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# Ethnic and Gender Differences in the Swedish Labour Market: Do Attitudes Towards Immigrants Matter?



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## Abstract

International migration has had a steady growth over the last decades and the integration of immigrants into the labour market is a challenge for many countries. Previous literature has found that immigrants, especially non-European immigrants, are disadvantaged in the labour market, and that the size of this disadvantage differs between male and female immigrants. One potential explanation for non-European immigrants' labour market disadvantage is discrimination, which can be expressed through negative attitudes towards immigrants. Using individual data from the European Social Survey, this paper investigates whether there is a relation between negative attitudes towards immigrants and the employment gap between non-European immigrants and natives in Sweden, and whether this relation differs by gender. The results, however not statistically significant, indicate that there is a negative relation between negative attitudes towards immigrants and the immigrant-native employment gap. Moreover, the female immigrant-native employment gap is found to be more negatively affected by negative attitudes towards immigrants.

**Keywords:** Immigrant-Native Employment Gap, Negative Attitudes, Non-European Immigrants, Gender, Sweden



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## 1. Introduction

The flow of people across international borders with the intention of settling in a new country is defined as international migration. International migration and the number of international migrants has had a steady growth over the last decades. However, the current pandemic, COVID-19, has affected all aspects in the global arena. With national borders closing, traveling rates decreasing and the overall insecure situation in the world, all forms of mobility have been disrupted. Yet, in 2020 there were still 281 million people who were living in a country that was not their country of origin. Today, about 3.6 percent of the world's population are international migrants (United Nations, 2021). The share of people living in Sweden who were not born in Sweden amounted to 19.7 percent in 2020. This corresponds to approximately 2 million people. Also, the number of non-European immigrants has increased. In 2020, Syria and Iraq were the most common countries of origin among immigrants in Sweden (SCB, 2021).

As immigrants, and especially refugees, are more likely to have lower income and be unemployed, one of the major political challenges in Sweden and in many other European countries has been that of employment integration of immigrants (e.g. Bevelander, 2011; Aldén and Hammarstedt, 2015; Rydgren, 2006; Arai and Vilhelmsson, 2004; Grand and Szulkin, 2002). The immigrant-native employment gap in Sweden is actually one of the largest among the OECD countries. This fact is troubling when considering the size of the foreign born population in Sweden (OECD/European Union, 2015). For this reason, it is imperative that we understand why the employment gap between immigrants and natives arises and what can be done to improve the labour market situation for immigrants.

However, immigrants are not homogenous. Non-European immigrants have a lower employment rate and a higher share of unemployed than both natives and European immigrants (Aldén and Hammarstedt, 2015). Moreover, immigrant men and women face different challenges in the Swedish labour market. In 2018, the immigrant-native employment gap was 18 percentage points for women and 11 percentage points for men (Arbetsmarknadsrapport, 2019), implying that immigrant women might have a longer employment integration process. It has been shown that non-European immigrant women originating from African and Asian countries are particularly disadvantaged compared to non-European immigrant men and native women (Aldén and Hammarstedt, 2015). Factors such as education, labour market experience and language skills could explain why employment integration might differ between men and women.

Another important factor that could explain why there is an immigrant-native employment gap and why it might differ by gender is discrimination. Especially non-European immigrant women might suffer from ethnic and gender discrimination in the labour market (Statskontoret, 2018). Since discrimination towards immigrants can be expressed through negative attitudes towards immigrants, overcoming these negative attitudes could improve the labour market situation of immigrants (Constant et al, 2009). Research has shown that individuals with negative attitudes towards immigrants often believe that immigrants will steal their jobs, increase crime rates and become an economic burden to society. However, the labour market situation of immigrants is not only affected by negative attitudes. Other possible obstacles are stereotypes and implicit prejudices. In Sweden, it has been found that Arab-Muslims are targets of negative implicit prejudices to a greater extent compared to natives (Agerström and Rooth, 2009).

In light of what has been presented above, the aim of this paper is to examine whether there is a relation between negative attitudes towards immigrants and the employment gap between non-European immigrants and natives in Sweden, and whether this relation differs by gender. In this way, we investigate if the immigrant-native employment gap can be partially explained by negative attitudes towards immigrants in Sweden. Based on this, we aim to answer the following research question: Is there a relation between negative attitudes towards immigrants and non-European immigrants' employment probabilities in Sweden and does the relation differ by gender? We look at the immigrant-native employment gap for men and women separately since previous studies have shown that immigrant men and women are disadvantaged and discriminated against to different degrees (e.g. Arai et al, 2016; Ek et al, 2020; Raijman and Semyonov, 1997).

In order to answer this research question, we used individual data from the European Social Survey (ESS). We combined data from four different survey years (2010, 2012, 2014 and 2016) and estimated a linear probability model for the probability of being employed. To explore if there is a relation between negative attitudes towards immigrants and the immigrant-native employment gap, we interacted an attitude measure with a dummy variable that is equal to 1 if the individual is a non-European immigrant and 0 if the individual is born in Sweden. We estimated a regression for men and women separately to explore if the relation differs by gender. In this paper, the attitude measure stands for the share of individuals having negative attitudes towards immigrants in 14 different regions in Sweden. The respondents of the ESS

were presented with the following statement: “Immigrants make [the] country [a] worse or better place to live”. This statement is used when constructing the attitude measure.

This paper contributes to the existing literature in two ways. Firstly, this study investigates negative attitudes towards immigrants in Sweden as an explanation for the employment gap between non-European immigrants and natives in different regions in Sweden. Secondly, this study sheds light on whether negative attitudes towards immigrants affect the immigrant-native employment gap differently for men and women.

The remaining of this paper is outlined as follows: Section 2 presents the theoretical framework for the paper. Section 3 presents a review of relevant previous literature. Section 4 presents the data used in the paper and descriptive statistics of the data. Section 5 presents the methodological framework for the paper. Section 6 presents the results. Section 7 presents a discussion of the results. Finally, section 8 presents concluding remarks.

## 2. Theoretical Framework

This section will present the most relevant economic theory that underlies the predictions of this paper. Firstly, the taste-based discrimination theory by Becker (1957) will be presented. Secondly, the statistical discrimination theory by Phelps (1972) and Arrow (1973) in relation to prejudices will be shortly presented. Thirdly, the theoretical implications of human capital will be presented. Lastly, we will present the predicted hypotheses of this paper.

### 2.1 Taste-based Discrimination

The theoretical framework that is of most relevance for this paper is the framework of taste-based discrimination presented by Becker (1957). This framework proposes a way of analyzing discrimination that arises due to preferences about certain groups. In this paper, negative attitudes towards immigrants could be attributable to preferences about ethnicity and/or gender. If employers prefer natives over non-European immigrants and act on these preferences they will act as if there is an additional cost  $w_i(1+d)$  to hire non-European immigrants where  $d$  is the discrimination coefficient. The discrimination coefficient stands for the perceived additional cost the employer incurs when hiring a non-European immigrant, implying that the discrimination coefficient increases with increased negative preferences. The hiring decision is therefore determined by the wage that has been adjusted with the size of the discrimination coefficient and not the actual wage of non-European immigrants. The larger negative preference

towards immigrants, the more employers will discriminate against non-European immigrants, which could decrease the employment probability of non-European immigrants. Moreover, non-European immigrants could be discriminated against due to co-workers and customers having negative attitudes towards immigrants. Co-workers might act as if their wage is lowered by working alongside a non-European immigrant and customers might act as if the cost of goods and services is higher than the actual cost if the seller is a non-European immigrant. However, in this paper it is the taste-based discrimination from employers that is of most relevance.

