Foreign-born employment dynamics across the Nordic region

Bachelor thesis

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Abstract

Due to a continuous influx of refugees, students and other immigrants into the Nordic region, questions emerge on the subject of employment integration. Does foreign-born employment lag behind throughout this region? Which factors influence foreign-born employment outcomes? The aim of this study is to find out if employment rates differ significantly between natives and first generation immigrants in Nordic countries, and to find out how immigrant characteristics predict foreign-born employment rates. To this end, statistical analysis of secondary macro-level data will be used. All secondary data is derived from OECD datasets on employment of immigrants and natives, as well as socioeconomic characteristics of immigrants.

Most of the findings correspond with previous research on individual countries within the Nordic region or outside the Nordics. The difference between native employment rates and foreign-born employment rates is significant, which is also the case when the data are divided by sex. Differences in employment are especially large between native-born females and foreign-born females. Remarkably, a significant positive correlation can be identified between the share of foreign-born people by region and total employment rates by regions, which is not fully supported by earlier research or other results from this thesis.

The first multiple linear regression reveals that the share of the foreign-born population with an EU background is a positive predictor of foreign-born employment rates. The share of the foreign-born population with a non-EU background predicts foreign-born employment rates with a negative effect, but this effect does not hold in the weighted regression. The final analysis shows that the share of highly educated people in the foreign-born population predicts foreign-born employment with a negative effect.

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1. Introduction

In recent years, immigration has been a hot topic in large parts of Europe. The enduring influx of refugees, for instance, has led to discussion across the continent. The Nordic countries are no exception. Nations such as Sweden, Denmark and Finland have already shown a political turn toward a stance of decreasing hospitality (Rutten, 2017). Within the European context, Sweden actually stands out for having absorbed an especially large amount of refugees and other immigrants (World Bank, 2019 : World Bank, 2021). These other immigrants are important to consider, as refugees are by no means the only immigrant group. The Nordic region is also experiencing an increasing influx of international students, for instance. Between 2010 and 2018, foreign student enrollment has risen in Denmark, Norway, Finland and Iceland (OECD, 2021a). The increase during this period ranges from 41 percent in Finland, to 86 percent in Denmark. Only Sweden saw a slight decrease in enrollment of foreign students during this period. Within the same period, total foreign-born populations in all Nordic countries grew (OECD, 2020a). As would be expected based on an increase in net migration in all four continental Nordic countries since 2007, a large share of the total annual population growth is attributable to immigration, exceeding natural growth by far (Heleniak, 2016).

The growing presence of foreign-born citizens raises questions on the subject of integration, especially when students and refugees are considered. For both refugees and students, the permanence of residence is not necessarily known at the moment of arrival. In addition, refugees face more complex integration processes than economic immigrants, while also being "disadvantaged socially and economically relative to other immigrants at arrival" (Brell et al. 2020, p. 115). Because of the relatively large presence of students and refugees, integration processes are increasingly unpredictable. Employment statistics could provide a useful insight into the current situation, since employment is regarded as an important indicator of integration by, for instance, the European Union (Eurostat, 2021). Efficient employment integration processes would mean that the ease by which a job can be acquired is similar between native-born populations and foreign-born populations. One of the UN sustainable development goals related to immigration shows that the need for employment integration is internationally recognized, as it includes the promotion of "full and productive employment and decent work for all" (UN, 2016, p. 5). Therefore, native-born employment rates could act as a baseline that would be desirable for foreign-born employment as well. Employment statistics can thus reveal valuable information about integration processes already, though foreign-born population composition should not be overlooked. Large shares of students could distort the picture that is painted by these statistics for instance, because this group might not want to integrate in the labor market at all. Such a distortion could also occur when there is a disproportionate amount of labor immigrants, as their residence is tied to their employment.

The distinction between Scandinavian countries and Nordic countries is important, as there are differences between these definitions. In some cases, Finland and Iceland are excluded when one speaks about Scandinavia (Collins, 2021), whereas the Nordic region always includes these nations. This is why the broader term of Nordic countries is fitting in this case. Although the Nordic region is a name that signifies unity, the Nordic countries are not entirely homogenous. Both Iceland and Norway are not full EU-member states, which might cause these nations to deviate from the other three, as they are not influenced by supranational policies to the same extent. It is worth noting that both Iceland and Norway signed the Schengen treaty, which implies free movement of people (AXA, 2021). Lastly, Norway, Denmark and Sweden have similar

languages and cultures (Ivarsson & Linder, 2013), whereas Finland and Iceland are more unique, both in language and culture.

