence on the education and to "educate the educator" (MacDonald 2016, 5:34) and thus work on a alignment of education and employment (Ensign et al. 2011, 196).

UPEI has exchange-agreements with universities worldwide, but no collaborations concerning educations that can not be taken on PEI, as suggested by Papademetriou (2015, 8). In regards to those educations, it is the employers themselves who reach out to institutions outside of PEI. HealthPEI, the organisation for public funded health services on PEI, offers the ***B.A. Nursing Sponsorship Program***, which sponsors up to 18 nursing students a year with 4 800 CAD to any university in Canada, and gives them a 2-year full-time employment guarantee on PEI after graduation (MacKinnon and Sinclair 2016, 3:23). By that, the students are guaranteed a full-time employment and an easy entry to the labour market, whereas for PEI it guarantees the supply of labour. The incentive is an example of a partnership that aids with education abroad and obliges to use the skills locally after graduation and thus creates brain circulation, as suggested by Leiman (2004, 692).

HealthPEI evaluated on the program, and it was shown that for the students the guaranteed full-time employment is much more important than the sponsorship. This is why a similar incentive for nurses was developed, called the ***New Graduate Employment Guarantee*** which gives the students an employment guarantee, but no sponsorship (ibid. 6:25). Currently, the incentives secure a good supply of nurses to PEI, and if the *New Graduate*

Employment Guarantee continues its success and shows that the feed can be secured without financial benefits, the sponsorship might be reconsidered on long term (ibid. 26:48).
The lack of entry level positions and the lack of job security are causes for brain drain in Charlottetown. It is interesting to note that in nursing, a secure job seem to outplay financial reasons for migration. Financial reasons were mentioned as causes for brain drain, as the average wage on PEI is lower than most of Canada. Therefore, as can be seen from the above, incentives that guarantee full-time employment after education have a positive effect on brain drain.

Partnerships are in theory suggested as brain circulation in order to fulfill the demand of education and training which can not be provided locally, without losing the skills (Clemens 2013, 2). The fact that there are only few partnerships in Charlottetown, could be connected to that education is not a big factor of brain drain in Charlottetown. Brain drain is more employment-based and thus the existing agreements focus mostly on skill-flow through employment.

D. Communication

The incentives for the retention of high-skilled labour in Charlottetown are amongst others communicated through ***job and career fairs***. UPEI holds a career fair once a year, where the major exhibitors are PEI employers (Hennessy 2016a & 2016b, 9:00). There is no measurement in effect yet, but a recent employed career practitioner is working on a survey for summer 2016, in order to see how many of the participating employers have employed UPEI students (ibid. 21:36). Also SkillsPEI organises job fairs, both locally and abroad, where job seekers have the possibility to network with employers and learn about new measurements (GovPEI 2015b). Apart from marketing at the job fairs, the SkillsPEI incentives are highlighted on their new website workpei.ca, and thus not only accessible locally and in the few job fairs outside of PEI, but for all interested individuals (MacKenzie et al. 35:55; 27:10). The website can thus be seen as a platform that provides updates, as suggested by Papademetriou (2015, 11).

Another example for communication is SkillsPEI's ***collaboration with the workers compensation board***, in order to have a specialist to promote their incentives, and at the same time engaging in the Department's work. A person from the worker compensation board was chosen for this task, as the person is already in touch with the employers and in addition has credibility with them, which the government not necessarily has. The collaboration is about to start this summer, and the chosen person will be sent out to the

employers with all information on SkillsPEI practices, incentives and opportunities, and for example also promote the sign up for the WorkPEI database (MacKenzie et al. 2016, 31:18). By using a professional who already is in contact with companies as communicator, a positive outcome is probable. Credibility is important in order to reach out for businesses, and also in order to get a productive feedback on the incentives by them. The above shows a strong recent engagement of public actors in gaining knowledge about brain drain in Charlottetown, based on the recent political focus on the issue.