Furthermore, women might be discriminated against to a greater extent if employers have a preference for men over women, implying that men are more likely to be hired compared to women. Since the previous literature presented in section 3 shows ambiguous results on whether it is immigrant men or immigrant women who are most discriminated against, taste-based discrimination theory could also predict the reverse. Taste-based discrimination theory might also predict that discrimination towards non-European immigrants is largest in regions in which the share of individuals having negative attitudes is largest. Despite whether negative attitudes towards immigrants arise from employers, co-workers and/or customers, negative attitudes might affect the immigrant-native employment gap in the form of ethnic discrimination.

## 2.2 Statistical Discrimination

The statistical discrimination theory by Phelps (1972) and Arrow (1973) is based on the idea that employers might treat certain groups differently due to lack of information about individuals' true productivity. If employers lack information and believe that ethnicity and/or gender are related to productivity and skills, employers might be reluctant to hire non-European immigrants if this group on average is perceived to be less productive or less qualified for the job at hand. In this case, employers' wage offer depends on both individual productivity and the average productivity of the group that individual belongs to. The theory of statistical discrimination is thereby more focused on prejudices towards certain groups rather than individual preferences and attitudes.

The concept of gender and ethnic stereotypes could also be related to statistical discrimination theory as employers might predict the productivity of an applicant based on the perceptions of his/her own previous experiences or previous experiences of others. Such stereotypes could be that non-European immigrants are perceived to be less productive or less fluent in the Swedish language, and that women are more prone to be absent from work due to

parental leave. According to Arai et al (2016), stereotypes about certain groups are mainly attributable to the men of that group, implying that non-European immigrant men might be more discriminated against compared to non-European immigrant women.

In this paper, statistical discrimination could serve as an alternative explanation to the immigrant-native employment gap if the results show that there is no relation between negative attitudes and the employment probabilities of non-European immigrants while the employment gap remains. The immigrant-native employment gap could also arise due to both statistical and taste-based discrimination at the same time, and it could be hard to separate these two effects from each other. This is likely to be the case in this paper since the attitude measure can capture stereotypes as well.

### 2.3 Theoretical Implications of Human Capital

Human capital is defined as “the knowledge, skills, and health that people accumulate throughout their lives, enabling them to realize their potential as productive members of society” (World Bank, 2021). The theoretical implications of human capital investments presented by Becker (1962) predicts that an individual’s investment in different kinds of human capital are much related to that individual’s labour market situation. Educational attainment and age are both factors that are known to increase earnings and employability. The Age-Earnings profile implies that earnings are assumed to increase with age because of previous investments in human capital, such as education and labour market experience. Also, when an individual invests in education, the skill and knowledge of that individual increases, which in turn increases the employability of that individual.

Human capital that is not perfectly transferable between countries is known as host-country specific capital. Due to imperfect transferability in language proficiency, relevant work experience and knowledge about the labour market, the employment integration might be especially problematic for non-European immigrants since they are linguistically and culturally further away from the Swedish labour market (Chiswick, 1978). This could indicate that the immigrant-native employment gap will be larger for newly arrived non-European immigrants. Also, the immigrant-native employment gap might differ by gender. Non-European immigrant women might have had less access to education and/or the labour market in their origin country due to cultural expectations, implying that it is more difficult for non-European immigrant women to adjust to the labour market in the host-country. Cultural expectations on women to participate in the labour market might also differ between the origin country and the host



country. However, the employment rates of non-European immigrants, regardless of gender, are assumed to increase as immigrants attain more host-country specific human capital with age and time spent in the host country (Chiswick et al, 1997).

If the results in this paper show no relation between negative attitudes towards immigrants and the immigrant-native employment gap while the employment gap remains, differences in human capital investments between non-European immigrants and natives could serve as an alternative explanation. However, human capital could play part in explaining the immigrant-native employment gap even if there is a relation between negative attitudes towards immigrants and the immigrant-native employment gap. It depends on how well this paper can control for potential differences in human capital of natives and non-European immigrants.

## 2.4 Hypotheses

In light of what has been presented in the theoretical framework (section 2) and what will be presented in the literature review (section 3), we firstly hypothesize that there will be an immigrant-native employment gap. Secondly, we hypothesize there will be a negative relation between negative attitudes towards immigrants and the immigrant-native employment gap. If this is the case, the immigrant-native employment gap could be attributable to taste-based and/or statistical discrimination towards immigrants. Thirdly, we hypothesize that negative attitudes towards immigrants will affect the immigrant-native employment gap differently for men and women. Finally, we hypothesize that negative attitudes towards immigrants will affect the immigrant-native employment for women more negatively compared to men, implying that non-European immigrant women are at a greater disadvantage in the Swedish labour market. The final hypothesis is based on the theoretical prediction that non-European immigrant women might be particularly disadvantaged due to stereotypes. Non-European immigrant women might also have difficulties attaining host-country specific human capital to a greater extent than non-European immigrant men.

## 3. Literature Review

From previous studies, it is clear that immigrants are disadvantaged in the labour market, both with respect to earnings but also with respect to employment probabilities in comparison to natives (e.g. Bevelander, 1999; Chiswick, 1978; Dustmann & Francesca, 2005; Dustmann & Frattini, 2011). The labour market outcomes for immigrants entering Sweden has changed with

time. Those who arrived in the 1950s and 1960s rapidly found employment and could acquire the same living standards as natives. However, immigrants who arrived in the 1970s and later seem to have had much greater trouble in finding employment (Bevelander 1999). Possible explanations for these hardships are human capital acquisitions, culture and traditions from the origin country and/or ethnic discrimination.

The focus of this paper lies in the immigrant-native employment gap in Sweden and how this gap relates to negative attitudes towards immigrants in different regions. In addition, this paper aims to explore if negative attitudes affect the immigrant-native employment gap differently for men and women. In particular, we look at non-European immigrants since it has been shown that immigrants originating from countries outside of Europe are at a greater disadvantage compared to European immigrants. This seems to be the case even after comparing non-European immigrants to similar natives (e.g Dustmann and Frattini, 2011). Findings from previous literature in Sweden are in line with international literature since non-European immigrants are found to have substantially lower wages and higher rates of unemployment compared to natives in Sweden (Rydgren, 2006). It has also been shown that the employment rate of immigrant women who have been in Sweden for a short time is substantially lower than that of immigrant men who have been in Sweden for the same amount of time. Immigrant women living in Sweden for three years or less have, on average, an employment rate of 35 percent. The same number for immigrant men is 54 percent. However, there are large differences among different immigrant groups. Immigrants from Africa and Asia have lower employment rates compared to other immigrant groups; this is true for both men and women (Aldén and Hammarstedt, 2015).

A number of possible explanations for the employment gap between natives and immigrants have been suggested by previous literature. Chiswick (1978) finds that human capital, such as educational attainment and language proficiency, is not fully transferable to the host country and that this is one of the reasons for the initial earnings and employment gap between natives and immigrants. Bevelander (1999) finds that obtaining education and language skills are important factors for the employment integration of immigrants in Sweden. In addition, Chiswick et al (1997) find that unemployment rates of immigrant men decrease with time spent in the host country since immigrants acquire host-country specific human capital with years of residence. Findings from Sweden also suggest that length of residence drastically decreases the number of unemployment days for refugees (Lundborg, 2013).

Other possible explanations are the country of origin of immigrants and the culture and traditions from that origin country. Previous literature has found that the employment probability of immigrants varies by country of origin (Peters & Sundaram, 2015). In addition, immigrants who do not share the social norms of the majority in the host country face worse employment outcomes. These social norms could be views on gender equality and democracy (Gorinas, 2014). Moreover, it has been found that the employment probability of immigrant women is more affected by culture and traditions from the source country compared to men. Findings from Italy suggest that labour force participation in the source country increases labour force participation in the host country. Cultural values about religion and marriage are also found to be key determinants of female immigrants' labour market decisions (Scoppa & Stranges, 2019). Similar findings have been presented by Swedish literature. According to Neuman (2018), women who come from a culture in which the female labour participation is low (high), will also have a low (high) participation in the Swedish labour market. Additionally, Bevelander (2005) finds that women originating from countries that are far from Sweden geographically, culturally and linguistically will have a harder time joining the Swedish labour market and are more probable to be unemployed.