Conclusions on the subject of employment integration across the Nordic region could thus inform future integration policy, by directing more funds to immigrant groups with characteristics that prevent efficient integration, for instance. In order to find out to which extent there is a divide between employment rates of natives and immigrants in the Nordic, as well as finding which immigrant characteristics contribute to employment outcomes, this thesis will revolve around the following research questions;

<u>Main research question;</u>

Do employment rates differ significantly between natives and first generation immigrants in Nordic countries and how do immigrant characteristics predict foreign-born employment rates?

<u>Sub-questions;</u>

- *Is there a significant difference in employment rates between native-born and foreign-born populations for both sexes across the Nordic region?*
- *How does the relative share of foreign-born populations within the Nordic area predict total regional employment rates?*
- *How do characteristics of foreign-born populations within the Nordic area, such as educational attainment and origin predict regional employment rates?*

The structure of this thesis is as follows; Chapter 2 is an exploration of previous research on immigrant employment and employment assimilation, as well as Nordic policies. This chapter is concluded with three hypotheses and a conceptual model. Chapter 3 contains an explanation of the methodology. Chapter 4 presents the results of this research and ends with a contextualization and discussion of the presented findings. Lastly, chapter 5 contains a conclusion and recommendations for future research.

2. Theoretical framework

2.1 Immigrant employment

Past research on foreign-born employment rates across Europe mainly yielded consistent results. In their research on immigrant employment assimilation in the Netherlands, Zorlu and Hartog (2012) found that natives were more likely to be employed than any non-native group, irrespective of gender. In Norway, beside the higher risk of unemployment for immigrants, immigrants were also found to be more likely to face long-term unemployment than native Norwegians (Andersson et al., 2010). In Finland, immigrants were found to have higher unemployment rates than natives (Andersson et al., 2010). Similarly, Akay (2016) found that native Swedes are more likely to be employed than immigrants. Luik et al. also came to that conclusion for Sweden, however they added that "the immigrant-native employment gap in Sweden is one of the largest in the OECD" (2018, p.363). Moreover, they suspected that this gap was partly caused by a relatively large presence of migrant groups that are problematic in terms of employment, such as humanitarian immigrants (Luik et al., 2018). Many studies of this kind have been carried out within the context of a single nation, while larger cross-national studies are comparatively scarce. The situation in Sweden shows that immigrant characteristics can influence the overall employment assimilation to a large extent. Following this logic, an influx of migrants with skills that happen to be in demand in the host country could also make foreign-born employment surpass native-born employment. According to Dahlsted and Bevelander (2010), this has been the case in the Nordic region in the past. On a related note, Calmfors and Sanchez Gassen stated that "it is especially those low-educated migrants who often find it hard to obtain employment in the Nordic labor markets" (2019, p.10). This underlines that the composition of immigrant groups can both negatively or positively affect employment integration. The effects surrounding education will be assessed in subchapter 2.3.

Kulu (2005) mentioned four hypotheses regarding immigration and fertility derived from earlier research, one of which can be translated to an employment context. This "adaptation hypothesis" assumes that immigrants will adapt to their host-country with time (Kulu, 2005, pp. 52-53). If this hypothesis holds in the employment context, this would mean that immigrants will adjust their skills in such a way that they will eventually be able to find their place in the job market. This also means that immigrant employment would rise with host-country residence time. The hypothesis by Kulu is partly contradicted by the Swedish situation in the late 80's. As economic prosperity grew in this period, foreign-born employment decreased, even for those immigrants that had spent over two decades in Sweden (Rosholm et al., 2006). Longer residence time does therefore not necessarily lead to better employment odds for immigrants.

2.2 Immigrants and total employment outcomes

If a difference between foreign-born employment and native-born employment exists across the Nordic region, a logical effect would be that an area with a large presence of foreign-born people would have worse total employment rates than another area with less foreign-born residents. However, this description overlooks other factors that are at play. The type of settlement region of immigrants should be considered, for instance. Employment rates are generally higher in urban areas, compared to rural areas (EU-ARD, 2018). Immigrants are more likely to be employed in urban areas as well (2018). From that perspective, the relationship between higher foreign-born presence and employment rates is more complicated, as large shares of foreign-born populations might happen to prefer those urban areas with above average total employment. Within the Nordic region, the notion of better employment opportunities for immigrants in urban areas is not

universally true. In Sweden and Denmark, better employment outcomes are found for immigrants living in urban areas, whereas employment outcomes of Finnish immigrants are better in rural areas (Veneri, 2018). In Norway, immigrants in urban areas are at a slight disadvantage compared to immigrants in rural areas (Veneri, 2018). In sum, there is no reason to assume that foreign-born presence would not be associated with lower total employment rates on average, but the type of settlement region matters.