6. Analysis

A look on the last chapters of the respective case studies shows that both towns came up with both similar and different remedies to brain drain. According to Papademetriou (2015), the actors need to fit the initiatives at the needs and priorities of the migrants, and use their knowledge about what is relevant for them in regards to brain drain (ibid. 11). Before going deeper into comparing the initiatives and the question, how Nuuk could benefit from the approaches in Charlottetown, the extent, causes and initiatives against brain drain in each town are outlined shortly in order to look into their linkage and relevance.

Nuuk is lacking high-skilled labour, and currently fills a large part of the employment opportunities with external labour. Residents migrate because of the limited education opportunities, the lack of quality of education, structural reasons and an unsatisfying labour market. Current incentives against brain drain are mostly concerned with education, in order to fill the demand of high-skilled labour, as well as a better connection of the students with the labour market, in order to make it attractive for them to stay.

Charlottetown has a high share of local high-skilled labour and offers a wide range of education opportunities, but lacks especially entry level positions for new graduates, resulting in youth outmigration. Current incentives against brain drain in Charlottetown are mostly concerned with enhancing the contact of youth with the labour market, and encouraging employers to employ high-skilled youth and to create more jobs in general.

Nuuk and Charlottetown show few consequences of brain drain yet, which in both cases is connected to the internal immigration the towns receive, which makes up for the loss of population and human capital through brain drain.
Both towns experience youth brain drain. This is also visible in their incentives which are mainly targeted at youth. The difference lays in that in Nuuk, youth is attractive and wanted

on the labour market, but leaving mainly due to the limited education opportunities, whereas in Charlottetown youth obtains the skills locally and leaves afterwards as “being young is not an asset” (Baker and Smith 2016, 10:08) for local employers.

Comparing the initiatives to the causes and extent of brain drain points at the actors being aware of the different characteristics of brain drain in the respective town. Those initiatives that got assessed as having little or no effect were not framed at the needs of the migrants. As most of the initiatives got assessed as having a positive effect on the brain drain, it indicates a good knowledge of the actors about what is relevant in regards to brain drain in the respective town.

With the initiatives being framed at the needs of the migrants and the causes for brain drain, and the big differences in the causes for brain drain in the two cases as outlined above, it is interesting to see if some of the approaches from Charlottetown could be beneficial if implemented in Nuuk. The analysis is based on the research questions *Which of the Canadian initiatives might be beneficial if applied in Nuuk?* and *How could the actors in Nuuk learn from Charlottetown’s approach?* The selected relevant examples from Charlottetown are applied to the case of Nuuk to analyse if their implementation might be beneficial for Nuuk. This is done based on the theory discussed previously, the selected initiatives in Nuuk and the empirical data.

A. Resources

Workplace atmosphere and unattractive employment opportunities are reasons for brain drain in Nuuk (ASG 2015, Clausen 1998). Due to that, the ***Recruitment Aid Incentive*** as implemented by a business in Charlottetown could be beneficial in Nuuk in order to decrease the brain drain.

The incentive offers employees a monetary benefit if they recommend a new employee, and that person gets the job. As well as in Charlottetown, it is also valid for Nuuk that satisfied employees are good recruiters. A monetary incentive could be a good motivation and in addition make the employees feel valuable for the company, which contributes to their own retention (Leiman 2004, 688). HR-experts from different companies in Nuuk expressed how difficult it can be for them to find candidates for a position, and the Recruitment Aid Incentive could increase their network and make it easier to recruit new employees and easily make up the costs which are connected with this incentive. The incentive is mainly a financial incentive. In Charlottetown, financial reasons are claimed to influence the brain drain, but for this incentive, the feeling of being valuable and contributing to a good workplace atmosphere

was more important and more motivating for the employees to be part of the incentive, especially as it is only a one time payment (MacDonald 2016, 15:31). Financial reasons are not indicated directly as reasons of brain drain in Nuuk, which is why the focus of the incentive in Nuuk should be on the workplace atmosphere and the well-being of the employees. Further, if migrants can motivate each other to leave, there might also be an option that they are able to motivate each other to stay, especially if there is a financial benefit. Earlier, the term "chain migration" was introduced, defining migration which is motivated and helped by previous migrants (MacDonald and MacDonald 1964). Chain migration is observed in Nuuk. The above incentive could contribute to some kind of reversed chain migration, were locals motivate each other to stay.
The could thus incentive contribute to the recruitment practices in companies, the workplace atmosphere as well as the feeling of being valuable for employees, and therefore be beneficial if implemented in Nuuk, both for the retention of locals but also for repatriation purposes.