Finally, previous literature has found that ethnic minorities are discriminated against in the labour market (e.g. Ahmad, 2020; Bertrand & Mullainathan, 2004; Rubinstein & Brenner, 2014; Kaas & Manger, 2012; Khattab et al, 2019). In Europe, this is particularly the case for ethnic minorities originating outside of Europe. For example, individuals with foreign-sounding names are found to be greatly disadvantaged in the hiring stage. Similar findings have been presented by Swedish literature as well (e.g. Nordin and Rooth, 2009; Carlsson and Rooth, 2007; Agerström et al, 2012). Nordin and Rooth (2009) conduct an empirical analysis based on register data and find that much of the income gap between native Swedes and second generation immigrant men from southern Europe and outside of Europe can be explained by the skill gap that exists pre labour market entry. However, this skill difference does not explain the employment gap, implying that ethnic discrimination could be a possible explanation. Carlsson and Rooth (2007) use the method of correspondence testing and find that Swedish-named applicants receive an interview offer from three out of ten job applications, while Middle Eastern-named applicants must apply for fifteen jobs in order to receive the same amount of interview offers. Finally, Agerström et al (2012) find similar results as Carlsson and Rooth (2007). In addition, they conclude that applicants with an Arab-sounding name must signal

competence and warmth to a higher degree compared to a Swedish-sounding applicant in order to have the same probability of receiving a callback.

Previous research has also found that there are differences in the labour market disadvantages between immigrant men and women (e.g. Dustmann & Francesca, 2005; Uzi, 2008). Raijman and Semyonov (1997) and Uzi (2008) find that immigrant women may suffer a double disadvantage in the Israeli labour market since they are both immigrants and women - two disadvantaged groups in society. Donato et al (2014) find similar results within the US labour market. However, in contrast to the double disadvantage for immigrant women, Ek et al (2020) find that female immigrants are more likely to receive positive responses after applying to a job compared to male immigrants. In addition, Arai et al (2016) find that Arabic men encounter a stronger discrimination in the Swedish labour market compared to Arabic women. Using correspondence testing, Arai et al (2016) first send employers CVs that are identical except for the ethnic background which is signaled by a Swedish-sounding name and an Arab-sounding name. After this, they send CVs where applicants with Arab-sounding names are given an additional two years of work experience relevant for the job. From the first set of CVs, it is seen that applicants with Arab-sounding names receive substantially fewer callbacks regardless of gender. From the second set of CVs, the difference in callbacks disappears for the female applicants while there is no change in callbacks for the male applicants. Possible explanations for their results could be that employer stereotypes related to various unobserved characteristics are not always the same for immigrant men and immigrant women. In this case, an Arabic woman's labour market experience might signal higher productivity because of her overcoming her traditional role in society.

Moving on, ethnic discrimination in the labour market can be expressed through negative attitudes towards immigrants (e.g. Keita and Valette, 2019; Åslund and Rooth, 2005; Charles and Guryan, 2008). Previous research investigating the relation between negative attitudes towards immigrants and immigrants' labour market situation seem scarce, especially in Sweden. However, the three studies mentioned above (Keita and Valette, 2019; Åslund and Rooth, 2005; Charles and Guryan, 2008) all investigate attitudes and prejudice against a certain group in relation to that group's labour market situation.

First, Charles and Guryan (2008) investigate the relationship between racial wage gaps and racial prejudice on state level in the US. Their findings suggest that racial wage gaps vary negatively with the level of prejudice of the marginal individual rather than the average level of prejudice among individuals. Moreover, their findings show that racial wage gaps vary

negatively with the fraction of workers that are black in a state and that racial prejudice can explain about 25 percent of the wage gap between blacks and whites in the US. However, this means that 75 percent of the wage gap between blacks and whites is not due to prejudice and could perhaps be due to statistical discrimination and/or differences in human capital instead.

Second, Keita and Valette (2019) investigate immigrants' labour market outcomes in Germany by looking at the relation between the duration of unemployment spells and the attitudes of natives. The authors use a measure of trust as a proxy for native attitudes, namely the level of trustworthiness of immigrants from different origin countries. Their findings suggest that immigrants originating from a certain country are more likely to experience longer unemployment spells and fall into inactivity if natives express lower levels of trust towards immigrants arriving from that country.

Finally, looking at previous research conducted in Sweden, Åslund and Rooth (2005) examine if a change in attitudes towards immigrants leads to a change in labour market outcomes for different immigrant groups in Sweden. The authors use the terrorist attacks on 9-11 as a source to an exogenous shift in attitudes towards immigrants since it has been documented that negative attitudes towards immigrants in Sweden increased after these attacks. However, in comparison with Keita and Valette (2019), their findings suggest that differences in employment rates between immigrants and natives did not significantly change after these attacks nor did the employment rates between different immigrant groups. This could indicate that ethnic discrimination in the labour market is not based on attitudes or preferences that change quickly or that ethnic discrimination is due to characteristics that were not affected by the 9-11 event, such as language skills or education.

In light of previous literature, we would expect to find that there exists an employment gap between natives and non-European immigrants, and that there exists a negative relation between negative attitudes towards immigrants and the immigrant-native employment gap. In addition, we would expect to find differences in the employment probability between men and women. Since previous research shows ambiguous results on whether men or women are more disadvantaged in the labour market, we conduct a separate analysis for both genders to see whether it is in fact the women who suffer a double disadvantage or whether there is a reverse gender gap.

## 4. Data

In the following section the data used in order to answer the research question of this paper will be presented. The data comes from the European Social Survey (ESS) which contains information about human capital values and demographic values that is used to conduct our analysis. This section will start by first presenting the data source and the attitude measure in section 4.1. Limitations of the data will be presented in section 4.2. Finally, descriptive statistics of the data will be presented in section 4.3.

### 4.1 European Social Survey

The European Social Survey (ESS) is a cross-national survey that aims to measure the attitudes, beliefs and behavioural patterns of different populations in Europe. The survey is based on face-to-face interviews and is done every second year, each survey year being called a round. Thus, the data from the ESS is a sample survey based on individual-level data (European Social Survey, 2021a). In order to draw inferences for the total population from the data, each participating country must have a sample size of at least 1500 individuals. The dataset for this paper will combine Swedish data from the survey years 2010, 2012, 2014 and 2016. The initial sample size is 6 685 individuals where 3 331 are men and 3 354 are women (European Social Survey, 2021b).

Since this paper studies the immigrant-native employment gap between non-European immigrants and native Swedes, the data sample is restricted to only include individuals born in Sweden and outside of Europe within an age interval of 20-64. This age interval is chosen as the individuals included in the data sample must be of working age. The lower bound, 20 years old, is chosen since individuals younger than 20 might not have entered the labour market yet. The upper bound, 64 years old, is chosen in order to exclude individuals who might have retired. In order to classify whether the individual is born in Europe or not, the survey question “In which country were you born?” is used. From this, all individuals stating a European country (except Sweden) as country of birth are dropped from the data sample. After restricting our data sample to only include non-European immigrants and native Swedes between the ages 20-64 and dropping all missing observations, we attain a total sample size of 4 199 individuals in which 3 856 are natives and 343 are non-European immigrants. Here we have 1 921 native men and 1 935 native women, while there are 159 non-European immigrant men and 184 non-European immigrant women. This is the final data sample used to estimate the regressions and descriptive statistics.



In this paper, being employed is defined as having done any paid work within the last 7 days. Individuals who marked this question are classified as employed and those who did not mark it are classified as unemployed or inactive. Other than employment status, age and country of birth, ESS provides information on the respondents' gender, educational attainment, county of residence in Sweden, civil status, whether or not they have children living at home, employment status of potential partner, and their attitudes towards immigrants.

