Sex Differences in the Regional Settlement Patterns of Immigrants to Sweden 1967–2005

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Abstract

The aim of this study is to analyse the initial allocation of immigrants to Sweden 1967–2005 by sex in a regional perspective. Vacancies, unemployment and labour market participation as well as geographical areas with many previous immigrants are included in the analysis as pull-factors.

A multivariate cross-section OLS regression model is used to estimate the relative initial regional distribution of immigrants in Sweden in 1967, 1975, 1990 and 2005 by sex. The chosen method enables to control for a subset of explanatory variables and examine the effect of a selected independent variable when estimating the regional pull-factors to immigration. This study uses data collected from Statistics Sweden (SCB) and the National Labour Market Board (AMS). The data used is regional macro data, which does not contain information on single individuals.

The findings suggest that sex differences in the settlement patterns of immigrants to Sweden did exist in 1975, 1990 and 2005, but not in 1967.
1. Introduction

During the era of labour import during the 1950's and 1960's the share of women amongst the immigrants was large. It was not only industrial workers needs in Sweden, but also maids and housekeepers (de los Reyes 2002:266; Lundh 2005:24). In a recent study, it is shown that around 50 per cent or more of the immigrants to Sweden 1945–1960 were women. Such large share of women implicates that they were not passive household members coming to Sweden as tied movers. It is surprising that given the large share of women amongst the immigrants to Sweden during the era of labour import, female immigrants have received very little attention in the Swedish history of migration. What is known about the female immigrants to Sweden is basically just fragments (Rauhut 2011).1

Since the World War II the share of women amongst the immigrant to Sweden has been around 50 per cent or more with one exception: during the second half of the 1960’s and beginning of the 1970’s (see figure 1). Such high share of immigrants has been noticed in other countries as well. Houstoun et al. (1984:908) find that women have been in majority amongst the immigrants to the U.S. since the 1930’s; at the same time, Morokvasic (1984:886) finds women in minority amongst the immigrants to West-Germany. The theoretical as well as empirical findings of the numerous studies by Oded Stark suggest gender differences in international migration (e.g. Lauby & Stark 1988, Stark & Taylor 1989, 1991).

It has been acknowledged in the international research on migration that women has become a larger and more important group in international migration after World War II. This development has been accentuated since the 1960’s. Castles & Miller (1994:8) argue that it is possible to talk about a feminisation of international migration. According to Kofman (1999:269,286–289) more attention has been made on gender differences in the international migration research since the 1970’s, but lots remain to be done methodologically and theoretically before the research on women has caught up with the research on men in migration research.

Not only the aspect of women immigrating to Sweden needs further attention in research, also the settlement patterns of immigrants urge for further attention. While the decisions for the initial settlement in Sweden has caught little attention in research, the decisions for secondary moves of immigrants, i.e. the geographical mobility after the initial settlement in Sweden have been analysed in a number of studies for refugees, tied movers and labour immigrants (e.g. Edin et al. 2003, 2004, Åslund 2000, 2005, Åslund and Rooth 2007, SCB 2006, Andersson 2004, Ekberg 1993, Ekberg and Andersson 1995, Rephann and Vencatasawmy 2002, SCB 2006, 2008). Only a few studies have, however, focused on the initial settlements. Wadensjö (1973:424) finds that the determinant for immigrants’ initial settlement decision in the 1960s was vacancies and labour market conditions in general. In an analysis of the immigrants’ settlement patterns in 1967, 1975, 1990 and 2005 by Rauhut and Johansson (2008:24) vacancies did impact the choice of settlement for immigrants in Sweden in 1967, but not for the other years.

1 See e.g. Svanberg & Tydén 1992, Lundh & Ohlsson 1994a, Ekberg & Gustafsson 1995, de los Reyes 2002, Johnson 2010 and Wadensjö 1973. None of these studies analyse gender differences in the migration to Sweden.
According to Johansson and Rauhut (2008:43–47) the three metropolitan regions have always attracted a majority of all immigrants, but the distribution of immigrants between the remaining counties in Sweden has become more even between 1950 and 2005. They cannot find any evidence that labour immigrants and refugees have different settlement patterns and react in different ways with regard to the labour market variables. Instead, the impact of these variables decreases over time. Instead, the most important pull-factor has been the regional distribution of foreign-born people (Johansson and Rauhut 2008:50–53). Rauhut and Johansson (2010:26) also find the stock of foreign-born persons as the most and only important factor for the regional initial settlement patterns for 10 immigrant groups 1975–2005, but age has little impact on the regional settlement patterns for immigrants during the same period (Rauhut and Johansson 2011: 18–19).

