

# A macro perspective on employment integration of immigrants in Sweden

A municipal comparison

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# Abstract

**Abstract:** Looking at the labor market situation of Sweden today, the employment rates of immigrants are substantially lower compared to persons born in Sweden. There are, however, major differences in the degree to which immigrants are active in the labor force between different municipalities. While there has been considerable research on the employment integration of immigrants at the national level, less has been done to explain these regional variations. The aim of this study is to analyze municipal differences in employment integration success between Sweden's municipalities. Using register data from Statistics Sweden, aggregated at the municipal level, multiple regression analysis is conducted to estimate the effects of immigrant characteristics and local labor market characteristics on employment outcomes. The regression results suggest that municipal differences in integration success, to some degree, could be attributed to municipalities attracting immigrants with different levels of human capital. However, local factors are of importance as well. The employment rates of immigrants were significantly affected by the employment rates of persons born in Sweden, a proxy for the local supply of jobs.

## **Key Words**

employment integration, immigrants, Sweden, municipality, regression analysis

# Table of contents

Table of contents.....	3
Introduction.....	1
<b>The rationale of the study .....</b>	<b>3</b>
2. Background.....	4
<b>Immigration history of Sweden.....</b>	<b>4</b>
<b>Integration policy and municipality of residence.....</b>	<b>5</b>
<b>Previous research on employment integration .....</b>	<b>6</b>
3. Theoretical framework .....	9
<b>Human capital .....</b>	<b>9</b>
<b>Community effects .....</b>	<b>11</b>
<b>Local business structure.....</b>	<b>14</b>
<b>Rural areas.....</b>	<b>15</b>
4. Research methodology.....	17
<b>Data .....</b>	<b>17</b>
<b>Ethical considerations .....</b>	<b>18</b>
<b>Definition of variables .....</b>	<b>18</b>
<b>Dependent variable.....</b>	<b>18</b>
<b>Independent variables .....</b>	<b>19</b>
<b>Control variables.....</b>	<b>21</b>
<b>Excluded controls.....</b>	<b>22</b>
<b>Method .....</b>	<b>22</b>
<b>Analytical strategy .....</b>	<b>23</b>
<b>Robustness tests.....</b>	<b>24</b>
<b>Limitations .....</b>	<b>25</b>

5. Results .....	27
<b>Descriptive statistics .....</b>	<b>27</b>
<b>OLS- multiple regression analysis .....</b>	<b>29</b>
<b>Immigrant composition effects .....</b>	<b>30</b>
<b>Municipality effects .....</b>	<b>30</b>
<b>Immigrant composition and municipality effects combined .....</b>	<b>31</b>
6. Discussion.....	32
7. Conclusions .....	35
References .....	36
Appendix .....	45
<b>Model specification.....</b>	<b>45</b>
<b>Regression diagnostics.....</b>	<b>45</b>

# Introduction

Sweden has been an immigration country since the 1930s, but the trend has become stronger in recent decades. Currently, 19% of Sweden's population is foreign-born<sup>1</sup> and net-migration plays a more important role than natural increase to Sweden's population growth (SCB 2019; 2018a). The influx of foreign-born individuals has a major role in Swedish population development and impacts many different areas of Swedish society. Hence, the integration of immigrants into the labor market is one of the most critical issues facing policymakers, and it is important both from an individual and a societal perspective (SCB 2017a; Eriksson 2010).

Employment is important for the individual as it increases the possibility of supporting oneself and achieving a good standard of living (Dahlstedt & Bevelander 2010). Obtaining a job, however, is not only important for instrumental reasons. Employment is an integral part of a person's identity and has a central role in how a person perceives him/ herself in relation to others. Being unemployed generally means being withdrawn, not only from work itself but, from wider social networks and social activities (Kelvin 1981). Unemployment is linked to various dimensions of social disintegration such as marital breakdown, the fracturing of social ties and growing social isolation. Hence, employment is important for the individual in order to avoid social exclusion and social marginalization (Gallie et al. 2003; Paugham 1996).

At the societal level, successful employment integration is thought to reduce the risk of social tensions between immigrants and natives. Closing gaps in employment (and thereby decrease income inequality) between the native- and foreign-born group is instrumental in reducing inequality between the groups. Reducing income inequality within a society is essential for promoting solidarity and social cohesion (Kawachi & Kennedy 1997; Tumin 1953; Wilkinson 1992). Moreover, Sweden has an aging population. As the elderly share of the population increases in relation to the working-age share of the population, concerns are raised on how to provide for this growing and aging population with a shrinking workforce. Migration is sometimes put forward as a possible solution to population aging but for this solution to be effective immigrants must be well-integrated into the labor force (Bengtsson & Scott 2011).

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1. The terms immigrant and foreign-born are used synonymously, referring to anyone born outside who moves to and registers in Sweden.

Looking at today's labor market situation, it is clear that many immigrants are less successful than native-born persons. It takes a relatively long time for an immigrant to access the labor market after arriving in Sweden, and even though the employment rate increases by time the proportion employed is still significantly lower than among native-born persons (SCB 2018b). Sweden had the greatest employment gap between foreign- and native-born among 26 European countries in 2014 (SCB 2016). The fact that immigrants are less likely to be employed, and are unemployed to a greater extent, is also contributing to income inequality increase (PROP. 2016/17:100). Taken together, this makes the employment integration of immigrants an important field of study.

The employment integration of immigrants is a well-studied area of research. However, despite voluminous studies on the topic, it is still not clear why immigrants (in general) face barriers in accessing employment in Sweden. Many studies, taken at the individual level, suggest that foreign-born persons are not doing as well as native-born persons in the labor market because there are productivity relevant differences between the groups. The effect of individual characteristics such as level- and type of education (Dahlstedt & Bevelander 2010; Nekby et al. 2008), language skills (Delander et al 2005; Duvander 2001; Rooth & Åslund 2006), migration class (Bevelander & Pendakur 2014), and country of origin (Forslund et al. 2017) have all been analyzed in terms of employment outcomes. However, individual differences in productivity relevant characteristics do not go all the way in accounting for the labor market disadvantage of immigrants. Discrimination has sometimes been put forward as a possible explanation (Bursell 2007; Carlsson & Rooth 2006). Others emphasize the importance of local labor market conditions (Andersson 1996; Bevelander & Lundh 2007; Ekeberg & Ohlsson 2011).

Integration could be thought of as a two-way process in which not only migrants but also the receiving societies participate and interact (Carrera & Faure Atger 2011). Another strain of research focuses on the role of local conditions for employment integration; suggesting the importance of factors beyond the control of individual immigrants (Mustered et al. 2008). Much attention has been on 'neighborhood effects,' and how internal spatial variations within the city, mainly the metropolitan areas, affects the socioeconomic careers of immigrants (Andersson et al. 2014; Edin et al. 2003; Mustered et al. 2003; 2008). Work that focuses on the spatial aspects of employment integration outside of the metropolitan areas is less common. This study adds the analysis of variations in employment integration between municipalities to the discussion on immigrant integration in Sweden.

## The rationale of the study

This study adds to previous research by studying employment integration from a regional perspective, with the municipality as the unit of analysis. Employment integration is measured via immigrant employment rates and is based on those immigrants who arrived in Sweden over the period 2000-2017, observed in 2017. Looking at immigrant employment rates the way they vary across the country, there is great heterogeneity between municipalities and the percentage employed among foreign-born persons varies in the different regions considerably more than among native-born persons (Lundström 2010; own calculations see graph 5.1 and table 5.2). If there are major regional differences in the employment rate of immigrants, the average employment rate will be strongly dependent on how immigrants are distributed across the country. Aiming to understand what causes these differences should be of major concern, for researchers as well as policymakers (Ekberg & Ohlson 2000; Eriksson 2010).

The objective of this study is to analyze municipal differences in integration success by investigating the effects of immigrant characteristic as well as spatial characteristics. Four hypotheses on the relationship between ‘local situations’ and employment outcomes will be tested using ordinary least squared multiple linear regressions. The hypotheses are generated from sociological and demographical theories on what facilitates employment integration.

The study is structured as follows: Section 2 provides the context of the study. It starts with a brief description of the immigration history of Sweden and continues with introducing the linkages between labor market integration and spatial context in public policy as well as in previous research. Section 3, ‘Theoretical framework,’ will present the four hypotheses: The first hypothesis will focus on immigrant characteristics, suggesting that regional differences in employment integration success could be attributed to ‘selection effects,’ i.e., municipalities attracting immigrants with different characteristics. Hypothesis two focus on community- or network effects. That is, the effect that relationships between immigrants and local employers may have on employment outcomes. Hypotheses three and four focus on the effects of municipality characteristics alone. Municipality characteristics could be thought of as regional settings that have an independent impact on immigrants' employment opportunities. Section 4: ‘Research methodology,’ includes methods, data, definition of variables and the analytical strategy. Section 5 and 6 presents ‘Results’ and ‘Discussion.’ The study ends by summing up the main findings, as well as drawing implications for future research in ‘Conclusions.’

## 2. Background

### **Immigration history of Sweden**

Sweden has been a net-migration country since the 1930s, but the frequency of immigrants, as well as the ethnic composition of immigrants, and their reasons for migration has changed considerably over time. As have the labor market situation.