In order to examine the effect of negative attitudes towards immigrants on the immigrant-native employment gap, we must construct a measure of attitudes. To create this measure of attitudes, the following question from the ESS is used: "Immigrants make [the] country [a] worse or better place to live". The attitude measure is based on the initial sample including 6 685 individuals. The measure is thereby constructed based on all observations, regardless of age and country of birth. The same question was asked in all four rounds used in this study. The respondents could give an answer between 0 and 10 where an answer of 0 implies that the respondent believes that immigrants make the country a worse place to live and an answer of 10 implies that the respondent believes that immigrants make the country a better place to live. For our measure, we will treat individuals answering 4 or lower as having negative attitudes towards immigrants. This is because an answer of 5 would imply that the individual is indifferent in the question. Individuals answering 5 or higher will thereby be interpreted as having positive attitudes. From this we create a dummy variable which is equal to 1 if the individual has a negative attitude towards immigrants and 0 otherwise. Dividing the number of individuals having negative attitudes towards immigrants in a region by the total number of individuals within the same region will then give us the share of individuals having negative attitudes towards immigrants for each region in Sweden. This will constitute the attitude measure used in our model. In the linear probability model, the attitude measure is multiplied with 100 and thereby varies between 0 and 100 instead of 0 and 1.

#### 4.2 Limitations of the Data

There are some limits to the dataset. Firstly, only the rounds from the survey years 2010, 2012, 2014 and 2016 could be used since they were the only rounds that contained information on county level in Sweden. Secondly, an important control variable, years since migration, had to be excluded since data on this was not available in all rounds. Thirdly, the sample of non-European immigrants is fairly small which could affect the significance of the regression results. For example, some counties in Sweden have a very small population of non-European

immigrants, if any. In order to improve this situation, counties that had zero employed non-European immigrants were combined with a county nearby. By combining some counties into one larger region we attain more observations per region. Therefore, instead of using 21 counties we constructed 14 new regions in which 7 were the original counties and 14 counties were combined into 7 larger regions. The original 21 counties and the 14 constructed larger regions are presented in Table A1 and A2 in the appendix. For simplicity, we will hereafter use the term region for both the original counties and the constructed larger regions. Moreover, one potential drawback with the measurement of employment could be that it is not possible to distinguish between individuals who are unemployed and individuals who are not actively searching for jobs. Those who are classified as unemployed or inactive could for example be studying. Also, non-European immigrants could be unemployed or inactive due to factors other than discrimination, which might be difficult to identify. This drawback could imply that we fail to capture non-European immigrants who might have given up on becoming employed due to ethnic discrimination. Finally, the data does not include any information about attitudes towards different groups of immigrants and there is also no data on differences in attitudes towards immigrant men and immigrant women. However, since the analysis is conducted on non-European immigrant men and women separately, this will not be an issue of great weight.

### 4.3 Descriptive Statistics

This section will present descriptive statistics of the data. Figure 1 and 2 illustrate the relation between the immigrant-native employment gap and the attitude measure. Table 1 shows descriptive statistics for native men and women and non-European immigrant men and women. Lastly, Table 2 shows descriptive statistics of the share of individuals having negative attitudes towards immigrants at regional level.



Figure 1. The relation between negative attitudes towards immigrants and the male immigrant-native employment gap in 14 Swedish regions.

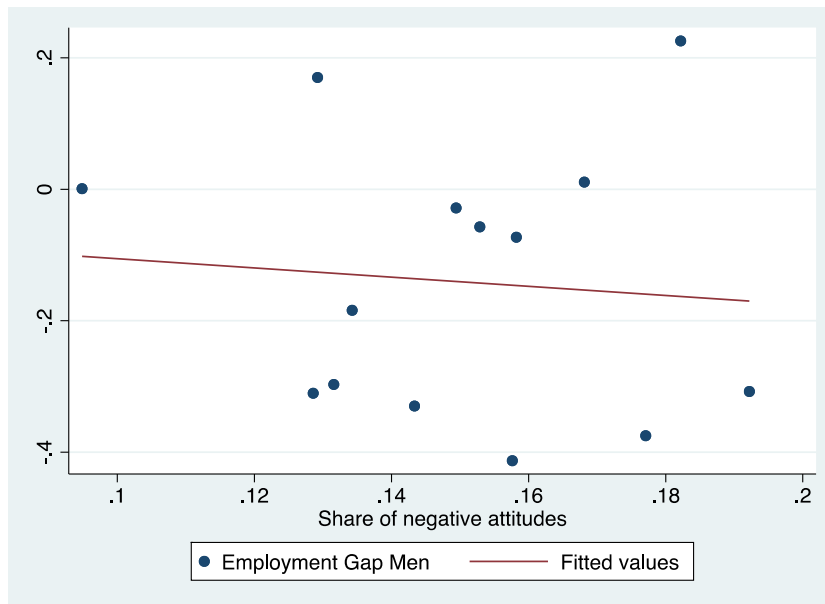


Figure 2. The relation between negative attitudes towards immigrants and the female immigrant-native employment gap in 14 Swedish regions.

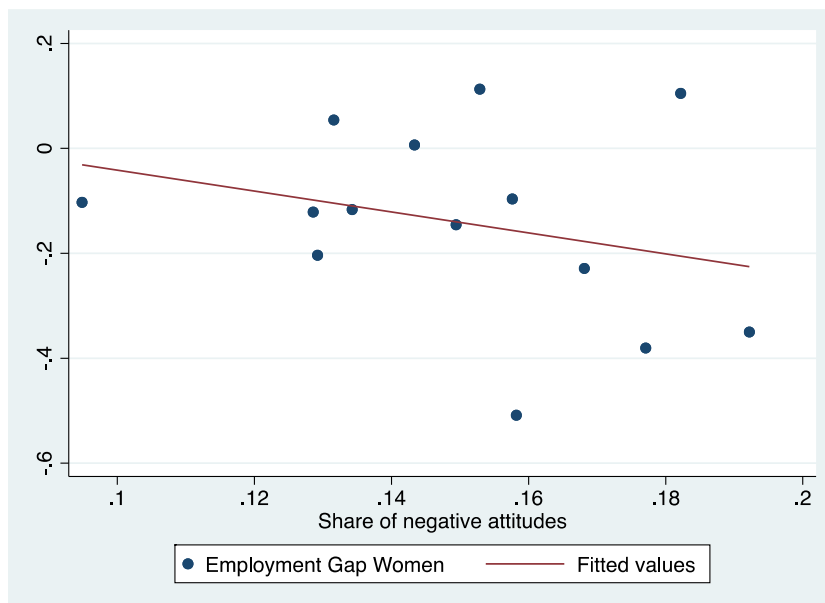


Figure 1 and 2 show the relation between the immigrant-native employment gap and the share of individuals having negative attitudes towards immigrants within each of the 14 regions for men and women respectively. The y-axis shows the immigrant-native employment gap while the x-axis shows the share of individuals having negative attitudes towards immigrants. In Figure 1 it can be seen that the relation is slightly negative for men. In Figure 2 it can be seen

that the relation is negative to a higher degree for women compared to men. Since the employment gap is calculated by taking the share of employed non-European immigrants minus the share of employed natives within each region, this implies that the immigrant-native employment gap becomes larger and more negative when the share of individuals having negative attitudes towards immigrants increases. This could be due to the share of employed non-European immigrants decreasing or the share of employed natives increasing, or both. Figure 1 and 2 evidently seem to support our hypotheses as they illustrate a negative relation between negative attitudes towards immigrants and the immigrant-native employment gap for both men and women, and that this relation is more negative for women.