2.3 Immigrant characteristics

As mentioned in the introduction, the influx of immigrants into Nordic countries is not limited to students and refugees. Consequently, it is also necessary to consider how other immigrant characteristics relate to employment outcomes. The distinction between non-EU origin and EU origin proves to be relevant. In a comparison of employment rates of foreign-born populations from Germany, Italy, the UK, Morocco and Turkey in numerous (mostly European) host-countries, Van Tubergen (2006, p.77) found that the Moroccan and Turkish populations were more likely to be unemployed than those from EU nations, which included the UK at the time. Some populations of EU-origin were even less likely to be unemployed than natives (Van Tubergen, 2006). In a similar way, Le Grand and Szulkin noted the following about Sweden; "labor market integration is relatively unproblematic for migrants from Western countries" (2003, p.37). Much like the study presented before, they found that immigrants from non-Western countries "face substantial obstacles to earning progress when entering the Swedish labor market" (2003, p.37).

In their study on first generation immigrants in Sweden, Dahlsted and Bevelander (2010) found that employment rates of immigrants used to surpass those of natives in the 60's and 70's, when a large share of immigrants came to Sweden as labor migrants. As soon as labor migration became less prominent and new immigrants were primarily refugees and family migrants, of whom a growing share had a non-EU background, foreign-born employment rates were overtaken by native-born employment rates again. Swedish residence permit statistics on the period between 1980 and 2020 show that a total of 2.64 million permits have been issued, of which 675 thousand were received by refugees and 964 thousand related to family reunification (Migrationsverket, 2021). This shows that the trend that was observed by Dahlsted and Bevelander continued into the past four decades.

Beside the country of origin, there are also differences in employment rates between sexes. In a longitudinal study on refugee employment integration in Sweden, Bevelander and Luik (2020) noticed that refugee women of a certain residence time had better employment probabilities than their male counterparts in some cases. However, looking at recent foreign-born employment rate statistics in OECD-countries, it is clear that employment rates of men are generally higher than those of women (OECD, 2019).

Education is also a relevant topic in this context, as employment of immigrants is partially related to their education. Dahlsted and Bevelander concluded the following in Sweden; "In general higher education leads to higher odds of having employment" (2010, p. 177). From a theoretical perspective, this is not always an obvious outcome. According to DebBurman, it is useful to split the concept of schooling into two parts; "an origin-specific component and an internationally transferable component" (2005, p. 22). DebBurman (2005) also stresses that generality of skills gained through education in a country of origin is important to maintain the value of these skills in a host-country. This way of thinking does not lead to an obvious expectation with regard to the predictive capability of educational attainment in relation to employment rates within the host-

country. Highly educated people are perhaps more likely to have had internationally oriented education than people with lower education. Nevertheless, skills of people with lower education could still have that necessary degree of generality mentioned by DebBurman. Therefore, refugees with either high or low education and students might face similar challenges while trying to gain access to the host-country labor market. Another factor that should be considered in relation to education, is the location at which education is obtained. Host-country employers cannot easily verify or evaluate the educational achievement in all cases, giving immigrants with host-country education an advantage in the labor market (Bevelander & Luik, 2020).

2.3 Nordic policies

Although major cultural similarities within the Nordic region exist between Denmark, Sweden and Norway, it is clear that Finland and Iceland differ from this group in terms of culture, as established before (Ivarsson & Linder, 2013). However, Denmark and Iceland are the odd ones out when it comes to policies on the subject of immigrant employment. In a ranking on favorability of national policies to immigrant labor market mobility, as presented by The Migration Integration Policy Index (MIPEX), the second, third and fourth place are taken by Sweden, Finland and Norway respectively (2020). For reference, the total number of included countries is 52. Scores of these three Nordic countries range from 85 to 91 out of 100. Denmark has a lower score of 65 at #12. According to MIPEX, Denmark is actually one of the few countries that has "undermined their support for immigrant workers" (2020, para. 4). Iceland has a score of 33 at #40. According to MIPEX, Iceland offers few possibilities for employment of non-permanent residents originating from EU territory, while these possibilities are even fewer for non-permanent residents from non-EU countries (2019).