In the aftermath of World War 2, the Swedish economy was flourishing and there was a high demand for labor, primarily in the manufacturing industries. Immigrants, mainly originating from the Nordic countries and Europe, came to Sweden to work and the employment rates of immigrants were about equal to those of native-born persons. The prosperous times of the 1950s and 1960s, however, came to an end and diminished the demand for foreign labor. The period 1970-1985 can be seen as a transition from labor migration towards refugee- and family migration. The migration field expanded to include people (mostly refugees and their families) coming from outside of Europe, such as Asia and Latin America. Concomitantly, the economic structure changed, and it became increasingly difficult for immigrants to establish themselves at the labor market. Additionally, the relatively large inflow of refugees from Bosnia-Herzegovina in the early 1990s coincided with the economic crisis in Sweden and the supply of labor decreased. The economic recession negatively affected both native- and foreign-born persons, but immigrants were harder hit (Nilsson 2004). By the mid- 1990s, the employment rates increased again. In 2003 the employment rates for native born persons were about equal to the levels measured before the economic crisis (80%) but the employment rates for foreign-born persons kept lagging behind (55%) (Dahlstedt & Bevelander 2010).

The influx of foreign-born individuals, mainly family migrants and refugees seeking asylum from conflict-affected areas in the Middle East and Africa, increased in Sweden during the 21st century. In 2016, a record was reached as over 163 000 persons immigrated (got registered) in one year (SCB 2018a). A snapshot of today's employment integration by birth suggests that almost all immigrant groups and, in particular, newly arrived groups of refugees have lower employment levels, and higher unemployment levels, compared to native born persons (Bevelander & Pendakur 2012; SCB 2018b; PROP 2016/17:100).



## **Integration policy and municipality of residence**

During the labor migration era it was the local demand for workforce that steered immigrants' municipality of residence. Accommodation was often arranged beforehand through bilateral agreements between Sweden and foreign labor market authorities (Bevelander & Lundh 2006). However, the demand for foreign labor diminished and the period 1970-1985 can be seen as a transition from labor migration towards refugee- and family migration (Nilsson 2004). Housing policies (i.e., integration policies that concern where newly arrived immigrants can settle) have been central elements in Swedish immigration- and integration policies ever since the 1970s (Edin et al. 2003). The public employment agency was responsible for the reception of immigrants up to 1985 and allocated asylum seekers according to the same principles as during the labor migration era i.e., considering the conditions of the local labor market and the local demand for labor. As a result, immigrants were not evenly distributed across municipalities, but the majority of immigrants got concentrated in the industrial regions and metropolitan areas (Bevelander & Lundh 2006).

In 1985, the responsibility for immigrant reception was transferred from the public employment agency (state level) to the Migration board and the municipal level. During the 1980s and early 1990s, the Sweden-wide strategy for refugee dispersal was implemented with the aim to even the reception of refugees between municipalities and to allocate newly arrived refugees across the country. Offsetting the concentration of newly arrived refugees to specific geographical locations, mainly the large metropolitan areas, was thought to favor Swedish language proficiency and facilitate refugees' labor market entrance. The policy, however, did not get the intended effect. Refugees got allocated to municipalities based on the availability of housing, without considering the employment prospects of the local labor markets. This is suggested to have negatively affected refugees' opportunities to first employment (Edin et al. 2004; Ekberg & Ohlsson 2000).

In 1994, another housing policy was implemented which gave asylum seekers the option to either be accommodated by the public authorities or to arrange for their own accommodation ('Lagen om Eget Boende' hereafter the EBO-policy). One argument behind the EBO- policy was that newly arrived immigrants if having the possibility to live close to friends and family already established in the Swedish society, could take advantage of the 'Swedish specific knowledge' obtained by their peers. As many jobs are mediated through contacts, this would also imply access to networks facilitating labor market entrance (Boverket 2015).

In addition to the EBO-policy, the Swedish government enacted the ‘Establishment reform’ in 2010 which transferred the responsibility for the integration of newly arrived immigrants from the municipalities back to the public employment service. The reform was motivated by concern over the low employment levels and slow integration of refugees. The aim of the reform was to facilitate and speed up integration, into the labor market and the society, and targets newly arrived immigrants of working age who have been granted residence permits for refugee reasons or for family reunion with a refugee. Accordingly, all who are not ill, in school, or in work shall register with their local public employment agency office to make an establishment plan. The establishment plan includes the Swedish language course SFI, orientation about the Swedish society and measures preparing the individuals for work (Andersson Joona et al. 2016).

Evaluating the establishment reform, some (cf. Riksrevisionen 2014:11) indicate problems in the implementation of the reform while others (cf. Andersson Joona et al. 2016) found positive and statistically significant effects on refugee employment after program enrollment. The EBO-policy, however, has been criticized over the years for enforcing residential segregation, (associated to alienation and increasing unemployment rates) as well as for strengthening the uneven reception of immigrants between municipalities (SOU 1996:55; SOU 2018:22). In 2018, a committee report assigned by the government proposed restrictions in immigrants’ possibilities to arrange for their own accommodations in socio-economically disadvantaged neighborhoods (SOU 2018:22).

To summarize; when implementing integration policies in Sweden there seems to be a strong perception that there is a link between residential context and employment integration- but how and why it is linked is less clear. This speaks for more studies on the topic in order to improve our knowledge and develop and improve future integration policies.

## **Previous research on employment integration**

Sweden, as most Western industrialized countries, underwent an economic structural change in the 1970s (Nilsson 2004). In order to serve an increasingly global market, national production systems reorganized towards an international division of labor, more flexible modes of production and economic specialization. In Sweden, this led to a higher demand for jobs in the service sector at the expense of the industry. More information- and

communication-intensive work procedures got introduced, in both the industrial and the service sectors (Andersson 1996; Bevelander 1999). The new social economy is argued to require employees with higher levels of formal human capital characteristics<sup>2</sup> as well as higher levels of general competence in terms of knowledge about the official language and other ‘country specific skills’<sup>3</sup> (Andersson 1996; Bevelander 1999; Bevelander & Lundh 2004).

The most common starting point for explaining differences in employment integration is human capital theory (cf. Becker 1992). The importance of (country specific) human capital characteristics for the economic integration of immigrants has been analyzed extensively, in Sweden as in most western capitalist countries. Some of this research will be presented in ‘Theoretical framework- Human Capital,’ with an emphasis on the Swedish context (for international references see e.g. Chiswick 1986; Borjas 1989). The concept of ‘Swedish specific skills’ will be discussed more thoroughly in ‘Theoretical framework- Local business structure.’

The economic structural change, however, did not only lead to a redistribution of jobs socially but also to a relocation and concentration of jobs geographically. As a consequence, local labor markets within (and between) countries differ in their sectoral and occupational compositions which may result in uneven spatial patterns of job opportunities (Andersson 1996; Massey 1995; Van Ham et al. 2012). Another strain of research focuses on the role of spatial characteristics for the economic integration of immigrants, emphasizing differences in the opportunity structures for different residential contexts and labor markets.

Kain’s (1968) concept of ‘spatial mismatch’ is a pioneer work on geographical mechanisms on economic outcomes. The basic argument of ‘spatial mismatch’ is that neighborhoods with limited access (either through spatial proximity and/or limited transportation networks) to job opportunities appropriate to the skills of its residents are adversely affecting employment opportunities. Similarly, some geographic locations may offer positive effects on economic outcomes. Fielding (1992) coined the term ‘escalator regions,’ referring to regions that offer

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<sup>2</sup>. Such as education, on-the-job training, and specific labor market experience (cf. Becker 1992).

<sup>3</sup>. Apart from language proficiency, country-specific skills could be understood as the understanding of expected behavior in teamwork, and in relations with public authorities and labor market organizations (cf. Bevelander 1999). Also, institutional knowledge, job-related skills in particular industries or occupations or even culture-specific social competence (cf. Lalonde & Tolpel 1997). Moreover, it is often difficult to transfer educational credentials between countries (Duvander 2001).

positive labor market opportunities and drive the careers of in-migrants at a faster route, compared to other regions. In a Swedish study on 'escalator regions,' Andersson (1996) found labor market integration of low-educated immigrants to be more successful in Stockholm, due to higher demand for a low-educated workforce in the private service sector, compared to regions outside the city. In an analysis of variations of labor market incorporations of immigrants between two of Sweden's three metropolitan cities, Hedberg and Tammaru (2010) found immigrants residing in Stockholm to have a higher probability of entering the labor market compared to immigrants residing in Malmö. The authors interpreted this as Stockholm being a more globally competitive city with a different labor market structure, more openness to diversity and more potential for transnational links to the homeland.

Swedish studies on the employment integration of immigrants on the regional and local levels, outside of the metropolitan areas, are rather limited. However, the few studies on the regional level show large differences in employment integration for different groups and regions. Bevelander and Lundh (2004) and Ekeberg and Ohlsson (2000) found municipalities with large manufacturing industries to be positively associated to the employment rates of immigrants at the beginning of the 21<sup>st</sup> century. The effect of the local economic structure will be considered in 'Theoretical framework- Local business structure.' Bevelander and Lundh (2006) found the probability of having a job to be greater for newly arrived refugees if residing in municipalities where the local employers had longer, and more extensive experience from hiring a foreign-born workforce. The employer perspective is in focus in 'Theoretical framework- Community effects.'

According to Hugo and Morén- Algeret (2008:473) international migration will play an increasingly important role in peripheral and rural areas of OECD countries for two reasons: 1) Immigration can potentially play a more significant role in maintaining economic sustainability in rural areas as challenges related to population aging and population decline often is exacerbated in sparsely populated regions. 2) The settlement experiences and integration processes may be different for immigrants in rural areas as compared to urban areas. These arguments relate substantially to rural Sweden and will be discussed more thoroughly in the section named accordingly.