Table 1. Descriptive statistics of the Data

	(1)	(2)	(3)	(4)
	Native Men	Non-European Immigrant Men	Native Women	Non-European Immigrant Women
Employed	0.815 (0.388)	0.748 (0.435)	0.779 (0.415)	0.663 (0.474)
Age	42.61 (13.15)	39.61 (11.70)	43.21 (13.02)	38.34 (10.85)
Lower Education	0.0994 (0.299)	0.119 (0.325)	0.0532 (0.225)	0.152 (0.360)
Upper Education	0.432 (0.495)	0.384 (0.488)	0.373 (0.484)	0.364 (0.482)
Post Upper Education	0.469 (0.499)	0.497 (0.502)	0.574 (0.495)	0.484 (0.501)
Children Living at Home	0.432 (0.495)	0.522 (0.501)	0.471 (0.499)	0.603 (0.491)
Partner	0.663 (0.473)	0.610 (0.489)	0.684 (0.465)	0.674 (0.470)
Partner Employed	0.547 (0.498)	0.346 (0.477)	0.581 (0.494)	0.543 (0.499)
Observations	1921	159	1935	184

mean coefficients; sd in parentheses

In this paper, the variable of greatest interest is the employment rate. However, as the employment rate can be affected by factors such as age, education, children and civil status, we also want to compare these observable characteristics between non-European immigrants and natives.

Looking at the descriptive statistics for men, Table 1 shows that the employment rate is higher for natives compared to non-European immigrants. About 82 percent of native men are employed and about 75 percent of non-European immigrant men are employed. Thus, the immigrant-native employment gap is 6.7 percentage points for men. From Table 1, it can also be seen that non-European immigrant men are, on average, younger than native men. Regarding educational attainment, a slightly higher share of native men have attained upper secondary education compared to non-European immigrant men, while a slightly higher share of non-European immigrant men have attained lower secondary education (or less) and post upper secondary/tertiary education compared to native men. Moreover, Table 1 shows that non-European immigrant men have, on average, children living at home to a higher extent than native men. Also, the share of individuals living together with a partner is slightly higher for native men compared to non-European immigrant men. The same applies for the share of individuals having a partner that is employed.

Looking at the descriptive statistics for women, Table 1 shows that native women have a higher employment rate than non-European immigrant women. For women, the immigrant-native employment gap is 11.6 percentage points, implying that the immigrant-native employment gap is larger for women than for men. From Table 1, it can also be seen that, as for men, non-European immigrant women are, on average, younger than native women. Compared to men, the differences in educational attainment are larger for women regarding lower secondary education and post upper secondary/tertiary education. In addition, a higher share of native women have attained post upper secondary/tertiary education compared to non-European immigrant women, whereas the opposite is true for men. Table 1 also shows that, as for men, non-European immigrant women have, on average, children living at home to a larger extent in comparison to native women. Also, a slightly higher share of native women lives together with a partner and has a partner that is employed compared to non-European immigrant women. As can be seen, the difference between non-European immigrants and natives who have children living at home and who live together with a partner is larger for women while the

difference between non-European immigrants and natives who have a partner that is employed is larger for men.

Table 2. Descriptive Statistics of the Attitude Measure

	(1) County Average	(2) Min	(3) Max
Share with negative attitudes towards immigrants	0.143	0.0949	0.192
Native Men	0.144 (0.0290)	0.0949 (0.0290)	0.192 (0.0290)
Non-European Immigrant Men	0.133 (0.0333)	0.0949 (0.0333)	0.192 (0.0333)
Native Women	0.143 (0.0302)	0.0949 (0.0302)	0.192 (0.0302)
Non-European Immigrant Women	0.138 (0.0315)	0.0949 (0.0315)	0.192 (0.0315)

As can be seen in Table 2, about 14 percent of the population in Sweden have negative attitudes towards immigrants. The minimum value is about 9 percent which is observed in the region consisting of Stockholm county, while the maximum value is about 19 percent which is observed in the region consisting of Dalarna and Gävleborg county. This implies that, according to our attitude measure, Stockholm is the most immigrant-friendly region while the region consisting of Dalarna and Gävleborg county is the least immigrant-friendly region. The regional average for native men and women and non-European immigrant men and women is about the same as the population average where native men and women have slightly higher values (about 14 percent) than non-European immigrant men and women (about 13 percent). This implies that natives are slightly closer to the region average than non-European immigrants. Since the regional average for non-European immigrants are closer to the minimum value (9 percent) rather than the maximum value (19 percent), non-European immigrants are generally concentrated in regions with slightly less negative attitudes towards immigrants. In Table A1 in the Appendix, the original 21 counties and the share of individuals having negative attitudes towards immigrants within each county are listed. The corresponding descriptive statistics for

the 14 larger regions are listed in Table A2 in the Appendix. In this way, it can be seen how the 14 larger regions were constructed and how the attitude measure was affected by constructing larger regions.

## 5. Methodological Framework

In the following section the method of this paper will be described. Section 5.1 will present the linear probability model and section 5.2 will present limitations of the methodological framework.

### 5.1 Linear Probability Model

The method used in this paper will follow the empirical setup used by an earlier scientific article which looked at the effect of sexual prejudice on labour market outcomes for homosexuals (Hammarstedt et al, 2015). In order to examine whether there is a relation between non-European immigrants' employment probabilities and the negative attitudes towards immigrants, we perform a regression analysis by estimating a linear probability model (LPM), similar to the one Hammarstedt et al (2015) use. Since we want to separate the results from our model by gender, we estimate the model separately for men and women.

In LPM, the dependent variable is a binary variable taking either the value 1 or 0. In this paper, it is the estimated coefficients of the independent variables that are of interest, which makes LPM appropriate to use. However, if it is the predicted value of the dependent variable that is of interest, LPM would be less appropriate. The main disadvantage with LPM is namely that the probability of something happening is assumed to increase linearly with the level of the independent variables. This could be avoided by using logit and probit models instead. Nonetheless, LPM is a simple model to use compared to logit and probit models since the estimated coefficients are standardized, making interpretations easy (Gujarati and Porter, 2009).

The linear probability model for the probability of being employed is specified as follows:

$$Pr(z = 1) = \alpha + \beta X_i + \lambda Attitudes + \gamma Non-European Immigrant_i + \eta Attitudes * Non-European Immigrant_i + \varepsilon_i$$

The dependent variable in the model,  $z$ , will be equal to 1 if the individual at hand is employed, and 0 otherwise. Being employed implies that the individual has done any form of paid work in the last seven days. There are a number of independent variables in the model. The vector  $X$  consists of a series of control variables. The *Attitude* variable stands for the share of individuals having negative attitudes towards immigrants within the region in Sweden where he/she lives. The *Non-European Immigrant* variable is a dummy variable that is equal to 1 if the individual is an immigrant originating from a country outside of Europe and 0 if the individual is born in Sweden. Finally, we will include an interaction variable,  $\eta \text{Attitudes} * \text{Non-European Immigrant}$ , which is an interaction between the attitude measure and the Non-European Immigrant dummy variable. The interaction variable will let us interpret the effect of negative attitudes towards immigrants on the immigrant-native employment gap. The coefficient  $\eta$  is interpreted as follows: if the share of individuals having negative attitudes towards immigrants increases by 1 percentage point, the immigrant-native employment gap will increase/decrease by  $x$  percentage points where  $x$  is the value of the estimated coefficient.

The control variables included in the model are the individual's age, the individual's age squared, educational attainment, child/children in the household, whether or not the individual lives together with a partner, whether the individual has a partner who is employed and lastly, the survey year of the individual. Age is a numeric variable that is included as we assume that the employment probability increases with age since the individual attains more experience and knowledge. Age squared is also included as the employment probability is expected to increase with age but at a decreasing rate. This is in line with the theory presented in section 2. The educational level is defined as three separate dummy variables for three different educational levels and is added since the relation between employment probability and educational level is expected to be positive. This is in line with the theory presented in section 2 as well. The first educational dummy is equal to 1 if the individual has less than or secondary education, 0 otherwise. This is the reference category in the model. The second educational dummy is equal to 1 if the individual has upper secondary education, 0 otherwise. Finally, the third educational dummy is equal to 1 if the individual has post upper secondary or tertiary education, 0 otherwise. The variable of child/children in the household is defined as a dummy variable which is equal to 1 if the individual currently has children living in the household, 0 otherwise. Whether or not the individual lives together with a partner is also defined as a dummy variable which is equal to 1 if the individual is currently living with a civil partner/husband/wife, 0 otherwise. Finally, the partner's employment is a dummy variable that

is equal to 1 if the individual has a partner that has done any paid work in the last seven days, 0 otherwise. This variable is included since an individual's choice of working or not might be affected by the employment situation of that individual's partner. If the partner has a job, the individual might be less inclined to work themselves and if the partner is unemployed, the individual might be more inclined to find a job. The survey year of the individual is controlled for since the labour market situation changes over time.