Although their MIPEX scores are similar, some differences in policy approaches between Finland, Sweden and Norway can still be distinguished. In a study on Norwegian and Swedish immigration policy reports, Vogt Isaksen (2020) mentions that policymakers behind Swedish reports view immigration as a necessary process in a welfare state, whereas those behind Norwegians reports convey more doubt regarding the sustainability of immigration in the context of a welfare state. Finland is focused on sustainability as well, as the Finnish government has annual quotas for refugees and asylum seekers, which are adjusted to the national budget (Lobodzinska, 2011).

2.4 Hypotheses and conceptual model

The theoretical framework leads to a number of expectations. Foreign-born employment rates are expected to be consistently lower than those of native populations, which will likely be true for both sexes. Furthermore, the literature suggests that female employment within foreign-born populations is likely to be lower than that of males. Based on the expected difference above, it is probable that the relative share of foreign-born populations negatively affects regional employment rates. Immigrants with an EU-background are expected to have an advantage over non-EU immigrants in terms of employment. Lastly, educational attainment is expected to be a predictor of foreign-born employment. However, it is not possible to formulate specific expectations on the direction of this effect.

Based on the theoretical framework and the summary presented above, the following hypotheses are formulated. Expectations based on these hypotheses are visualized in a conceptual model in Figure 1.

1. There is a significant difference between foreign-born employment and native employment across the Nordic regions, regardless of sex.
2. The relative share of foreign-born populations negatively affects total regional employment rates.
3. Socioeconomic characteristics and educational attainment of foreign-born populations predict regional foreign-born employment rates.
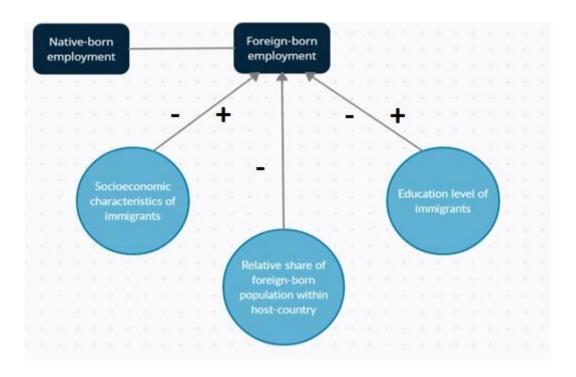

Figure 1: Conceptual model

3. Methodology

3.1 Secondary data and data quality

To test the aforementioned hypotheses, a quantitative analysis of secondary data will be the core of this research. Since the entire Nordic area is included and the timeframe of this thesis is limited, quantitative analysis is the most efficient way to arrive at a viable conclusion. Additionally, the benefit of secondary data in this context is the possibility to review aggregate data at different geographical scales. National data will be used to examine broad effects that might take place across the Nordic region. Data on NUTS-2 regions will also be used, which allows for a more profound analysis, as interregional differences can be included as well.

All of the data is derived from four OECD datasets. The Organization for Economic Cooperation and Development (OECD) is a "knowledge hub" that has been informing policies of governments on all levels globally for over sixty years (OECD, 2021b). Through their quality framework they seek to ensure "data excellence," which means that even data collected by national governments could be rejected if quality appears to be lacking (OECD, 2012, p.3). In addition, an important advantage of using OECD data exclusively is the uniformity of variable standards. Employment rates for instance, are interpreted the same way in all relevant datasets, meaning that the same

standards on both the concept of employment and the age range have been applied to these datasets.

The first OECD dataset that is used shows native-born employment rates by country, distinguishing between male and female populations. The second dataset is similar, but it shows these rates for foreign-born populations within each country. The third dataset shows foreign-born employment rates by territorial level 2 region (TL2). TL2 is not identical to NUTS-2 globally, but in the Nordic region these typologies imply the same (OECD, 2021c). The fourth dataset contains statistics on foreign-born population share by region, while also allowing for a division between EU or non-EU origin of these populations. Furthermore, this dataset contains relevant socioeconomic characteristics on both the individual level as well as the group level that will be used for analysis. These characteristics are dependency ratio, female share and two separate levels of educational attainment. Section 3.2 contains specific information on each variable. As dataset three and four are only available for 2015, this is the year that will be analyzed in this research.

3.2 Variable definitions
Since some variable titles do not reflect the meaning of the variable at first glance, this subchapter consists of an overview of variable definitions.

Foreign-born employment rate

The OECD defines this as follows; "the share of employed foreign-born persons aged 15-65 in the total foreign-born population (active and inactive persons) of that same age" (OECD, 2020b, p.1). In addition, they mention that employed people "are those who worked at least one hour or who had a job but were absent from work during the reference week" (2020b, p.1).