Finally, the significance of residential context for the employment integration of immigrants has also been analyzed in a rich neighborhood effects literature (Vogiazides & Mondani 2018). The general argument is that the sociodemographic composition of the neighborhood

has an independent impact on immigrants' socioeconomic careers (Galster 2010; Johnston et al. 2014). Some mechanisms put forward to explain this are; 1) behaviors and aspirations operating through socialization processes within local neighborhoods, 2) reputation 3) social ties and networks. In this sense, neighborhoods can offer certain positive, but also certain negative resources; blocking upward mobility (Galster 2010; Johnston et al. 2014). In Sweden, studies on 'neighborhood effects' provide rather mixed results. Mustered et al. (2008) found negative impacts on income for immigrants if residing in areas where a substantial number of their neighbors were members of the same ethnic group. Edin et al. (2003) and Andersson et al. (2014), on the other hand, highlight positive effects for immigrants if living ethnically clustered. However, the significance of 'neighborhood effects' for the socioeconomic integration of immigrants is hard to measure empirically. "The demands placed on the dataset are so high, they are often impossible to meet" (Mustered et al. 2003:878). The potential influence of 'neighborhood effects' on municipal differences in employment integration success will be discussed briefly in 'Theoretical framework-Community effects.' The empirical testing, though, must be understood in light of the limitations proposed by the design of this study and the data available.

## 3. Theoretical framework

### Human capital

The basic idea of human capital theory (cf. Becker 1992) is that employers demand workers with certain types of skills to perform certain kinds of work-task, to produce an economic value. Human capital could be understood as the aggregate stock of skills, knowledge, and personal traits possessed by a worker that contributes to his or her productivity (Goldin 2014)<sup>4</sup>. According to Becker (1992), it is the levels of human capital that determine success in the labor market. Hence, systematic labor market inequalities between the native- and foreign-born groups could be attributed to systematical differences in the levels of (country specific) human capital obtained (Becker 1992; Borjas 1989).

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<sup>4</sup> Education, on-the-job-training and work experience are often considered the most important investments in human capital (cf. Becker 1992).

Human capital theory is an influential research tradition, and it is often used as the basis for labor market integration in general. However, it has also received a lot of critiques. Human capital analysis, as traditionally used by economists builds on the assumption that workers and employers are rational actors with perfect information, seeking to maximize outcomes in a perfectly competitive market (Kalleberg & Sorensen 1979). The idea of the ‘rational actor’ has been disputed by sociologists who emphasize how economic action is embedded in structures of social relations and social situations (cf. Granovetter 1985). Sociologists suggest the importance of not only human capital but also social capital and how individuals make use of their social capital to get access to networks or wider social relationships that provide resources for socio-economic mobility (cf. Coleman 1988; Bourdieu 1985). Also, the assumption of a perfectly competitive labor market has been challenged by alternative conceptions suggesting labor markets to be stratified into segments or sectors, with little mobility between them (cf. Piore 1970; Reich et al. 1973). Such literature point towards an uneven distribution of population groups (defined by class/ gender/ethnicity) among segments of the labor market, and consequent differences in wages and career probabilities (Kalleberg & Sorensen 1979). In other words, chances of economic career trajectories are unequally distributed and where you end up, to some extent, depends on where you come from.

Without denying the importance of the discussion just mentioned, formal human capital characteristics such as education, labor market experience and language skills are often put forward as important factors for obtaining employment in Sweden (Belevander 1999; Dahlstedt & Bevelander 2010; Eriksson 2010). Analyzing employment gaps between foreign- and native-born persons, Nekby et al. (2008) found higher education (if it was attained in Sweden) to even out the playing field between foreign- and native-born. Rooth and Åslund (2006) show that employers’ value Swedish language skills, good language proficiency could increase the likelihood of having a job with up to 10 percentage points. Delander et al. (2005) found positive associations between language proficiency and job experience in the host country to employment outcomes. Moreover, immigrants’ labor market participation tends to increase with time spent in Sweden (Lundström 2010; Nekby 2002). This could be explained by pre-immigration human capital skills not being directly transferable between national markets but needs updating to a Swedish context. Spending time in the host country is often necessary to gain skills and to adjust to the structures of the new country in order to succeed in the labor market (cf. Chiswick 1978).

The studies just mentioned concerns employment integration at the individual level, however, it could be argued that municipal differences in employment rates is a result of municipalities attracting immigrants with different levels of human capital:

*Hypothesis 1: Municipalities that hold immigrant populations with relatively high levels of human capital have relatively high immigrant employment rates*

## **Community effects**

Even though systematic differences in productivity relevant attributes between native- and foreign born exist to some extent, most researchers agree that this does not go all the way in explaining the labor market disadvantage of foreign-born persons (cf. le Grand & Szulkin 1999, 2002; Duvander 2001; Nekby 2002). Discrimination in the labor market has sometimes been put forward as a possible explanation to why persons with foreign-born backgrounds face barriers in accessing employment in Sweden (Bursell 2007; Carlsson & Rooth 2006). Another explanation, as touched upon in the preceding section, concerns the importance of social capital and networks for successful employment integration (cf. Coleman 1988). The significance of social capital and networks, as well as the existence of discrimination, is notoriously hard to control for using standard quantitative methods (cf. Arai & Nekby 2007; le Grand & Szulkin 1999; Mustered et al 2008). The data used for this study does not allow me to test for neither networks nor discrimination. Nonetheless, these are important aspects in the studying of labor market integration and, therefore, important to discuss.

There are great differences among municipalities in terms of how many immigrants they hold. In 2010, it was estimated that 39 percent of all foreign-born persons were located in only 15 of Sweden's 290 municipalities (SCB 2010).<sup>5</sup> As pointed out by Bevelander and Lundh (2006), the concentration of immigrants in certain municipalities could be traced all the way back to the mid-1990s; however, it has become more prominent over the years due to internal migration. The EBO-policy, as been argued, have also reinforced this situation as immigrants, when choosing where to live, tend to reside with friends and family already living in immigrant concentration areas (SOU 2018: 22).

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5. This can be compared to only 20 percent of the native-born population living in these 15 municipalities.

Empirical evidence, as well as theoretical arguments, are contradictory whether ethnic spatial clusters provide net positive or net negative opportunities for immigrant employment outcomes. Theories focusing on economic benefits emphasize how members of ethnic minority groups, if living geographically concentrated, could capitalize on their ethnic social capital to get access to networks that provide resources for socio-economic mobility (Andersson et al 2014; Edin et al 2003; Lazear 1990; Portes & Manning 1986). To illustrate; many immigrants, especially when newly arrived, have a human capital that needs to be upgraded to a Swedish context and weaker Swedish specific networks than native born persons. To compensate for this, they may use their ethnic social capital, for example through networks within the ethnic group or in the neighborhood, to get access to 'Swedish specific knowledge' or information about job-openings etc. obtained by those who have been living in Sweden longer and are better established in the society and labor market. Also, if a municipality has a relatively large proportion of established immigrants this may have given rise to special niches in working life for foreign-born persons (e.g. ethnic shops or small businesses) where the employees are less dependent on Swedish language proficiency or where appropriate entry jobs are created (cf. Portes & Manning 1986). If so, the employment prospects of recently arrived immigrants could be better in municipalities with a relatively large proportions of established immigrants.

However, as pointed out by Borjas (1997) and Mustered et al. (2003), it could also be the case that the proximity to compatriots has no general effect on wages or labor. The effect depends on the composition of the group. If it is a socioeconomically strong group it could be beneficial, but if the 'neighbors' are socio-economically weak it may be the other way around. Most municipalities with a fairly large immigrant population tend to experience residential segregation in terms of concentration of foreign-born individuals in certain residential areas within the municipality (Nordström Skans & Åslund 2010). If personal contacts are limited to members of a class-homogeneous group of immigrants, 'bridging' social capital will be missed, and immigrants may be excluded from other social networks involving the majority population. In that case, living ethnically clustered is thought to stall employment integration by decreasing the rate of host country skill accumulation and access to networks that could be more useful for entering and making advancements in the labor market (Waldinger 1996 in Musterd et al. 2008, Vogidadez & Mondani 2018, Edin et al. 2004). Moreover, segregated neighborhood may be stigmatized based on public stereotypes of its residents. Such stigma may reduce the employment opportunities of immigrants, either through institutional



discrimination in terms of employers being reluctant to hire people from segregated neighborhoods or through low self-esteem (Neckerman & Kirschenman 1991; Boardman & Robert 2000). This leads me to the second theoretical argument of this section assigned to the employer's perspective and theories on discrimination.

According to the theory of statistical discrimination, employers may discriminate against a certain group of people because s/he believes them to be less qualified on average compared to members of another group, or when the cost of gaining information about the individual applicants is considered too extensive (Phelps 1972). To put it differently: in situations where employers receive more job-applications than they can read they need some device to screen out the most /least suitable applicants right away. So, they use statistical averages for groups, and observable group-characteristics such as ethnical background, to proxy for unobservable skills of labor productivity (Bursell 2007; Phelps 1972).

Statistical discrimination theory, as traditionally used by economists, assumes that average group differences in productivity relevant skills actually exist (cf. Aigner & Cain 1977). In the sociological literature, however, another version of the statistical discrimination model has gained prominence. According to the theory of error discrimination (England 1992), employers may act as if their beliefs are statistically correct, but their decisions are actually based on biased information due to stereotypes and preconceptions of group productivity. Similarly, Allport (1954) defines labor market discrimination as a result of prejudiced persons acting on their negative prejudice to exclude all members of a group from certain types of employment. However, according to the contact hypothesis (Allport 1954), intergroup contact is predicted to reduce intergroup prejudice. Optimal intergroup contact is also thought to modify behaviors, which in turn leads to changes in attitudes (Pettigrew 1998: 65 cf. Allport 1954). In line with that reasoning, it is reasonable to assume that as local employers get more experience from, and contact with, foreign-born persons they will learn more about foreign-born persons' qualifications. This is likely to reduce prejudice and thus also modify employers' screening device in selection of labor. If so, employers with more experience from working with foreign-born persons could be less inclined to discriminate against persons with

foreign-born background, compared to employers with less experience from working with the group.<sup>6</sup>

It is also conceivable that the acquaintance and confidence in foreign-born labor is spreading from the companies that originally employed immigrants, to other companies within the municipality- and thus increases the opportunities for immigrants to be employed also in those companies. This could be thought of as a kind of community effect from the employers' perspective within the municipality (Bevelander & Lundh 2006).