As stated earlier, we will estimate two different models, one for men and one for women. In each model there are 4 different specifications estimated. Specification 1 includes the attitude variable and the non-European immigrant dummy variable. Specification 2 includes the attitude variable, the non-European immigrant dummy variable and the interaction variable. Specification 3 includes the attitude variable, the non-European immigrant dummy variable and control variables. Specification 4 includes the attitude variable, the non-European immigrant dummy variable, control variables and the interaction variable.

## 5.2 Limitations of the Methodological Framework

There are some limits to the method used in this paper. One of the main disadvantages with regression analysis is that one must control for all relevant independent variables that could affect the dependent variable in order to draw accurate inferences. In our case, it is difficult to control for factors such as motivation and experience, which could affect the employment probability. Many previous studies investigating ethnic and gender discrimination in the labour market solve this issue by using the method of field experiments, such as correspondence testing, since this method makes it possible to compare individuals who are alike in all aspects except for ethnicity and/or gender. Thereby it is possible to draw inferences about discrimination in real-life settings. However, these inferences are only valid in the specific situation in which the study is conducted, thus regression analysis serves as an alternative method. Though, another main disadvantage of regression analysis is the issue of heteroscedasticity. In this paper, this issue is handled by using robust standard errors in the estimated model. Another potential limitation of the method of regression analysis could be multicollinearity. However, this is controlled for by adding one independent variable at a time in the estimated model. Since the estimates of the coefficients did not drastically change when adding another variable, it is assumed that none of the independent variables in our model are highly linearly correlated to each other (Gujarati and Porter, 2009).

## 6. Results

This section will present the regression results from the estimated linear probability model. Table 3 shows the estimations of the employment probability for men while Table 4 shows the estimations of the employment probability for women. Specification 1 includes the attitude variable and the non-European immigrant dummy variable. Specification 2 includes the attitude variable, the non-European immigrant dummy variable and the interaction variable. Specification 3 and 4 corresponds to Specification 1 and 2 but include control variables as well. First the results for men in all 4 specifications will be presented and then the results for women in all 4 specifications will be presented.

Starting with the men, the estimates in Specification 1 and 2 in Table 3 show the raw difference in employment probability between native men and non-European immigrant men as no control variables are included. In Specification 1, the estimate for the attitude variable is small but positive which implies that increased negative attitudes towards immigrants will increase the employment probability. In this case, a 1 percentage point increase in the share of individuals having negative attitudes towards immigrants will increase the employment probability for men by 0.2 percentage points. This estimate is however not statistically significant. From Specification 1 it can also be seen that non-European immigrant men have a 6.4 percentage point lower probability to be employed compared to native men. This estimate is statistically significant at the 10 percent significance level. When including the interaction variable, the new reference category is native men. This implies that the attitude variable in Specification 2 illustrates how the employment probability of native men varies with the share of negative attitudes towards immigrants within the region they reside. As can be seen, the estimate for the attitude variable is still positive as a 1 percentage point increase in the share of individuals having negative attitudes towards immigrants will increase the employment probability for native men by 0.4 percentage points. Moreover, in Specification 2, the non-European immigrant dummy variable now shows the immigrant-native employment gap in the region with least negative attitudes towards immigrants. Since this gap is positive, non-European immigrant men are employed to a higher degree compared to native men in the region with the least negative attitudes towards immigrants. In light of our research question, the estimate of the interaction variable is of greatest interest since it shows how negative attitudes towards immigrants affect the immigrant-native employment gap for men. In Specification 2, it can be seen that a 1 percentage point increase in the share of individuals having negative attitudes towards immigrants will decrease the immigrant-native employment gap by 1.3



Table 3. Linear Probability Estimates For Men

VARIABLES	(1) Specification 1 Men	(2) Specification 2 Men	(3) Specification 3 Men	(4) Specification 4 Men
Attitude	0.002 (0.002)	0.004 (0.003)	0.003 (0.002)	0.003 (0.003)
Immigrant	-0.064* (0.035)	0.116 (0.104)	-0.044 (0.028)	0.065 (0.085)
Attitude*Immigrant		-0.013 (0.009)		-0.008 (0.008)
Age			0.065*** (0.007)	0.065*** (0.007)
Age Squared			-0.001*** (0.000)	-0.001*** (0.000)
Upper Education			0.094** (0.033)	0.093** (0.033)
Post Upper Education			0.123*** (0.030)	0.123*** (0.030)
Children Living at Home			0.000 (0.011)	0.000 (0.011)
Partner			-0.002 (0.036)	-0.003 (0.036)
Partner Employed			0.125*** (0.031)	0.125*** (0.031)
Constant	0.781*** (0.028)	0.762*** (0.037)	-0.681*** (0.167)	-0.689*** (0.167)
Observations	2,080	2,080	2,080	2,080
R-squared	0.002	0.003	0.186	0.187
Year FE	No	No	Yes	Yes

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

percentage points. This implies that the positive employment gap in the region with least negative attitudes towards immigrants will become smaller when negative attitudes increase. Thus, the stronger the negative attitudes towards immigrants, the lower is the employment propensity of non-European immigrant men relative to native men. However, none of the estimates in Specification 2 are statistically significant.

In Specification 3, control variables are added since the raw difference captured in Specification 1 and 2 can depend on differences in observable characteristics. This enables a comparison between individuals with similar observable characteristics, implying that we compare individuals of similar age, educational attainment and children and partner status. Thus, if the estimates change when adding control variables, the raw difference can partly be explained by differences in observable characteristics. In Specification 3, the estimate for the attitude variable is slightly larger and the non-European immigrant dummy variable is less negative compared to Specification 1. In Specification 4, which also includes control variables, the estimate for the attitude variable is still positive but slightly smaller compared to Specification 2. Generally, this estimate does not seem to be affected significantly when adding control variables, indicating that the effect of negative attitudes on employment probability does not depend on differences in observable characteristics. The non-European immigrant dummy variable shows that the immigrant-native employment gap in the region with least negative attitudes towards immigrants has decreased by 5.1 percentage points compared to Specification 2. This implies that the positive gap has become smaller after comparing individuals with similar observable characteristics, thus the immigrant-native employment gap can partly be explained by differences in observable characteristics. In Specification 4, it can also be seen that the interaction variable is less negative compared to Specification 2, implying that the decrease in the positive immigrant-native employment gap in the region with least negative attitudes towards immigrants is now smaller. However, these estimates are not statistically significant. As can be seen in Specification 3 and 4, most of the control variables are statistically significant. The variable age indicates that the employment probability for men increases by 6.5 percentage points when an individual becomes 1 year older. The employment probability also increases with higher educational attainment. For instance, having post upper secondary/tertiary education increases the employment probability for men by 12.3 percentage points compared to individuals having lower secondary education or less. It can also be seen that having a partner that is employed increases the employment probability for men by 12.5

percentage points compared to having a partner that is not employed. However, living together with a partner and having children living at home does not have any significant effect on the employment probability for men.