Native-born employment rate

This variable corresponds with the above, but for the total-native born population instead.

Foreign-born population share

The share of foreign-born people within the entire population.

Share of foreign-born population with EU origin

The share of foreign-born people born in the EU within the entire population. It is worth noting that immigrants from Norway do not qualify as immigrants with EU origin. This could somewhat distort the non-EU group, but this effect is limited in practice, as the largest Norwegian share within national migration stocks of Sweden, Denmark and Finland was estimated at about 3 percent in 2017 (UN, 2017).

Share of foreign-born population with non-EU origin

The share of foreign-born people born outside the EU within the entire population.

Female share

The share of women within the foreign-born population.

Dependency ratio

The share of people at the age of 0-14 or above 65 in the total foreign-born population.

Low education

The share of people with low education within the foreign-born population. Low education is a category that consists of people with no primary education, primary education or lower secondary education (Eurostat, 2021). All educational categories used by the OECD in the relevant dataset are based on EU-LFS definitions.

High education

The share of highly educated people within the foreign-born population. This category consists of people with short-cycle tertiary education, a bachelor's degree, a master's degree or a doctorate (Eurostat, 2021).

3.3 Data analysis
Before the actual analysis, relevant part of all datasets were selected. Filters were applied to all four datasets, in order to solely focus on Nordic nations or regions. Norway, Sweden, Denmark and Finland are included in all analyses. The Faroe islands are excluded entirely as they are not considered separately by the OECD. Iceland is not included in the dataset on foreign population share by region and socioeconomic characteristics, which is why this country is excluded in parts of the analysis. For regional analyses, the Finnish region of Åland is excluded in some parts, because statistics on this region are not included in every dataset. It should be noted that Åland is by far the smallest region under study in terms of population size (EURES, 2020). Consequently, its inclusion is not crucial. The effective total number of regions is 24, although the inclusion of Åland raises this number to 26 for the correlation that will be further explained below. All analyses that involve regional data are carried out both with and without weighted variables. This combination is necessary because differences in regional populations are more than a million in certain cases. On the other hand, weighted analysis is biased towards the populous capital regions, as well as the Swedish regions, simply because the Swedish population is considerably larger than those of the other Nordic nations. Therefore, both approaches are included.

To be able to reject or support all three hypotheses, three different statistical methods have been selected. The first method is a paired sample T-test, which will be used to find out if there is a significant difference in employment rates for native-born and foreign-born populations in the entire Nordic region. This test will be carried out with three different pairs with data by country. The first pair includes total native-born employment and total foreign-born employment, the second pair includes male native-born employment and male foreign-born employment and the last pair consists of female native-born employment and female foreign-born employment. After having established whether or not there is a significant difference between these pairs, another method will be employed for the next hypothesis. To find out if there is a correlation between foreign-born population share and total employment rates by region, Pearson's R correlation will be used. This will indicate if there is a correlation, but also what the strength and direction of this correlation is (Burt, Barber & Rigby, 2009). If the T-tests turn out to be significant, this correlation could show if the difference between native employment and foreign-born employment is large enough to make a change in foreign-born presence affect total regional employment rates.

Lastly, to find out how characteristics of foreign-born populations relate to foreign-born employment rates, two multiple linear regressions are carried out. These regressions are separated for clarity. Input for these test will also consist of regional data, for which the native-born populations are omitted. As the regressions are slightly more complicated in terms of variables, these are listed below.

Multiple linear regression

Dependent variable: *Foreign-born employment rate*

Independent variables:

- *Share of foreign-born population with non-EU origin*
- *Share of foreign-born population with EU origin*
- *Share of females within the foreign-born population*
- *Dependency ratio of the foreign-born population*

Multiple linear regression

Dependent variable :   *Foreign-born employment rate*

Independent variables:

- *Share of foreign-born people with low education (25-64)*
- *Share of foreign-born people with high education (25-64)*

The distinction between EU and non-EU origin is relevant here, because past research and statistics have proven that there can be differences in employment between these groups (Van Tubergen, 2006; OECD, 2018). As touched upon in chapter 2.2, the share of females might negatively affect total employment rates. The dependency ratio is added to the first model because a large share of children and people past their working age could be an incentive for employment for their family members that are still, or already, considered to be fit to work. Lastly, two educational levels are included in a separate multiple linear regression, because educational attainment of foreign-born populations likely influences employment rates, as mentioned in chapter 2.2.