*Hypothesis 2: The employment rates of 'recently arrived' immigrants are higher in municipalities that have relatively large populations of 'established' immigrants.*

## **Local business structure**

As mentioned earlier, the economic structural change is argued to have increased the demand, not only for higher education and specific labor market experience but also for employees with higher levels of general knowledge in terms of country specific skills (Andersson 1996; Bevelander 1999). Hence, a potential explanation to why immigrants' facing barriers in accessing employment in Sweden could be that immigrants lack 'Swedish specific skills' (cf. human capital theory, Becker 1992). An alternative explanation is that immigrants are disadvantaged when competing with native-born persons over jobs as they have (cf. statistical discrimination theory, Phelps 1972) or are thought to have (cf. error discrimination theory, England 1992), less 'country specific skills' *on average* compared to persons born in Sweden. To illustrate, if immigrants are expected to have less culture specific understanding for expected behavior in teamwork or in relations with public authorities than native-born persons, employers may require higher formal qualifications (such as higher educational attainment) for immigrant candidates than they do for native-born candidates in a comparable job. Alternately, employers may exclude all immigrants from jobs that require training where

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<sup>6</sup> The study is aware that it is problematic to cluster all foreign-born persons into one category. The disparities within this group are substantial, even at the aggregate level. See e.g. Waldinger & Lichter (2003) and Friberg & Mitdboen (2018) for a discussion on 'ethnic employment hierarchies'. Hence, even if an employer is less prone to discriminate against persons from a certain ethnic group that does not necessarily mean s/he is less likely to discriminate against persons from other ethnic groups as well for similar types of jobs. Employers have also been found to change their perceptions of the capacity of ethnic groups based on relatively few observations. This could have positive- as well as negative consequences for job-opportunities (Friberg & Mitdboen 2018).

success is dependent on the candidate's country specific abilities (Tomaskovic- Devey & Skaggs 1999). The fact that many immigrants experience obstacles when searching for jobs (SCB 2016), and that it is common among immigrants to be overqualified for their positions (Andersson Joona et al.; Bussi & Pareliussen 2017) supports this theory.

According to Tomaskovic- Devey and Skaggs (1999) the pressures for statistical discrimination rise with the quality of the job. In jobs with no or short on- the- job training and/or low cognitive requirements, the cost of a bad job match will be minor. For managerial and professional jobs, on the other hand, the practical training period is more extensive and tremendous training investments and a very long period of forgone productivity is at risk if the job match is poor. Hence, it is access to these types of positions to which most accounts of immigrant employment inequality point (Tomaskovic- Devey & Skaggs 1999).

Studies on how labor market situation and which types of industries are dominating in the municipality effects the employment integration of immigrants found municipalities with large manufacturing industries to have a particularly positive impact on employment outcomes for immigrants at the beginning of the 21<sup>st</sup> century (Bevelander & Lundh 2004; Ekberg & Ohlson 2000). More recent studies show that the care sector has come to dominate newly- arrived refugees' employment. The share of newly- arrived refugees working in the hotel- and restaurants sector have also increased markedly over time (Ruist 2018). Jobs related to care- and hotel and restaurant sector are generally regarded as low-status jobs (Flisbäck & Ulfsdotter 2012). Hence, immigrants being overrepresented in care- and hotel and restaurant sector could be a result of immigrants not qualifying for (cf. Human capital theory) or being discriminated from (cf. Statistical discrimination theory, Error discrimination theory) more competence and knowledge-based types of jobs. Either way, this would implicate that local labor markets with a greater demand for a 'low- skilled' workforce could increase immigrant's possibilities of obtaining a job.

*Hypothesis 3: Municipalities dominated by a labor market requiring a 'low-skilled' workforce have relatively high immigrant employment rates.*

## **Rural areas**

At the turn of the millennium, it was strongly believed that population aging would be one of Sweden's main challenges in future years. The baby-boomers were reaching retirement age,

and a sharp decline in the proportion of the young and middle-aged population was predicted to bring about significant labor shortages. The sharp increase in immigration during the 21st century, however, changed Sweden's demography and lessened the impact of population aging (Malmberg et al. 2016). Yet, in Sweden, as in most OECD-countries, the impact of consequent aging of population and workforces are still considered problematic in the rural areas because of outmigration of native-born youth to large cities and metropolitan areas. Hence, immigration can potentially play a major role in maintaining economic sustainability in rural areas, compared to urban areas (Hugo & Morén- Algeret 2008).

The inflow of international migrants is now the only contributing factor to population increase in rural areas in Sweden (Malmberg et al. 2016). In a report on 'The effects of immigration on Swedish economic development,' Malmberg et al. (2016) argue that the international immigration of working aged people to rural areas could provide potentials for economic growth. The argument builds on a demographic model highlighting the importance of age structure for economic development- suggesting economic growth to be generally high when a large proportion of the population is of working age. What Malmberg et al. (2016) do not account for is 'obstacles such as the limited rural labor markets and a restricted interest among the rural population to let migrants enter the local community' (Jentsch & Simard 2009 in Hedberg & Handrikmaan 2014:128). However, some suggest that residing in rural areas may facilitate immigrant's integration. Unlike larger urban centers, where immigrants often live ethnically clustered, smaller societies offer more possibilities for immigrants to interact with the native-born population (cf. Waters & Jimenez 2005; Hugo & Morén-Algeret 2008).

Evidence from Southern Europe shows a rapid increase of migrant employment in rural regions in the last decades. Rural communities in Spain, having struggled to survive after decades of outmigration to the cities, recruited new residents from Latin America and Eastern Europe. "Migrant labor replaced jobs in agriculture, construction and service industries that no longer attract enough locals" (Daly 2003). Similar trends were found in Greece, where international migrants significantly contributed to agricultural activity as well as to other economic sectors like manufacturing, tourism, and personal/domestic services in rural communities that were experiencing decline and depopulation (Kasims & Papadopolous 2005). Some Swedish studies have found evidence of positive associations between residence in less population-dense areas and immigrant employment probabilities (Bevelander & Lundh 2007; Vogiazides & Mondani 2008; Hedberg & Handrikmaan 2014).

Guided by European examples, the outmigration of native-born youth from rural areas could imply job-openings for immigrants in these areas, not found in urban areas less affected by aging and labor and skill shortages:

*Hypothesis 4: Municipalities located in the rural areas have relatively high immigrant employment rates*

## 4. Research methodology

### Data

This study relies on full- population register data collected from Statistics Sweden for the year 2017. Most of the information comes from an aggregated data- set received from Statistics Sweden with material selected for this study. It covers all persons registered in Sweden's 290 municipalities for the year 2017, grouped by 1) persons born in Sweden 2) foreign-born persons migrating to Sweden before year 2000 3) foreign-born persons migrating to Sweden in 2000 or later. The main focus, however, will be on foreign-born persons of working age (20-64) who migrated to Sweden in the period 2000-2017. Some complementary information (needed for the variables Low-skill and SFI) are uploaded from Statistics Sweden's database online. The online database contains official statistics from Statistics Sweden and 14 other authorities and is free for anyone to use. The data underlying the variable SFI measures share of immigrants within each municipality who participated in SFI and completed it successfully for the years 2000-2017. The data underlying the variable Low-skill measure number of persons within each municipality that is working in professions categorized according to SSYK 2012. SSYK 2012 is used in the official statistics as a system for grouping individuals' professions by looking at what formal education is typical for the profession according to ISCED (International Standard Classification of Education) (SCB 2012).

The variables are calculated as shares of persons in a group with specific characteristics (X), within each municipality. In the data- set received from Statistics Sweden, data was stated as missing if a municipality had less than three persons in a group measuring characteristics X. One municipality had missing information on the number of foreign-born persons employed

in 2017. As the municipality in question did not provide enough information to calculate 'Immigrant employment rates,' which is the dependent variable, I excluded it from the analysis. As a result, the analysis covers 289 of Sweden's 290 municipalities. Given that only one municipality is omitted I conclude that it will not affect the validity of the results.

For the data uploaded online, data was stated as missing if there were less than 20 persons in a group (in this case number of persons who attained the Swedish language course SFI for a specific year or if less than five persons within the group had successfully completed SFI). Regarding SFI, 31 municipalities had missing information. I included the municipalities with missing information in a specific category so that the sample size would not shrink.

## **Ethical considerations**

When doing research, "the security, anonymity, and privacy of research subjects and informants should be respected rigorously" (International Sociological Association 2009). The unit of analysis in this paper is the municipality, but some of the information is aggregated from individual data. This implies that the research subject of this paper has two dimensions- the municipality and the individuals within the municipality. The dataset obtained from Statistics Sweden was created to minimize the risk of information being derived back to the individuals. Permission to use it for this particular study has been approved. Moreover, the paper is neither naming nor being very specific in the description of municipalities to avoid designating specific municipalities as being 'bad' (or 'good') in terms of employment integration.

## **Definition of variables**

The following holds for all variables included in the study: They are observed in 2017. The municipality is the unit of analysis. Immigrants are defined as persons who are born abroad, registered in Sweden and have gained a permanent residence permit. Unless else is clearly stated, only those immigrants who migrated to Sweden in the period 2000-2017 are included.