Continuing with the estimates for women, Specification 1 in Table 4 shows that a 1 percentage point increase in the share of individuals having negative attitudes towards immigrants will, contrary to men, decrease the employment probability for women by 0.3 percentage points. However, this estimate is not statistically significant. It can also be seen that non-European immigrant women have an 11.8 percentage point lower probability to be employed compared to native women. This estimate is statistically significant at the 1 percent significance level and larger compared to the estimate for men. Moreover, Specification 2 shows that the employment probability of native women decreases by 0.2 percentage points when negative attitudes towards immigrants increase by 1 percentage point. In contrast to men, this estimate is negative. For women, the immigrant-native employment gap is negative in the region with least negative attitudes towards immigrants. This implies that non-European immigrant women are employed to a lower extent compared to native women in this region, whereas the opposite is found for men. As already stated for the men, the estimate of the interaction variable is of greatest interest since it shows how negative attitudes towards immigrants affect the immigrant-native employment gap. From Specification 2 it can be seen that as negative attitudes towards immigrants increase, the negative immigrant-native employment gap will widen by 0.8 percentage points. Thus, as for men, increased negative attitudes towards immigrants lowers the employment propensity of non-European immigrant women relative to native women. However, none of the estimates in Specification 2 are statistically significant.

From Specification 3, including control variables, it can be seen that the estimate for the attitude variable is positive compared to Specification 1, implying that increased negative attitudes will increase the employment probability for women. The estimate for the non-European immigrant dummy variable is less negative compared to Specification 1 and is statistically significant at the 10 percent significance level. Moreover, Specification 4 shows that increased negative attitudes will increase the employment probability for native women compared to Specification 2. It can also be seen that the immigrant-native employment gap turns positive, implying that non-European immigrant women are employed to a higher extent compared to native women in the region with least negative attitudes towards immigrants, when controlling for differences in observable characteristics. Specification 4 also shows that the

Table 4. Linear Probability Estimates For Women

VARIABLES	(1) Specification 1 Women	(2) Specification 2 Women	(3) Specification 3 Women	(4) Specification 4 Women
Attitude	-0.003 (0.002)	-0.002 (0.002)	0.001 (0.002)	0.002 (0.002)
Immigrant	-0.118*** (0.031)	-0.007 (0.105)	-0.078* (0.037)	0.074 (0.102)
Attitude*Immigrant		-0.008 (0.009)		-0.011 (0.009)
Age			0.054*** (0.007)	0.054*** (0.007)
Age Squared			-0.001*** (0.000)	-0.001*** (0.000)
Upper Education			0.192*** (0.049)	0.190*** (0.049)
Post Upper Education			0.305*** (0.055)	0.303*** (0.055)
Children Living at Home			-0.031 (0.017)	-0.031* (0.017)
Partner			-0.080** (0.032)	-0.079** (0.033)
Partner Employed			0.174*** (0.031)	0.174*** (0.031)
Constant	0.818*** (0.030)	0.807*** (0.024)	-0.662*** (0.143)	-0.678*** (0.137)
Observations	2,119	2,119	2,119	2,119
R-squared	0.006	0.007	0.174	0.174
Year FE	No	No	Yes	Yes

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

interaction variable is larger compared to Specification 2, implying that the decrease in the immigrant-native employment gap in the region with least negative attitudes is now, contrary to men, larger. However, the estimates in Specification 4 are not statistically significant. On the other hand, most of the control variables in Specification 3 and 4 are statistically significant. As for men, the employment probability increases with age and educational attainment. As can be seen, the estimates for educational attainment are more than twice as large for women than for men, indicating that a higher level of education increases the employment probability more for women. Compared to men, having children living at home and living together with a partner significantly decreases the employment probability for women, while having a partner that is employed increases the employment probability.

Since the estimates for both men and women change when adding control variables, the raw difference captured in Specification 1 and 2 can partly be explained by differences in observable characteristics. However, since the employment probability differs between non-European immigrants and natives after adding control variables, the remaining differences could be attributable to discrimination or other relevant factors that could not be controlled for in this paper. This will be more thoroughly discussed in the next section.

## 7. Discussion

This paper investigates whether there is a relation between negative attitudes towards immigrants and the employment gap between non-European immigrants and natives in Sweden, and whether this relation differs by gender. Based on theory and previous research, we hypothesized that there will be an immigrant-native employment gap and that there will be a negative relation between negative attitudes towards immigrants and the immigrant-native employment gap. We also hypothesized that negative attitudes towards immigrants will affect the immigrant-native employment gap differently for men and women and that the female immigrant-native employment gap will be more negatively affected by negative attitudes towards immigrants.

From the results, it can be seen that there is an immigrant-native employment gap for both men and women. It can also be seen that there is a negative relation between negative attitudes towards immigrants and the immigrant-native employment gap for both men and women, implying that increased negative attitudes widens the immigrant-native employment gap. Our results show that the positive immigrant-native employment gap in the region with

least negative attitudes towards immigrants decreases to a greater extent for women compared to men when negative attitudes towards immigrants increase, indicating that women are more disadvantaged. The results also show that being a non-European immigrant decreases the employment probability more for women compared to men. Even though not all estimates are statistically significant, these findings are in line with our hypotheses. However, it has not been tested whether the differences in the estimates between men and women are statistically significant.

Economic theory provides possible explanations for the existing immigrant-native employment gap and that there is a negative relation between negative attitudes towards immigrants and the immigrant-native employment gap. Firstly, the immigrant-native employment gap could be explained by ethnic discrimination and human capital differences. Non-European immigrants might encounter difficulties when searching for jobs if there is ethnic discrimination in the labour market. Also, non-European immigrants might lack relevant work experience, knowledge about the Swedish labour market and/or language skills and thereby have a harder time becoming employed. Secondly, the negative relation between negative attitudes towards immigrants and the immigrant-native employment gap could be explained by taste-based and/or statistical discrimination. Ethnic discrimination might be taste-based if negative attitudes are attributable to employers' individual preferences and prejudices. On the other hand, ethnic discrimination might be statistical if negative attitudes are attributable to stereotypes and presumed group characteristics. In this paper we cannot distinguish between the two types of discrimination. Moreover, since the observable characteristics that we control for in this paper cannot explain the entire difference in employment probability between non-European immigrants and natives, at least one of the discrimination theories could serve as an explanation for the immigrant-native employment gap. Presumably, it is also the case that the characteristics that are controlled for do not capture all relevant differences between natives and non-European immigrants, such as ability, language proficiency and motivation.

Economic theory also provides possible explanations for why negative attitudes affect the immigrant-native employment gap differently for men and women and why, as in this case, non-European immigrant women are more disadvantaged compared to men. If employers have individual preferences and prejudices against immigrants while also having individual preferences and prejudices against women, taste-based discrimination could explain non-European immigrant women's labour market disadvantage. If employers have negative stereotypes and presumed group characteristics, statistical discrimination could explain their

disadvantage instead. For example, employers might believe that non-European immigrant women are more prone to have children and that these women are not as interested in pursuing a career compared to native women. Employers might also believe that non-European immigrant women as a group are less fluent in the Swedish language, lack work experience and/or higher educational attainment.

Moreover, differences in human capital could also serve as an explanation for the immigrant-native employment gap and why non-European immigrant women are more disadvantaged. As mentioned, we controlled for differences in human capital to an extent but due to data restrictions there are differences that we were not able to control for, such as years since migration, ability and language proficiency. However, our results show that observable characteristics such as age and education partly explain the raw difference between non-European immigrants and natives, and that the effect of these factors differ between men and women. For example, additional educational attainment increases the employment probability more for women compared to men, indicating that women might be required to have higher educational attainment in order to become employed. The results also show that having children living at home has a very small effect on the employment probability for men while the effect is larger and negative for women. This could be a sign of statistical discrimination towards women. Employers might be reluctant to hire women if they believe that women are more prone to be absent from work due to parental leave or taking care of sick children compared to men. The results also indicate that the employment probability for women decreases to a greater extent if they live together with a partner compared to men, implying that women who live together with a partner might be less inclined to work. Since this is not the case for men who live together with a partner, this could be due to traditional norms about family values and gender roles.