3.4 Limitations
Several limitations should be mentioned before the results are presented. Due to limitations in terms of time and the amount of pages for this thesis, multiannual analysis could not be carried out. Such an approach would allow for a more complete analysis, whereas this research cannot take into account potential differences that would be revealed if analysis by year was applied, due to its static nature. Secondly, a larger number of cases for regional analysis would have resulted in better statistical models. This could have been achieved by shifting NUTS-2 data to the NUTS-3 level. Unfortunately, this was not an option due to data unavailability. Another limitation is the limited amount of included factors. Employment outcomes are influenced by more than just the isolated factors mentioned here, which means that the scope of this research is still narrow.

4. Results

4.1 Employment rates of natives and immigrants

Table 1 and 2 present the outcomes of the first analyses on employment rates. Data on the national level from Denmark, Sweden, Norway, Finland and Iceland are included. The descriptive statistics in table 1 show that native-born employment rates are consistently higher than foreign-born employment rates. This is true for the total, and also when a division by sex is applied. Differences between both female categories are clearly larger than those between both male categories. Moving on to the paired sample T-test output, table 2 shows that there is a significant difference between all pairs at the 5% confidence level. This outcome suggests that a foreign-born person within the Nordic region and within the aforementioned age range is less likely to be employed than a native-born person, regardless of sex. Consequently, all three paired sample t-tests support hypothesis one. This is in line with the conclusion of Bevelander and Luik for Sweden, as they found "a considerable native-immigrant employment gap" (2020, p.1).

	Mean	SD
Total native-born employment rate	78.34	0.0419
Total foreign-born employment rate	69.58	0.0746
Native-born male employment rate	79.74	0.0437
Foreign-born male employment rate	74.76	0.0633
Native-born female employment rate	76.88	0.0413
Foreign-born female employment rate	64.50	0.0872

Table 1: Descriptive statistics on employment rates by origin and sex (based on OECD, 2020b, 2020c)

	T	Df	P (two-tailed)
Total native-born employment rate – Total foreign-born employment rate	4.092	4	0.015*
Native-born male employment rate – Foreign-born male employment rate	3.166	4	0.034*
Native–born female employment rate – Foreign-born female employment rate	4.316	4	0.012*

*= P<0.01 **= P<0.05

Table 2: Paired sample T-test output

4.2 Effect of immigrant presence on regional employment

The following analysis is based on the share of foreign-born people within the total population and total regional employment rates. Before calculating Pearson's R correlation, a Shapiro-Wilk test was carried out to find if both variables were approximately normally distributed, which is a prerequisite for the correlation coefficient. With a significant P-value of 0.045 for the total regional employment rate variable, normality could not be assumed. Upon closer inspection, it was evident that the single region of Iceland was an outlier with a total employment rate of 0.88. Therefore, Iceland was excluded for this analysis. It is worth noting that the calculation of the correlation including Iceland was significant and resulted in a coefficient of 0.420, which would be a moderate positive correlation. The reliability of this outcome is still questionable, because outliers tend to skew the correlation, which is why table 3 and 4 show statistics and outcomes for a total of 25 regions, excluding Iceland.

Without Iceland, the Shapiro-Wilk test on the employment rate variable turned out to be insignificant, with a P-value of 0.646. This means that the normality of the distribution of this variable can be assumed. Table 4 shows that this correlation is significant, even at the 1%-level. The correlation coefficient of 0.671 signifies a moderate positive correlation, although this value is close to the threshold of a strong positive correlation (Ratner, 2009). Based on this outcome it is safe to assume that there is a relationship between both variables, although this is no conclusive evidence for the existence of any causal relationship. With a correlation coefficient of 0.825, the weighted model indicates a strong correlation. As explained in section 3.3, the attachment of weights leads to an emphasis on all capital regions and on Sweden in its entirety. Considering this, the correlation outcome is in line with previous research, as large shares of immigrants are often found in capital regions (Veneri, 2018). In addition, employment rates are generally higher in urban areas, as was mentioned in section 2.2 (EU- ARD, 2018).

These correlations show that higher employment rates are associated with larger foreign-born populations, whereas the t-tests above showed that foreign-born employment is consistently

inferior to native employment. An explanation for this could be that immigrants in the Nordic region prefer urban areas, where employment rates are likely to be high anyway. Conversely, if lower employment rates would be found in rural areas, this would then coincide with low foreign population densities. It is also worth recalling that this correlation includes total regional employment rates. Consequently, the native-born population is still relevant. Kochhar came to a conclusion in the U.S. that might explain the result partly, as he stated that; "Rapid increases in the foreign-born population at the state level are not associated with negative effects on the employment of native-born workers (2006, p.1). So while the T-tests revealed clear differences in employment rates between native-born and foreign-born people, there is no evidence that justifies the assumption that a growth in the relative share of foreign-born people would also result in a decrease in total regional employment rate or even native-born employment rates.