## **Dependent variable**

**Immigrant employment rate:** The dependent variable "Immigrant employment rate" measures the share of all immigrants registered in the municipality (age 20-64, who migrated to Sweden in the period 2000-2017) who were defined as employed in 31st of December

2017. Employment is defined according to RAMS, as an annual income exceeding a taxed threshold or declared for active business activity during the current year (SCB 2018c).

## **Independent variables**

**At least secondary education:** Education is often put forward as important factor for obtaining employment in Sweden (Bevelander 1999; Eriksson 2010; Lundström 2010). Hence, differences in employment rates could be driven by differences in educational levels. The share of persons with a tertiary level of education is equally large for the native- and foreign-born group (about 40%). What distinguishes the foreign-born group from the native-born group is that they have a larger proportion who have at most a primary level of education (SCB 2018d). The variable measures share of immigrants (age 20-64 who migrated to Sweden in the period 2000-2107) who have either secondary or tertiary education in each municipality.

**Time in Sweden > 5 years:** Immigration implies an initial loss of ‘human capital’ and spending some time in the host country is often needed to adjust to the structures of the new labor market (Chiswick 1978). It now takes about 5 years for half of all newly arrived immigrants to get employed in Sweden (Swedish government 2019). Regional differences in employment success could be explained by the fact that some municipalities have a large share of recently arrived immigrants while others have larger shares of immigrants who have been in Sweden longer. The variable measures share of immigrants (age 20-64 who migrated to Sweden in the period 2000-2107) and have been in Sweden for six or more years.

**SFI:** Having a good Swedish language proficiency is another factor related to employment success (Delander 2005; Rooth & Åslund 2006). The variable measures the share of immigrants in each municipality that successfully completed SFI. Having successfully completed SFI will serve as a proxy for good Swedish language proficiency. It is calculated as the mean value of the share of immigrants who participated in SFI and completed it successfully for the years between 2000 and 2017. A categorical variable with five categories is generated from the original information. The missing data is included in category 1. Category 2-5 are based on quartile distribution where category 2 represents the lowest quartile (municipalities with the lowest share of immigrants who successfully completed SFI), and category 5 represents municipalities in the highest quartile.

**Proportion foreign-born before 2000 (PFB before 2000):** Comparing the employment rates of immigrants who arrived in Sweden *before* 2000 to the ones that arrived in the period 2000-2017, foreign-born persons migrating to Sweden *before* 2000 (as a group) have higher

employment levels (see graph 5.1). If a municipality has a large share of immigrants who are relatively well established into the society and the labor market, this could imply a positive effect on the employment outcomes for those immigrants moving to the municipality later on (cf. Bevelander & Lundh 2006). The variable ‘PFB before 2000’ serves as a proxy for share of established immigrants within the municipality and measures share of immigrants (age 20-64) in each municipality who migrated to Sweden *before* the year 2000. It is calculated as the total number of foreign-born persons (age 20-64) who migrated to Sweden *before* the year 2000 divided by the total number of Swedish born persons (age 20-64) + the total number of foreign-born persons (age 20-64) who migrated to Sweden *before* the year 2000 residing in each municipality in 2017. I did not include the size of the foreign-born population migrating in year 2000 or later into this measure because I am interested in the size of the ‘established’ immigrant population alone and if having included those who migrated in the period 2000-2017 into the variable, the size of the ‘established’ immigrant population would depend on those who are relatively recently arrived.

**Rural:** The variable rural is coded according to the definition of rural municipalities in Malmberg et al. (2016). It originates from SKL's (2011) main division of municipalities in ten categories: 1) metropolitan cities 2) suburbs to metropolitan cities 3) large cities 4) suburbs to large cities 5) municipalities with large commuting patterns 6) municipalities with tourism and tourism industries 7) municipalities with manufacturing industries 8) sparsely populated municipalities 9) densely populated municipalities and 10) municipalities in sparsely populated areas. The variable is coded as a binary variable that equals 1 if 8 or 10: sparsely populated municipalities and municipalities in sparsely populated areas and 0 if others (hereafter urban regions). The SKL 2011 classification is no longer used officially but has been updated with SKL 2017 (Sveriges Kommuner och Landsting 2017). I use it because it resembles the Malmberg et al. (2016) argument on in-migration of foreign-born persons enabling for economic growth in rural areas.

**Low- skill:** The variable measures share of individuals who are working in a low-skilled profession within each municipality. The variable includes foreign- and native-born persons aged 16-64, observed in 2017<sup>7</sup>. Low-skilled professions are coded according to SSYK 2012 (SCB 2012). SSYK 2012 is used in the official statistics as a system for grouping individuals' professions by looking at what formal education is standard for the profession. It is based on a

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<sup>7</sup> As the variable Low-skill is derived from a separate dataset uploaded online I was not able to separate the 20-64 age group for ‘Low-skill’ as done for the other variables.



hierarchical division of professions into four main categories: Category 1 represents professions with no or low formal education requirements. Category 2 represents professions that usually requires education at the upper secondary level and post-secondary education for less than two years. Category 3 represents professions requiring practical or vocational post-secondary educations of 2-3 years, and category 4 represents professions that usually requires post-graduate/ post-secondary educations of at least three years (usually four years or longer) (SCB 2012). The variable Low- skill measures share of individuals within the municipality who are working in category 1) no or low formal education requirements and category 2) education at the upper secondary level and post-secondary education less than two years.

## **Control variables**

**Refugees:** Immigrant, in this study, is defined as a person that is born abroad and have moved to and registered in Sweden. This definition includes people who origin from Sweden (but are born abroad) as well as people coming from far distant countries. It includes people coming for work as well as people coming as refugees etc. To merge all foreign-born individuals into one ‘immigrant category’ is justly criticized because it constitutes a very heterogeneous group of individuals, and the individual disparities within the group are substantial (Nekby 2002). At the group level, those who have been granted residence permits for refugee reasons, or for family reunion with a refugee, are found particularly disadvantaged at the labor market. Not only compared to people born in Sweden but also to other groups of immigrants (Forslund et al. 2017; PROP 2016/17:100). Hence, if a municipality has a large share of refugees and relatives to refugees, it is likely that this municipality will experience lower immigrant employment rates. The variable measures share of immigrants in each municipality (age 20-64) who migrated to Sweden in the period 2000-2017 and have been granted residence permits for refugee reasons or for family reunion with a refugee.

**Swedish-born employment rates:** It is reasonable to assume that the conditions of the local labor market (the local supply of jobs) are affecting the employment rates of foreign-born as well as Swedish-born persons. The variable Swedish-born employment rate is included as a proxy for the conditions of the local labor market. The idea is that if the employment rate of Swedish- born persons is relatively high, the local labor market is relatively strong. The variable measures share of employed Swedish- born persons (age 20-64) in each municipality. Employment is defined according to RAMS as an annual income exceeding a taxed threshold or declared for active business activity during the current year (SCB 2018c).

## **Excluded controls**

Looking at immigrant employment rates the way they vary within the immigrant group, Statistics Sweden (2017a) found immigrant men to be employed to a larger extent compared to immigrant women. Looking at the gender distribution across municipalities the proportion men (ages 20-64) varies from 41% (41% being men and 59% being women) to 58% (58% being men and 42% being women) between municipalities (see Table 5.2). At an early stage of the process, I added a variable measuring share of men within each municipality to investigate the relationship between gender distribution and regional differences in employment integration. The variable indicated a (weak) negative association between higher shares of men and immigrant employment rates; however, the coefficient was not significant at the 95% confidence level (calculation not included). Concluding that the gender distribution has no significant association to employment rates at the municipal level, I excluded the gender variable from the analysis.

## **Method**

The analytical method used is ordinary least square multiple linear regression analysis (OLS). Regression analysis is an explanatory method of analysis that allows scientists to quantify how the average of one variable, the dependent or outcome variable (Y), systematically varies according to the levels of several other variables, the predictor or explanatory variables (X). Regression models allow scientists to examine the mechanisms that their theories suggest explains the association between a particular outcome variable and an outcome, which makes it a suitable choice of method for this study (Gordon 2015).

The underlying assumption of the multiple linear regression is that the dependent variable is a linear function of the predictor variables plus some error/disturbance. The errors represent the additional variation in Y not explained by the X variables included in the model (Gordon 2015). As perfect linear relationships rarely exist within the social sciences, a line of best fit is calculated to approximately describe the relationship between variables X and Y. The OLS-regression analysis is based on the assumption that the best linear relationship is the one that minimizes the sum of all squared errors between the observed data points and the line describing the relationship between the variables (Hutcheson & Sofroniou 1999).

The OLS-regression model will also generate a coefficient for determination ( $R^2$ ). The  $R^2$  is a measure of the strength of the relationship, i.e., how much of the variance in the dependent variable can be explained by the predictor variables included in the model. One problem with the  $R^2$  is that it tends to increase with the number of predictors. When comparing, and evaluating, regression models with the different number of predictor variables one should, therefore, look at the adjusted  $R^2$  (Edling & Hedström 2003).

## Analytical strategy

The aim of this study is to analyze regional differences in employment integration by investigating the effects of immigrant characteristic as well as spatial characteristics. To do this, four hypotheses on the effect 'local situations' and employment outcomes have been generated. To test the study's four hypotheses, three OLS- multiple linear regressions will be conducted.

**Model 1:** The first model includes the predictor variables that measure characteristics of the immigrant population: 'At least secondary education', 'Time in Sweden >5 years', 'SFI', and 'Refugees'. This set of variables will hereafter be referred to as the 'Immigrant composition effect'. It is applied to test the association between the 'composition of the immigrant population' and regional variations in employment integration success, without controlling for local factors.