Likewise to our results, previous research indicates that immigrants, especially non-European immigrants, are worse off in the labour market and that there is a negative relation between negative attitudes towards immigrants and their labour market outcomes. Non-European immigrant women being more disadvantaged than non-European immigrant men is in line with some of the previous research but contradictory to others. For instance, Arai et al (2016) found that Arab/Muslim immigrant men are worse off in the Swedish labour market compared to Arab/Muslim immigrant women. One reason for the different results could be that this paper studies individuals who are alike, for example in educational attainment, while Arai et al (2016) compare Arab/Muslim immigrants with more relevant work experience and/or

education to natives who lack this additional work experience and/or education. This implies that Arai et al (2016) can capture how increased work experience and/or educational level affects the employment probability of immigrants. Our results cannot capture this aspect. However, differences in work experience and/or educational level between non-European immigrants and natives could account for part of the differences in the employment probability, implying that our results could be improved by adding an interaction with the educational level. In our case, this was not possible due to the small sample size. In addition, Arai et al (2016) study a specific ethnic group while this paper focuses on non-European immigrants as a whole.

The rest of this section will discuss potential limitations of this paper. One issue is that the sample size is small, mainly that there are few observations of non-European immigrants. This could explain why many of the estimates in Table 3 and 4 are statistically insignificant. For example, it might seem strange that the employment probability increases when the share of individuals having negative attitudes towards immigrants increases. However, one must keep in mind that the data sample contains 3 856 natives and only 343 non-European immigrants and that the model looks at all men and all women in the sample, not natives and non-European immigrants separately. This implies that if the share of individuals having negative attitudes towards immigrants increases, the employment probability of natives will increase if the majority of individuals in the sample are natives, resulting in a positive estimate.

Another issue is the variance of the attitude variable. Since we had to combine some counties in order to attain a sufficient number of observations of non-European immigrants per region, the variance of the attitude variable decreased. This could generate measurement errors such as biased and inconsistent estimates of the attitude variable. For instance, the attitude measure for Gävleborg county initially was 20.7, but after combining Gävleborg county with Dalarna county, the attitude measure for that region was 19.2. This implies that the attitude measure is underestimated for the individuals residing in Gävleborg county, while it is overestimated for the individuals residing in Dalarna county (17.7 initially). However, combining counties was necessary since the number of non-European immigrant men or women were zero in some counties due to the small available sample size. As can be seen in Table A1 and A2 in the appendix, the different values of the attitude measure did not change substantially. Ideally, we would want an attitude measure on an even finer level as the measure on county level with 21 counties could be too rough as well.

Moreover, non-random geographical sorting of immigrants might generate biased results. This problem could arise if non-European immigrants who are more likely to become



employed, for example due to higher education, decide to live in regions where the employment probability is higher for immigrants and these regions also happen to be more immigrant-friendly. Simultaneously, non-European immigrants who are less likely to become employed are left in less immigrant-friendly regions. This nonrandom geographical sorting would imply an upward bias in the relation between the estimated immigrant-native employment gap and negative attitudes towards immigrants due to the positive selection of non-European immigrants choosing to settle in immigrant-friendly regions and the negative selection of immigrants staying in less immigrant-friendly regions. Unfortunately, the issue of non-random settlement selection among immigrants is not possible to solve with the data available for this paper. As can be seen from the descriptive statistics, non-European immigrants are generally concentrated in regions with slightly less negative attitudes compared to natives. Ideally, we would want to include an interaction with the educational level in the model in order to see what the geographical sorting looks like with respect to education.

Finally, the ESS uses population registers as sampling frames, which could imply that the data fails to capture for example illegal immigrants and/or recent immigrants who are not found in these registers (European Social Survey, 2021b). This could induce bias in the results if the non-European immigrants answering this voluntary survey are already integrated well into the Swedish society with employment, housing and social ties. On the contrary, the non-European immigrants who are not captured by the data might be the ones who are struggling the most with employment, perhaps because they came here illegally or arrived recently. If this is the case, there could be a downward bias in the results implying that the immigrant-native employment gap is larger in reality.

## 8. Conclusion

This paper investigated the following research question: Is there a relation between negative attitudes towards immigrants and non-European immigrants' employment probabilities in Sweden and does the relation differ between non-European immigrant men and women? Our results indicate that there is a negative relation between negative attitudes towards immigrants and the employment gap between non-European immigrants and natives. Thus, the stronger the negative attitudes towards immigrants, the lower is the employment propensity of non-European immigrants relative to natives, implying that non-European immigrants are at a greater disadvantage in regions that are less immigrant-friendly. Our results also indicate that

the employment propensity of non-European immigrant women is more negatively affected by negative attitudes towards immigrants compared to that of non-European immigrant men. In other words, attitudes towards immigrants do seem to matter in the Swedish labour market.

Even though not all estimates are statistically significant, our results are in line with economic theory regarding taste-based and statistical discrimination as well as human capital theory. Since differences in human capital can explain part of the immigrant-native employment gap but not the entire gap, the remaining gap could be attributable discrimination or other factors that could not be controlled for in this paper. Moreover, our results are in line with what was found by Charles and Guryan (2008) and Keita and Valette (2019) since they also found that negative attitudes and/or prejudices of the majority group towards a minority group will affect the labour market outcomes of that minority negatively. On the contrary, Åslund and Rooth (2005) found no relation between negative attitudes and immigrants' employment probability. However, our results might be affected by the small sample size, selection in migration and decreased variance in the attitude measure. We were also not able to assess how large part of the immigrant-native employment that is due to discrimination, nor whether discrimination is taste-based or statistical, or both.

For future research within this topic, researchers could use larger samples in order to attain more statistically significant results and also include more relevant control variables, such as years since migration. Moreover, it would be interesting to study whether there are differences in employment probability between non-European immigrants and natives with respect to educational attainment. It would also be interesting to investigate if different groups of immigrants are affected differently by negative attitudes towards immigrants in the labour market. Finally, future research could try to distinguish if negative attitudes towards immigrants is attributable to taste-based and/or statistical discrimination.

Given that our results indicate that there is a negative relation between the immigrant-native employment gap and negative attitudes towards immigrants, policymakers should work to improve these negative attitudes, for instance by promoting interethnic relations. Policymakers should also provide better integration policies in order to increase the employment propensity of non-European immigrants, such as training in the Swedish language. Seeing as our results also indicate that the female immigrant-native employment gap is more negatively affected by negative attitudes towards immigrants, policymakers should try to eliminate stereotypical gender roles and improve women's labour market situation.

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## Appendix

Table A1. Original 21 Swedish Counties

21 Swedish Counties	Percent of individuals with negative attitudes
Västerbotten County	14.151
Norrbotten County	11.905
Västernorrland County	15.196
Jämtland County	16.794
Gävleborg County	20.745
Dalarna County	17.767
Värmland County	12.921
Örebro County	16.055
Västmanland County	15.385
Uppsala County	13.514
Södermanland County	17.514
Stockholm County	9.485
Östergötland County	14.336
Västra Götaland County	14.943
Halland County	12.857
Jönköping County	13.426
Kronoberg County	17.857
Kalmar County	17.614
Gotland County	18.219
Blekinge County	18.657
Skåne County	16.535

Table A2. 14 Constructed Swedish Regions

14 Swedish Regions	Percent of individuals with negative attitudes
Västerbotten & Norbotten County	13.158
Västernorrland & Jämtland County	15.821
Gävleborg & Dalarna County	19.221
Värmland County	12.921
Örebro & Västmanland County	15.762
Uppsala & Södermanland County	15.228
Stockholm County	9.485
Östergötland County	14.336
Västra Götaland County	14.943
Halland County	12.857
Jönköping County	13.426
Kronoberg & Kalmar County	17.708
Gotland County	18.219
Skåne & Blekinge County	16.813