	SD	Mean
Total regional employment rate	0.0362	73.39
Foreign-born population share by region	0.0592	11.66

Table 3: Descriptive statistics on regional employment rates and foreign-born share by region (based on: OECD, 2021d)

	N	P (two-tailed)	R (Pearson)
Total regional employment rate – Foreign-born population share by region	25	0.000**	0.671
Total regional employment rate – Foreign-born population share by region (weighted)	25	0.000**	0.825

*= P<0.01 **= P<0.05

Table 4: Pearson's R output

4.3 Foreign-born employment factors

This final analysis consists of two multiple linear regressions. Both tests have foreign-born employment rate by region as the dependent variable. The independent variables for the first regression are; EU-born share of the foreign-born population, Non-EU born share of the foreign-born population, share of females in the foreign-born population, and dependency ratio of the foreign-born population. The other regression includes two independent variables on the share of foreign-born people with low or high levels of education. Both the single region within Iceland and the region of Åland in Finland are excluded because of their absence in the dataset and the lacking compatibility of similar datasets to fill in these gaps. This leaves 24 cases for the analyses.

The results of the first regression are visible in table 5, 6 and 7. The ANOVA P-value in table 7 is significant at the 1%-level, which means that all the independent variables combined predict the dependent variable. Looking at table 5, the Durbin-Watson values of 2.101 and 2.176 mean that there is no problematic level of autocorrelation. The adjusted R-Squared value of 0.499 indicates a moderate relationship between either the independent variables and the dependent variable, or the relationship between the model and external variables. The adjusted R-squared for the weighted model is slightly lower, at 0.439.

Table 7 shows that both the EU share and the non-EU share variables have significant P-values for the model without weights. This means that there are significant relationships between these separate variables and foreign-born employment rates. Both Beta values show that a growing share of immigrants from within the EU has a positive effect on foreign-born employment rates. Conversely, a growing share of immigrants from outside the EU has a negative effect on foreign-born employment rates, although this effect is smaller than the effect of the share of immigrants from within the EU. This outcome is similar to findings in Germany and Sweden, as mentioned in section 2.2 (Van Tubergen, 2006; Dahlsted & Bevelander, 2010). The P-value for the female share variable is just above the 5%-level, indicating that significance of this value might have been achieved with a larger sample. Although this outcome does not prove that there is a relationship between this independent variable and the dependent variable, it does at least make it plausible. Unlike the expectations, the effect of a larger female share would then be positive. Lastly, there is no evidence for the effect of dependency ratios on foreign-born employment. The attachment of weights in the regression in table 6 changes the outcome. The non-EU variable does no longer have a significant P-value. One explanation for this could be that the emphasis on capital regions distorts the negative effect of non-EU immigrant presence, because these cities attract highly skilled members of this group, for instance.

	R	R-squared	R (adjusted)	Durbin Watson
Basic model	0.766	0.586	0.499	2.101
Weighted model	0.733	0.537	0.439	2.176

Table 5: R-values and Durbin Watson tests

	Sum of squares	Df	Mean square	P
Basic model	0.048	4	0.012	0.001**
Weighted model	0.041	4	0.010	0.004**

*= P<0.01 **= P<0.05

Table 6: ANOVA output

	Unstandardized B	Beta	T	P
Share of foreign-born population with EU-origin	3.978	1.283	3.483	0.002**
Share of foreign-born population with non-EU origin	-1.342	-0.972	-2.954	0.008**
Share of females within foreign-born population	0.947	0.380	2.075	0.052
Dependency ratio	-0.312	-0.257	-1.285	0.214

*= P<0.01 **= P<0.05

Table 7: Multiple linear regression output (based on OECD, 2018)

	Unstandardized B	Beta	T	P
Share of foreign-born population with EU-origin	3.248	1.267	2.801	0.011*
Share of foreign-born population with non-EU origin	-0.879	-0.807	-1.954	0.066
Share of females within foreign-born population	0.496	0.191	0.973	0.343
Dependency ratio	-0.178	-0.146	-0.654	0.527