**Model 2:** The second model is applied to investigate the effect of local factors, on immigrant employment rates, without controlling for differences in immigrant compositions. It includes the predictor variables that measure local characteristics: 'PFB before 2000', 'Rural', 'Low-skill' and 'Swedish-born employment rates'. This set of variables is hereafter referred to as 'Municipality effects'.

**Model 3:** The third model combines the predictor variables from Model 1: 'Immigrant composition effect' and the predictor variables from Model 2: 'Municipality effects'. It is applied to explore how regional variations in immigrant employment rates is associated with immigrant (human capital) characteristics, and local factors simultaneously. The final conclusions will be derived from this model, and:

- According to H1: I expect immigrant employment rates to be positively associated to a higher share of immigrants with at least secondary education, a higher share of immigrants who successfully completed SFI and a higher share of immigrants who have been in Sweden for more than five years.
- According to H2: I expect immigrant employment rates to be positively associated to municipalities that have larger populations of immigrants that migrated to Sweden before year 2000.
- According to H3: I expect immigrant employment rates to be positively associated to municipalities with higher shares of persons working in low-skilled professions.
- According to H4: I expect higher immigrant employment rates to be associated to rural municipalities, as compared to municipalities in urban regions.

The variables ‘Refugees’ and ‘Swedish-born employment rates’ are included as control variables. I expect a negative association between immigrant employment rates and a higher share of refugees and relatives to refugees, and I expect a positive association between immigrant employment rates and the employment rates of Swedish born persons, as a proxy for the local supply of jobs.

In final, a fourth model will be presented, Model 4. It is the same as Model 3, but it is calculated in beta coefficients. As beta coefficients are measured in standard deviations, and not units of the variables, they can be used to compare the relative strength of each of the predictors in the model (Chen et al. 2003).

## **Robustness tests**

Without verifying that the data meet the assumptions underlying OLS- regression results may be misleading (Chen et al. 2003). Regression diagnostics were conducted, within (checking all variables separately) as well as between models, to ensure that the data meets the four main assumptions of linearity, normality, homogeneity, and collinearity. I also looked for unusual and influential data. Moreover, several significance tests have been conducted to make sure that the models are well specified and that only meaningful predictor variables have been included in each of the models (see Appendix for detailed descriptions of, and results from,

regression diagnostics- and model specification tests). In sum, the overall results indicate that the data meet the assumptions underlying OLS-regression and that the models are correctly specified. The municipality Överkalix is the most influential observation; the impact of Överkalix will be discussed more thoroughly after presenting the results.

## Limitations

The purpose of this study is to analyze municipal differences in integration success by investigating the effects of municipal factors as well as the selection of immigrants to these municipalities. The variables of this study, however, are descriptive properties of groups (percentages), and not descriptive properties of individuals. Consequently, even though controlling for immigrant characteristics at the municipality level (in terms of share of immigrants with at least secondary education, share who successfully completed SFI, share who had been in Sweden for more than five years and share who are refugees or relatives to refugees) the reason for municipalities differing in their employment rates due to attracting immigrants with different characteristics, will not be fully captured by the regression. Also, the data does not allow adjusting for work experience, type of education and personal characteristics such as social skills and ambition.

Variables that measure properties of groups, rather than individuals themselves, are referred to as ‘ecological variables’. Ecological analysis is useful for researchers in cases where no individual data are available. Also, ecological analysis permits the study of a wider range of values for the independent variable (Piantadosi et al. 1988). However, as pointed out by Robinson (1950) and Selvin (1958) an ecological inference fallacy can occur if one uncritically assumes that inferences computed from group populations are valid estimates of inferences that would be obtained from individual data. It could, in fact, be that ecological (group-level) correlations are substantially different from the individual correlation.<sup>8</sup>

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<sup>8</sup> An example of the ecological fallacy is Robinson's paradox (1950). Robinson (1950) correlated the percentage immigrants and the percentage literate in the population for the 48 states of the United States. Results showed a positive correlation between the proportion of immigrants and the percentage literate within the state. However, at the individual level, the opposite association was found. Having a foreign-born background was negatively associated to literacy. Grotenhuis et al. (2011) raised critique against Robinson's (1950) usage of method and data. Nonetheless, Robinson's paradox is still suitable as an illustrative example of an ecological fallacy.

In order to prevent ecological fallacy, I have started from theories and empirical evidence on what facilitate employment integration at the individual level. As a second step I have used established theories to hypothesize how individual and group levels may be related. The last step will be to examine what inferences are found at the group level, to add to the understanding of previous research. Yet, the main problem remains, the correlations found at the group (municipality) level may not hold at the individual level and vice versa. Statistical correlations found in this paper are therefore not useful, in themselves, for making conclusions about inferences at the individual level.

Regarding variables, there is a general problem related to the fact that the data refers to persons residing in the municipality, not working in the municipality. Some municipalities have large commuting patterns which means that a substantial share of the population is working in another municipality than the municipality they are residing in. Even though municipalities with low commuting patterns are likely to be less affected by this dislocation, the variables ‘Immigrant employment rates’, ‘Swedish born employment rates’ and (to some degree) ‘PFB before 2000’ are imperfectly measured according to the objective of this study. The fact that it is unknown to what extent the municipality of residence equals the municipality of employment will be considered thoroughly when analyzing the results. In this sense, the predictor variable ‘Low-skill’ is most troublesome as it is derived from another dataset. It measures share of persons who are working in a low-skilled profession within the municipality (day-time population) whilst the dependent variable measures the employment rates of those who are residing in the municipality (night- time population) which means that the variables are generated from two different populations. The variable ‘Low-skill’ will be kept in the analysis as an indicator of the local business structure. However, I consider the operationalization error to be severe, and will, therefore, neither be able to verify nor reject hypothesis three.

A different type of limitation could be assigned to the variable ‘Rural’. Let us say that the regression results support the hypothesis that municipalities located in the rural areas have relatively high immigrant employment rates, on average, compared to urban municipalities. The reason behind this could be that rural municipalities do offer more prosperous employment opportunities for immigrants. It could also be the case that those immigrants living in rural areas are the ones who actually gained employment; the others have moved away. If so, it is not rural municipalities per se offering better employment prospects, but the

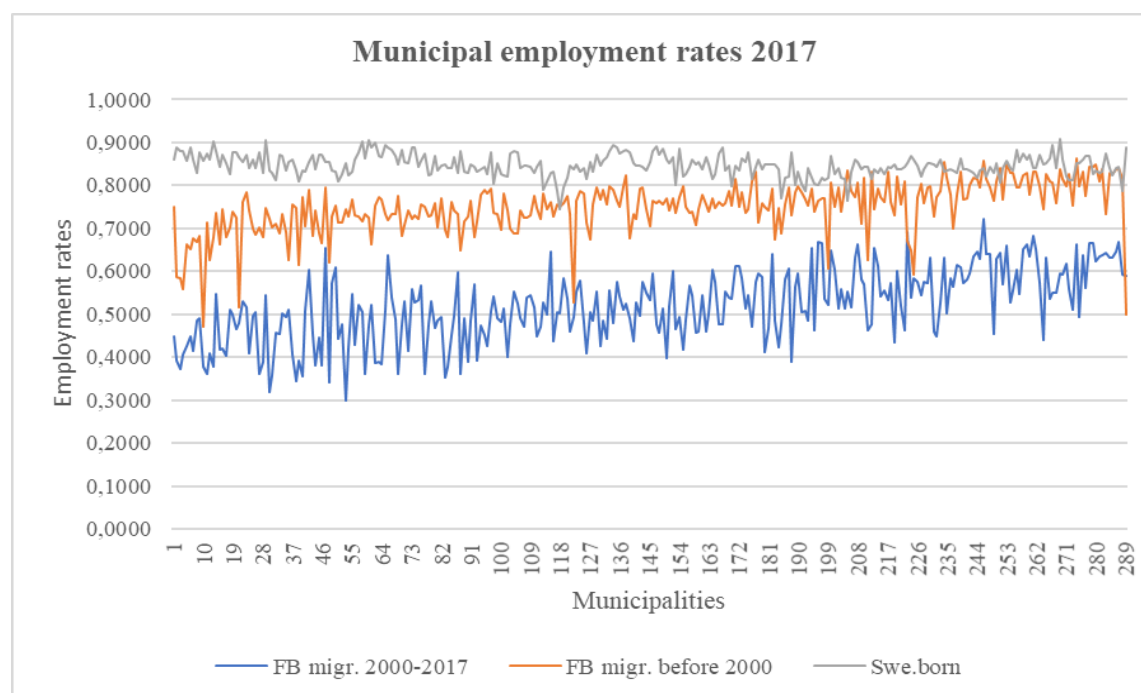
real effect could be assigned to a selection of immigrants to these municipalities. By using cross-sectional data, the variable only measures employment rates at a single point in time, and these selection effects will not be captured by the regression. Additionally, only a minor share (about 4%, calculation not included) of the immigrant population were registered in rural municipalities as defined in this study. That is also of importance when validating the results (cf. Bevelander & Lundh 2007).

## 5. Results

### Descriptive statistics

This section provides a brief overview of how employment rates, local labor market characteristics, and migrant populations vary across Sweden's municipalities in 2017.

**Graph 5.1. Municipal employment rates for Swedish- and foreign-born persons in 2017**



The graph above (5.1) illustrates municipal employment rates for Swedish- and foreign-born persons (categorized by whether migrating to Sweden before or after 2000) respectively. The general pattern is clear; Swedish-born persons have the highest employment rate, followed by

foreign-born persons migrating to Sweden before 2000, and thereafter foreign-born persons migrating to Sweden after 2000. Besides significant differences in employment rates between the three groups, there are significant regional differences in employment rates between municipalities, especially so for the foreign-born groups.