Another incentive which could be beneficial for the workplace atmosphere in Nuuk is the ***Human Resource Project***. The project employs HR specialists, that can be used by local employers which do not have their own HR department. As also seen in the previous paragraph, there is evidence that better HR practices could be part of decreasing the brain drain in Nuuk (Pedersen 1999, 17; ASG 2015, 5). In theory, in order to decrease the brain drain, human capital should be rewarded with good quality employment opportunities (Papademetriou 2015, 4). An external HR office, as practiced on PEI, could advise both the labour force and the employers and increase the retention. It could also contribute to make the employers aware of the needs of the labour force and vice versa and enhance communication in general, and thus be beneficial if implemented in Nuuk.

Furthermore, both Nuuk and Charlottetown recently opened a ***new job portal*** as a tool for retention and recruitment of local labour and in order to have one platform collecting local jobs. The job portal in Nuuk is mainly focused on other labour than high-skilled, and was earlier in this study assessed as having no or little effect on the brain drain. By implementing some of the features from the PEI job portal in the Greenlandic one, its effect could become more positive.
As described in the chapter on Nuuk, suli.gl is not targeted at high-skilled labour and only includes few relevant job announcements. If the website would be connected to other job portals, like on PEI, it could become more attractive for high-skilled labour as well. Furthermore, the website already includes a link to laws framed at the retention or return of the labour force, but it is probable that with more information on local incentives and

opportunities the website could be more beneficial for the job seekers. Finally, PEI uses its job portal as a database, and the lack of data on local high-skilled labour was a concern expressed by several of the employers in Nuuk. Suli.gl could be used as a method to create a database of jobseekers as well, and assist employers to reach out to both locals and locals abroad. By that, the job portal could contribute to attract and retain labour and include high-skilled labour in its target group (Lowell 2001, 4; Papademetriou 2015, 14). By implementing some of the features seen in PEI, the job portal could contribute to decrease the brain drain or increase brain circulation.

B. Matching Employment and Education

Several incentives in Charlottetown are framed at guaranteeing employment for youth and new graduates and linking them to the job market while they still are obtaining an education. If implementing these strategies in Nuuk, a focus should be put on the education rather than employment as brain drain in Nuuk is not happening due to the of the lack of jobs.

This is why the incentives ***GMP, CareerPrep and Career Pathways*** probably are not beneficial if implemented in Nuuk, as these focus on giving employers a financial benefit if employing a student or graduate. In Nuuk, it is not the employers who are unwilling to employ students and graduates, but the graduates who leave or not come back after graduation. Nevertheless, actors in Nuuk could benefit from some of the elements in the incentives, and implement them in already existing approaches. For example, experience in Charlottetown shows that not all students are able to take the summer jobs actually during summer, as their schedule might be different. It is consequently important to offer these opportunities with a flexible intake. The incentive CareerPrep offers the students a temporary full time job, which then continues as a part time job during the last year of the studies, in order to increase the benefit both for the students and the businesses. Both the flexible intake and the combination of full time and part time employment could be beneficial if implemented in Nuuk, as an addition to the summer job and internship incentives in the companies. The latter would especially contribute to the local attachment of the students, supply them with local skills, make them feel valuable and thus contribute to their retention (Leiman 2004, 688).