*= P<0.01 **= P<0.05

Table 8: Weighted multiple linear regression output

The results for the second multiple linear regression on education are visible in tables 9, 10, 11 and 12. Both the basic regression and the weighted regression have an ANOVA outcome which is significant at the 1%-level, implying that these independent variables predict the dependent variable in a reliable way. The R-squared values of 0.491 and 0.551 indicate that the data fits the model. Table 11 and 12 show that the P-values for low education are insignificant in both regressions. The p-values for high education are significant in both regressions. This means that there is a positive relationship between the share of highly educated people in the foreign-born population and foreign-born employment rates. The unstandardized B value is slightly higher for the high education variable in the weighted regression at 0.653, instead of 0.613. Again, because the weights introduce an emphasis on capital regions and Sweden, these areas are likely to be the cause of this increased value. The outcomes of this regression on educational attainment are in line with findings of Dahlsted and Bevelander in Sweden; "In general higher education leads to higher odds of having employment" (2010, p. 177).

	R	R-squared	R (adjusted)	Durbin Watson
Basic model	0.701	0.491	0.443	2.00
Weighted model	0.742	0.551	0.508	1.984

Table 9: R-values and Durbin Watson tests

	Sum of squares	Df	Mean square	p
Basic model	0.041	2	0.020	0.001**
Weighted model	0.042	2	0.021	0.000**

*= P<0.01 **= P<0.05

Table 10: ANOVA output

	Unst. B	Beta	T	p
Low education	-0.251	-0.203	-1.023	0.317
High education	0.613	0.219	0.556	0.011*

*= P<0.01 **= P<0.05

Table 11: Simple linear regression on educational attainment (based on OECD, 2018)

	Unst. B	Beta	T	p
Low education	-0.093	-0.078	-0.412	0.684
High education	0.653	0.179	3.653	0.001**

*= P<0.01 **= P<0.05

Table 12: Weighted linear regression on educational attainment (based on OECD, 2018)

5. Conclusions

The aim of this research was to find out if there was a significant difference between native-born employment rates and foreign-born employment rates within the Nordic region, and to find out how characteristics of immigrant populations predicted foreign-born employment rates. To this end, paired sample T-tests, two regressions and a correlation test were carried out with OECD datasets.

Foreign-born employment rates and native-born employment rates were found to be significantly different for the entire Nordic region, with consistently lower outcomes for the former. This corresponds with previous research that was explored. The same conclusion could be drawn after a division of these variables by sex, although the difference between both female groups was larger than the differences between both male groups. Secondly, a positive correlation was found between the regional share of foreign-born people and total regional employment rates. The potential negative effect of an increasing foreign-born population on total employment rates, as suggested by the first analysis, could therefore not be proven.

Regression analysis showed that the share originating from the EU within the foreign-born population predicts regional foreign-born employment rates with a positive effect. Although this outcome is in line with past research on other areas and even countries within the Nordic region, these effects had not yet been shown for the Nordic region as a whole. The non-EU share did not have a significant effect on foreign-born employment in the weighted regression, which is not in line with previous research. On the other hand, the non-EU share did have a significant effect in the regression without weights. Both the dependency ratio and the female share of the foreign-born population did not predict foreign-born employment rates based on this analysis. The regression on educational attainment showed that the share of highly educated people within foreign-born populations positively affected foreign-born employment rates. The share of foreign-born people with low education did not predict foreign-born employment rates.

In short, the answer to the main research question is as follows; Employment rates differ significantly between foreign-born populations and native-born populations across the Nordic region, irrespective of sex. Both high educational attainment and EU-background of immigrants were found to have a positive effect on foreign-born employment. Several policy implications flow from these conclusions. Evidently, employment assimilation is a subject that continues to require attention in the Nordic region, as employment outcomes for foreign-born populations and native populations would ideally converge. The need for this process was also recognized within the UN sustainable development goals. The positive effect of high educational attainment on foreign-born employment could signify a need for improved support for immigrants without high education, as they appear to be lagging behind. Similarly, the positive effect of an EU-background of immigrants on foreign-born employment could indicate that having a non-EU background hampers employment assimilation, which was also found in other research. In terms of policy, this could justify specific investments in employment integration of non-EU immigrants.

The result of the analyses in this thesis provide a general overview of foreign-born employment dynamics across the Nordic region. Therefore, a complementary in-depth analysis would be useful in order to fully understand the situation in the Nordic region. As mentioned, a longitudinal approach would be a logical choice, as this would reveal changes over time. New variables could also be added to analyses for a more complete overview. Lastly, employment differences between immigrants and natives could also be analyzed by age cohort or by length of residence in host-countries, for instance.

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