**Table 5.2 Descriptive statistics of variables. Mean, standard deviation, minimum- and maximum values in percent.**

<i>Variable</i>	<i>Obs</i>	<i>Mean</i>	<i>Std. dev.</i>	<i>Min</i>	<i>Max</i>
<b>Immigrant employment rates</b>	289	51.9%	.08441	29.8%	72.1%
<b>At least secondary education</b>	289	63.3%	.0595	45.8%	77.3%
<b>Time in Sweden &gt;5 years</b>	289	40.2%	.0821	17.7%	56.5%
<b>Refugees</b>	289	47.8%	.1518	10.8%	77.2%
<b>PFB before 2000</b>	289	6.8%	.0438	1.2%	31.1%
<b>Low-skill</b>	289	54.3%	.0768	21.3%	67.2%
<b>Swedish-born employment rates</b>	289	84.7%	.0257	74.4%	90.7%
<b>Men</b>	289	51.2%	.0249	41.4%	57.9%
<b>Empl.rate FB migrated b. 2000</b>	289	74.9%	.0608	47.2%	86.2%

Source Statistics Sweden 2017

Table 5.2 above describes the continuous variables used in this study<sup>9</sup>. According to table 5.2, there are 42 percentage points between the municipality with the highest immigrant employment rates (migrating after 2000 group) and the municipality with the lowest immigrant employment rates. While 72% of all immigrants that migrated to Sweden in the period 2000-2017 are employed in the municipality with the highest immigrant employment rates, only 30% of all immigrants are employed in the municipality with the lowest rates. The employment rates of Swedish-born persons vary as well, however, there is only 16 percentage points between the ‘best’ and the ‘worst’ municipality. It can also be noted that there is quite some deviation between municipalities, not only in terms of employment rates but on all

<sup>9</sup> The variable Empl.rate FB migrated before 2000 is included in Table 5.2 to illustrate that the employment rates for this group is higher than for those who migrated to Sweden in the period 2000-2017.



‘characteristics.’ For example, the share of immigrants who have at least secondary education ranges from 46-77%, between the municipality with the lowest level of ‘educated’ immigrants to the municipality with the highest levels. Looking at the share who are working in low-skilled professions, as an indicator of the local business structure, it ranges from 21- 67%. In other words, neither the composition of immigrant populations nor the structure of the local labor market is homogenous throughout the country. I expect these regional differences to be associated to the differences in employment integration success. Whether or not this hold is what the next section, OLS- multiple regression analysis, will serve to find out.

## OLS- multiple regression analysis

The table below (3.5) present the four regression models. Model 1 represents the ‘Immigrant composition effect’. Model 2 concerns the ‘Municipality effects’. Model 3 adds Model 1 and Model 2 together. The results are reported as regression coefficients, at the 95% confidence level. Model 4 is identical to Model 3, but results are reported in beta coefficients. As beta coefficients are measured in standard deviations, and not units of the variables, they can be used to compare the relative strength of each of the predictors in the model (Chen et al. 2003).

**Table 5.3 OLS- regressions for the outcome variable immigrant employment rates**

<i>Predictor variables</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
<b>At least secondary education</b>	0,342***		.0,196**	0,138**
<b>Time in Sweden &gt;5 years</b>	0,340***		.0,266***	0,259***
<b>SFI</b>	0,003		-.0,002	-0,027
<b>Refugees</b>	-0,144***		-0,145***	-0,261***
<b>PFB before 2000</b>		0,463***	0,09	0,047
<b>Rural</b>		0,027*	0,02*	0,081*
<b>Low-skill</b>		-0,227***	0,012	0,01
<b>Swedish- born employment rates</b>		2,094***	1,65***	0,501***
<b>N</b>	289	289	289	289
<b>R<sup>2</sup> adjusted</b>	0,505	0,515	0,712	0,712

**Source:** Statistics Sweden 2017

**Significance level:** \*\*\*=p<0,001 \*\*=p<0,01 \*=p<0,05

## **Immigrant composition effects**

In Model 1 (Table 5.3), the relationship between the outcome variable 'Immigrant employment rates' and the predictor variables measuring characteristics of the immigrant populations is examined without controls. According to Model 1, the 'Immigrant composition effect' can explain about 50% of the municipal variance in 'Immigrant employment rates.'

In Model 1, a higher share of immigrants with at least secondary education and a higher share of immigrants who have been in Sweden for more than five years are both positively associated with immigrant employment rates, holding all other variables in the model constant. As the share of immigrants who have at least secondary education increases by 1%, the predicted immigrant employment rates increase with 0,34%, on average. The same interpretation goes for the share of immigrants who have been in Sweden for more than five years. In line with previous predictions, a higher share of refugees and relatives to refugees is negatively associated immigrant employment rates. The variable SFI, though, is not significantly related at the 95% confidence level, according to Model 1.

## **Municipality effects**

In Model 2 (Table 5.3), the association between 'Immigrant employment rates' and the variables measuring municipality characteristics is examined. According to Model 2, 'Municipality effects' can explain about 50% of the variance in 'Immigrant employment rates'. According to Model 2, there is a strong positive association between immigrant employment rates and the employment rates for Swedish-born persons. As the employment rates for Swedish-born persons increases by 1%, the predicted immigrant employment rates increase with 2,1%, on average, holding all other variables in the model constant. Comparing the effect size of this variable to the other predictor variables in this study it is remarkably large. This suggests the conditions of the local market to be a relatively strong predictor for employment outcomes. Living in a rural municipality is also positively associated to immigrant employment rates, as compared to living in an urban municipality. However, the size of the effect is minimal (0,027). A larger share of persons working in low-skilled professions is negatively associated with immigrant employment rates, as opposed to the prediction of hypothesis three. However, immigrant employment rates are positively associated with larger populations of 'established' migrants as theorized in hypothesis two.

## **Immigrant composition and municipality effects combined**

When combining Model 1 and Model 2 into Model 3, the regression results suggest that 71% of the variance in 'Immigrant employment rates' can be associated to the 'Immigrant composition effects' and the 'Municipality effects' combined. As the adjusted  $R^2$  tend to increase with the number of predictor variables included, this relatively high  $R^2_{\text{adjusted}}$  could be the result of Model 4 having the largest number of predictor variables (Edling & Hedström 2003). However, as mentioned repeatedly in this study, municipal differences in employment integration success is likely to be affected by local factors as well as by a selection of immigrants. Hence, it is a fair guess that including both dimensions truly strengthen the explanatory force of the model.

In Model 3, there is no change regarding the (lack of) association between the share who successfully completed SFI and immigrant employment rates. However, the significant linkages seen in Model 2 for the size of the low-skilled workforce and the size of the 'established' migrant population, disappear due to the inclusion of variables measuring characteristics of the immigrant population ( $p > 0,05$ ). All other significant associations found in Model 1-2 persist, but the effect sizes decreased for the variables: 'At least secondary education', 'Time in Sweden' and 'Swedish-born employment rates'. This suggests, that those three variables are somewhat correlated and that the municipalities with the most prosperous labor markets also hold relatively large shares of well-educated and established migrants.

Being a rural municipality as opposed to an urban municipality is positively associated with immigrant employment rates also in Model 3. But, the size of the effect is minimal. According to Model 3, there is only 0,02 percentage change on average between rural municipalities as compared to urban ones. Moreover, as mentioned earlier, the municipality Överkalix is a very influential observation. When omitting Överkalix from Model 3, the variable 'Rural' was not significantly related to 'Immigrant employment rates' (calculation not included). Hence, the result should be taken with great caution.

Model 4 (Table 5.3) is Model 3 measured in beta-coefficients. According to Model 4, the local supply of jobs is the strongest predictor for the variations in employment success, followed by having a relatively large share of migrants who have been in Sweden for more than five years. The variable 'Rural' has the lowest beta-value (except for the variables SFI and Low-skill and PFBbefore2000 who were not significantly related to Immigrant employment rates in Model 3 and 4).

## 6. Discussion

The aim of this study was to analyze municipal differences in integration success by investigating the effects of immigrant (human capital) characteristic as well as local factors. The analysis was guided by four hypotheses derived from sociological and demographical theories on what causes employment integration in general and regional variations in particular. Due to missing data, the analysis includes 289, and not all, of Sweden's municipalities. That, however, is of minor significance for the study. The imperfect measurement of 'municipalities dominated by a low-skilled workforce', was more problematic and only three out of four hypotheses have been empirically tested.

Aggregated register data for the year 2017, held by Statistics Sweden, have been used to operationalize a number of variables to statistically test the theoretical postulations conducting OLS- multiple regression analysis. The regression results suggest that group-level differences in immigrants' educational level and duration of residence can explain some, but not all, of the municipal variations in immigrant employment rates. These results are in line with previous research, conducted at the individual level, suggesting education and time to be important determinants for employment integration success (cf. Bevelander 1999; Dahlstedt & Bevelander 2010; Nekby 2002; Nekby et al. 2008). Having a relatively large share of immigrants who successfully completed SFI, however, had no statistically significant contribution on 'Immigrant employment rates' in this study. I do not interpret this as evidence against the importance of language proficiency for employment integration success (cf. Delander et al. 2005; Rooth & Åslund 2006). I rather interpret it as I was not able to capture the effect using share who successfully completed SFI as a proxy for language skills. The variable does not refer to the whole immigrant population but is based on those who attended SFI and successfully completed it. Hence, it is possible that those who did not attend SFI to begin with have an even better language proficiency.