Another initiative that could be beneficial is the incentive of ***retention through low skilled jobs during summer,*** that employs postsecondary or secondary students in low skilled professions during summer, and in addition to the salary gives a one time benefit between 500 and 1000 CAD. Whereas in Charlottetown, it was assessed to have little effect, it could be beneficial in Nuuk. The labour market structure is similar and there is lack of labour in

lower skilled professions, which currently is replaced by external labour. (ØR 2015, 15) Greenlandic students are not depending on study jobs all year round as much as Canadian students do, and thus probably are free during summer. In addition, due to the demand of high-skilled labour, making relevant experience is neither as important in Nuuk. On the other hand, why would students want to take a non-relevant summer job if they could have a relevant one? The relevant summer jobs could target more advanced students, whereas the low skilled jobs could be more attractive for high school or first year students.
In theory this incentive could aid to undermine stereotypes regarding local workplaces, and create emotional links, which increase the retention (Papademetriou 2015, 8). The incentive would be beneficial in Nuuk as by taking the jobs, the students would have the possibility to contribute to the local economy and have a first link to the labour market. For the economy and the employers, this incentive is attractive as it increases the productivity and lessens the usage of external labour.

When employing students for jobs during summer, no matter if the jobs are relevant or not, there need to be an awareness of the risk of the students getting attached to the job resulting in not finishing their education. By this, a local retention is also reached, but having the students dropping out of their education should not be a result of these incentives. The educational institutions and also the employers should be aware of this and actively work against it, and for instance rather promote further collaboration with the students beside their studies, through part time jobs, project work or thesis collaborations.

C. Partnerships

An example of a partnership that would be beneficial if implemented in Nuuk, is the ***B.A. Nursing Sponsorship*** as implemented by HelathPEI. It supports students financially during their studies and gives them a local two year full-time employment guarantee after graduation. Local students, but also those who left Nuuk in order to obtain an education abroad, could be attracted back to Nuuk with the promise of a guaranteed employment after graduation. This is valid for the health sector, but not exclusively. The experience in Charlottetown showed, that it was not the money which made the students chose the incentive, but the employment guarantee. In Nuuk, the presented incentives and the ongoing brain drain shows that it is not the employment opportunity or the financial benefit alone that would make residents stay or return. A combination of those could have a beneficial effect. Whereas the study loan pay back assistance, that already exists in Nuuk, only gives the monetary benefit, the above presented incentive would probably result in similar expenses for the government, but more benefits for both the students and the local economy. The

biggest difference for the students lies in the assistance to find a job, whereas for the local economy it lies in guaranteed labour for two years. The current financial incentives in Nuuk result in high expenses for the government, but little concrete effect on the brain drain. Instead of this incentive, the implementation of a partnerships with students, which get financial aid during their studies and are guaranteed job at home after graduation, would be more beneficial in order to retain or return local high-skilled labour in Nuuk.

D. Communication

In regards to communication, both cases show similar approaches. Only one approach stands out as different. It is the ***collaboration with the workers compensation board*** in Charlottetown, which is a strategic and proactive measure in order to communicate strategies and incentives with a broad range of employers and employees, and at the same time to profit from the knowledge that is achieved through the work. In Nuuk, proactive measures showed good results, and it was showed that especially in the educational and counselling sector, communication could be improved. The incentive in Nuuk could be a collaboration with a third party, that has credibility with the educational institutions. Evidence showed a fast development in the educational sector, and improving the communication between the actors could be beneficial in Nuuk.

Lastly, the ***creation of the department*** for Workforce and Advanced Learning in Charlottetown also is an incentive, from which Nuuk probably could benefit. With the department, a governmental focus and priority is put on the issue of brain drain, which otherwise would be divided in several departments due to the diverse reasons and consequences of brain drain. This is not to say that there is a lack of focus on the issue in Nuuk, as in the case study it has been shown that most of the initiatives are framed for having a positive outcome. However, a more focused and fruitful approach would be probable by gathering resources in a collective working group, similar to the department in Charlottetown. Currently, the knowledge in Nuuk is spread in different governmental and municipal departments, agreements and incentives, and it would be beneficial for not only Nuuk, but all of Greenland to join forces.