All on all, I found some support for hypothesis one: "*Municipalities that hold immigrant populations with relatively high levels of human capital have relatively high immigrant employment rates*". However, the 'real' effect of selection of immigrants to different municipalities is not nearly uncovered using the predictor variables in this model. Having added more variables measuring productivity relevant characteristics would have enriched

the understanding further. Additionally, having used a multi-level approach controlling for migrant characteristics on the individual level would have been preferable given the factors I want to control for are individual attributes.

According to hypothesis two I predicted that: “*The employment rates of ‘recently arrived’ immigrants are higher in municipalities that have relatively large populations of ‘established’ immigrants*”. Before moving on to whether or not this hypothesis got confirmed a finger of caution must be raised towards the fact that the theoretical assumptions on networks and discrimination, from which this hypothesis was derived, was not actually tested. That being said, the regression results suggest that the size of the established migrant population do not have any significant contribution in explaining the municipal variations in immigrant employment rates, when migrant (human capital) characteristics are controlled for. Hence, hypothesis two is rejected. There are several possible explanations to this:

The first explanation is that there is no relationship between the size of the established migrant population and the employment prospects of later arrived cohorts. It is the country specific human capital obtained that determine success in the labor market (cf. Human capital theory, Becker 1992). Another explanation is that there could be such an association, but it was not captured by the regression due to imperfect operationalization of variables. Both the variable ‘PFB before 2000’ and the variable ‘Immigrant employment rates’ refers to persons *living* in the municipality, not *working* in the municipality. If a substantial number of the immigrant population is living in one municipality but working in another, it is possible that the employment rates of (later arrived) immigrants are higher in municipalities that have more experience from *working* with foreign-born persons, but that was not what I measured. Last, it is possible that results found at the aggregate level are significantly different from associations found at the individual level (Selvin 1958; Robinson 1950). Hence, even though I had to reject hypothesis 2, given the way immigrants are defined in this study it is still possible that such associations do exists for certain groups of immigrants. For example, it is possible that local experience from working with persons from Turkey increases the employment prospects for persons with a Turkish origin, however it does not increase the employment prospects for other groups of immigrants as well (cf. Friberg & Mitdboen 2018). It is also possible that living in a municipality (or a neighborhood) with a relatively large share of established migrants could be beneficial for some groups of immigrants, in terms of getting access to networks that provide resources for socio-economic mobility. However, the

negative aspects of ethnic residential segregation such as lack of contact with the majority population and reinforced exposure to discrimination mitigated the effect.

Hypotheses three predicted that “*Municipalities dominated by a labor market requiring a ‘low-skilled’ workforce have relatively high immigrant employment rates*”. Whether or not this hold true can neither be verified nor rejected due to operationalization difficulties. The size of the low-skilled workforce as measured in this study, though, had no statistically significant contribution to differences in municipal employment integration success. Conversely, the conditions of the local labor market, measured via employment rates for Swedish- born persons, stood out as the most significant predictor for immigrant employment rates. These results are in line with previous research suggesting the conditions of the local labor market and job access to be key issues for immigrant employment integration (cf. Bevelander & Lundh 2007; Vogiazidez & Mondani 2018).

In final, the regression results indicate that rural municipalities have higher immigrant employment rates, on average, compared to urban municipalities as predicted in hypothesis four. Even though these results correspond to previous research suggesting immigrant employment probabilities to be higher in sparsely populated areas (cf. Bevelander & Lundh 2007; Hedberg & Handrikmaan 2014; Vogiazides & Mondani 2008), the empirical contribution of this study has to be considered unreliable. The strength of the effect size was minimal, and even more importantly it was largely influenced by a single observation. Nonetheless, I find the socioeconomic integration of (international) migrants in rural areas to be one of the most interesting topics for further research. As previous research on the local aspects of employment integration has mainly been focusing on larger cities or metropolitan areas, the employment integration of immigrants in rural areas is a much more neglected dimension. Also, the inflow of international migration can potentially play a major role in reversing population decline and maintaining economic and social sustainability in rural areas given successful employment integration (Hugo & Morén- Algeret 2008).

## 7. Conclusions

Previous research on immigrant employment integration in Sweden has predominantly been focusing on either the country as a whole or, when geographical aspects are considered, the metropolitan areas. Even though there are major differences in the degree to which immigrants are active in the labor force between municipalities, little has been done to explain why these regional differences exist. The purpose of this paper was, therefore, to add to previous research by studying employment integration from a municipal perspective. The objective was to analyze municipal differences in immigrant employment rates by investigating the effects of migrant characteristic as well as spatial characteristics. The results suggest that some of these differences could be attributed to 'selection effects,' that is municipalities attracting immigrants with different levels of country specific human capital; however, local factors were of importance as well. The employment rates of Swedish-born persons, a proxy for the local supply of jobs, were significantly associated with the employment rates of immigrants. This suggests the importance of considering local labor markets conditions when allocating immigrants to different municipalities if the aim is to facilitate immigrants' labor market entrance.

This study has provided a small piece to the puzzle on how to understand municipal differences in employment integration success. As successful employment integration is vital, both from an individual and a societal perspective, even a small piece adding to the understanding on how local factors may affect employment integration is of value. Especially as housing policies are likely to be implemented as means to facilitate labor market integration also in the future. However, the statistical analysis leaves many questions unanswered and whether municipalities make for good integration processes is likely to be better answered using more in-depth methodologies.

In final, the present study does not account for local differences, such as the implementation of activation policy's and immigrant discrimination the way it may vary across municipalities. Finding ways to include these dimensions would be interesting topics for further research.

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# Appendix

## Model specification

Several significance tests have been conducted to make sure that the models are well specified and that only meaningful predictor variables have been included in each of the three models.

The first test used to assure a significant collective contribution of all variables in the models was the F-test. A significant F-test means that the contribution of all variables added in the model is meaningful. There is a significant difference between the 'full' models compared to models that contain some, but not all, of the predictors (Chen et al. 2003). The F-test shows that the inclusion of variables is significant in all models (Model 1-3).

The second model specification test conducted was "linktest." Linktest performs a model specification test for single-equation models. The idea behind linktest is that if a regression is correctly specified one should not be able to find any additional significant independent variables, except by chance (Chen et al. 2003). I used the linktest for all models separately. Results ( $\text{hat}_{sq} p > 0.05$ ) indicates that all models are correctly specified

Finally, I ran the ovtest in order to perform yet another test of regression model specification. The ovtest performs a regression specification error test for omitted variables, and the idea behind ovtest is similar to that of linktest (Chen et al. 2003). The ovtest was conducted for all models separately. Results show that there are no omitted variables in Model 1-2. However, Model 3 has specification error according to ovtest. ( $p=0, 01$ )

## Regression diagnostics

**Unusual and influential data:** An observation is said to be influential if removing the observation substantially changes the estimates of coefficients. Influence can be thought of as the product of leverage and outlierness (Chen et al. 2003). I looked for outliers and leverage both separately and jointly to check for unusual and influential data. Results show that Överkalix is the most influential observation.

**Normality of residuals:** Normality of residuals is required for valid hypothesis testing (Chen et al. 2003). Graphical (kdensity, pnorm, qnorm), as well as numerical (Shapiro-Wilk W test for normality) tests, were done to check normality of residuals. Results show that residuals are normally distributed in Model 2 but not in Model 1 and 3. This is primarily the result of residuals not being normally distributed for the variable 'Refugees'. The variable 'Refugees' was the most problematic variable in terms of not having normally distributed residuals (according to Swilk test, the graphical tests looked OK). As 'Refugees' is a control variable, I am not (too) concerned that it will affect the hypothesis testing.

**Homoscedasticity of residuals:** Homogeneity of variance of the residuals is one of the main assumptions for the OLS-regression (Chen et al. 2003). If the assumption of homoscedasticity is violated the OLS- estimates are no longer the best (lowest variance) estimators (Gordon 2015). Graphical (rvfplot, residuals- versus- fitted plots), as well as the numerical test Cameron & Trivedi's decomposition of IM-test and Breusch-Pagan/ Cook-Weisberg test for heteroscedasticity, were conducted to test for heteroscedasticity. The overall result shows that I do not have a problem with heteroscedasticity in any of the models. However, looking at variables one by one there are indications of heteroscedasticity in the residuals for the variable 'Refugees.'

**Multicollinearity:** Running graphical test, I find indications of a linear relationship between some of the predictor variables. Especially prominent is the positive linear relationship between 'At least secondary education' and 'Time in Sweden'. There is also a negative linear relationship between the variables 'Time in Sweden' and 'Refugees', as well as between 'Refugees' and 'At least secondary education.' Some correlation among predictor variables are needed in order to benefit from multiple regression's abilities to reduce bias. Adding more variables into a multiple regression model will not change the coefficient estimate of predictor variables unless the new variables are correlated at least to some degree with earlier predictors (Gordon 2015). At the same time, correlation among predictor variables increases the standard errors of coefficients. As the degree of multicollinearity increases, the estimates of the coefficients become unstable and the standard errors for the coefficients can get widely inflated. If there is a perfect linear relationship among the predictor variables, the estimates of a regression model cannot be uniquely computed (Chen et al. 2003). The Variance inflation factor (VIF) was used after regression to check for multicollinearity. According to VIF, I did not have problems with multicollinearity between the predictor variables in any of the models.

**Linearity:** When doing a linear regression, the assumption is that the relationship between the outcome variable and the predictor variables is linear. If this assumption is violated (in case of nonlinearity), the linear regression will try to fit a straight line to the data that is not linear and give erroneous coefficient estimates (Chen et al. 2003, Edling & Hedström 2003). I plotted the standardized residuals against each of the predictors in each of the regression models to check for problems of nonlinearity. I also used acprplot and kdensity graphs to identify nonlinearities in the data. Results show that the variable ‘Refugees’ is the most problematic variable in terms of non-linearity. All in all, I am not too concerned about non-linearities in the data.