Summary

The analysis shows that Nuuk could learn from Charlottetown by implementing incentives with small adjustments to the circumstances in Nuuk (Recruitment Aid Incentive; HR Project; Retention though low skilled summer jobs; Collaboration with Workers Compensation Board; Department of Workforce), by combining similar incentives and improve the existing one

(JobPEI - suli.gl), or by using elements of Charlottetown's incentives and implement them in already existing incentives in Nuuk (B.A. Nursing - in combination with the student loan aid; GMP, CareerPrep and Career Pathways - in combination with summer jobs and internships incentives). If keeping its own causes and target groups of incentives in mind, Nuuk can benefit from the incentives and the experience in Charlottetown, as in the end, both towns struggle with the same issue.

7. Conclusion

The aim of this study was to investigate how the challenge of brain drain and the retention of local high-skilled labour is approached by an Arctic town, and how this Arctic town can learn from a similar case that is experiencing the same challenges.

To do so, the extent, consequences and causes in the towns of Nuuk, Greenland, and Charlottetown, Canada, were analysed. It followed an analysis of selected relevant examples of initiatives of retention of local high-skilled labour in the areas of *Resources, Matching Employment and Education,* and *Partnerships* in each case, and finally an analysis on which of the incentives from Charlottetown could be beneficial if applied in Nuuk.

This allowed to show that Nuuk could benefit from the experience and knowledge about solutions to tackle brain drain in Charlottetown. Overall, the fact that Nuuk is located in the Arctic was not found to be relevant regarding the comparability of the incentives. It was found that both towns struggle with similar challenges of brain drain. The similar challenges include amongst others youth brain drain; urbanisation; attachment of local labour to the labour market; lack of databases of the local labour force; challenges with workplace practices and atmosphere. In addition comes the similarity in demographics, the labour market structure and a similar political focus, which contribute to incentives being assessed to be beneficial if implemented in Nuuk. This can be connected to the fact that even though Nuuk is located in the Arctic, the analysis showed that the characteristics of brain drain in Nuuk were very similar to the characteristics of brain drain in Charlottetown, even though the causes of brain drain differ.

By comparing the incentives from Charlottetown to the ones in Nuuk in order to discuss which of the Canadian incentives might be beneficial if applied in Nuuk, the following can be concluded:

A few incentives would be beneficial if they were implemented as they are, others in turn just showed some elements that would be beneficial to be implemented, and finally some of the incentives would be beneficial in connection with existing initiatives in Nuuk.[12] It is interesting to see that those incentives which were assessed to have little or no effect in Nuuk, could probably result in a positive effect, if elements from incentives from Charlottetown were implemented. This was surprising, as little or no effect meant that the incentive was not framed at the causes of brain drain, and those were the main reason for different remedies in both cases. But even though it is mainly the different causes that result in different remedies, both cases experience similar challenges, which resulted in Nuuk being able to benefit from some of the incentives of Charlottetown, even though they were framed at different needs.

Even though this has not been the focus of this study, from the above it can also be concluded that not only Nuuk could benefit from the incentives and experiences of Charlottetown, but also the other way around. An agreement between the towns, in order to share knowledge and experience with their approaches to solve the brain drain is suggested, as it would be beneficial for both towns.

In addition, interdisciplinary research collaborations is recommended. The comparison in this paper showed that a collaboration between for instance gender, social and political science could be beneficial in order to develop holistic approaches to solutions of brain drain.

[12] cf. summary in chapter 6.

8. Appendix

Appendix 1: Quotes in original language

Page 27: “Brain Drain bliver af mange iagttagere af det grønlandske samfund betragtet som et væsentligt problem, men ingen officielle statistiske data kan kvalificere denne formodning.” (DUF 2011, 4)

Page 41: “Den realiserede omkostning [...] har været stærkt stigende i de seneste år, hvorfor det med rimelighed kan antages, at ordningen på et tidspunkt vil nærme sig fuld benyttelse blandt de potentielle ansøgere.” (Lovgivning.gl 2016, 7)

Page 42: “Uddannelsen udvikles og gennemføres i tæt samarbejde med det grønlandske erhvervsliv.” (Ilisimatusarfik 2016c)

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