The settlement patterns of the foreign-born population have changed considerably since the 1960s and 1970s, partly as an effect of the structural transformation of the Swedish economy from an industrial to a post-industrial society, partly as a consequence of the transition from labour import to refugee immigration (Lund and Ohlsson 1994:23, Johansson and Rauhut 2008:43, SCB 2004:24–25). While many labour market immigrants during the 1950s, 1960s and the first half of the 1970s settled down in industrial towns or communities as a result of the demand of blue-collar workers, the refugees after the 1970s and 1980s became more concentrated to the metropolitan areas and very unwilling to leave these areas (Andersson 2003, Johansson and Rauhut 2008:40).

An attempt to spread refugees more evenly over the country was launched in 1985 with the implementation of *Hela Sverige-strategin* ("countrywide strategy for refugee reception"). The new strategy further stated that a refugee no longer could settle down where he/she wanted to live, which was an attempt to limit the concentration to the metropolitan areas. From 1985 to 1994, in line with this countrywide strategy, the majority of the refugee immigrants were more than before

![Figure 1 The share of women amongst the immigrants to Sweden 1950-2009.](image-url)

Source: Own calculations from SOS Befolkningsförändringar del 3, SOS Befolkningsstatistik and SOS Folkmängd del 3.
dispersed across Sweden (SCB 2006:25, Johansson and Rauhut 2008:53). The countrywide strategy was partially abandoned in 1994 as an evaluation showed that, although the policy was successful in spreading people initially over the country, secondary migration tended to concentrate people again over the years (Andersson 2003). Since 1994, refugees are allowed to arrange for their own living and housing and 2005 only 30 percent of new immigrants are involved in the original countrywide placement strategy (SCB 2006:25–26).

Johansson and Rauhut (2008:48) show that the inter-regional distribution of immigrants in the Swedish regions has been more even 1950–2005 – both in terms of the accumulated number of foreign born persons (stock) in the Swedish regions, likewise the number of immigrants (flow) – while the opposite can be said about the intra-regional distribution of immigrant (see table 1). The lower coefficient of variation (C.V.), the more even is the diffusion of immigrants. Their findings are, however, silent concerning possible gender aspects.

Table 1. Coefficient of Variation (C.V.) for the stock and flow of immigrants to Sweden 1950–2005 for all regions (N=21) and non-metropolitan regions (N=18).

<table>
<thead>
<tr>
<th>Year</th>
<th>Stock of immigrants</th>
<th>Flow of immigrants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C.V. (N=21)</td>
<td>C.V. (N=18)</td>
</tr>
<tr>
<td>1950</td>
<td>0.600</td>
<td>0.636</td>
</tr>
<tr>
<td>1967</td>
<td>0.600</td>
<td>0.540</td>
</tr>
<tr>
<td>1975</td>
<td>0.563</td>
<td>0.558</td>
</tr>
<tr>
<td>1990</td>
<td>0.416</td>
<td>0.359</td>
</tr>
<tr>
<td>2005</td>
<td>0.370</td>
<td>0.314</td>
</tr>
</tbody>
</table>

Source: Johansson & Rauhut 2008a:48

Gender differences in the settlement patterns of immigrants to Sweden are an aspect in the Swedish immigration history which has not yet been fully explored. This study aims at analysing what possible pull-factors have determined the initial regional settlement pattern of immigrants by gender to Sweden 1967–2005. Vacancies, unemployment and labour market participation as well as the geographical areas with many previous immigrants are included in the analysis as pull-factors. This study proposes to answer the following two questions: (1) which factors have had impact on the initial regional settlement pattern of immigrants by gender? (2) Have the determining factors changed over time for the studied immigrants of different genders?

2 When the refugees received their residence permit they were free to move anywhere in the country, which meant that they moved to the metropolitan regions. An implication of this is that the refugees are registered as immigrants in the county of the refugee centre and their move to the metropolitan areas, after they have received their residence permit, is classified as domestic migration. Since refugees have constituted a significant group of immigrants this settlement strategy for refugees has influenced the initial regional settlement patterns of immigrants (Johansson and Rauhut 2008:40).
2. Theoretical approaches and hypotheses

The theoretical considerations in this paper take its point of departure in the neo-classical theory of migration. Expansive regions with a larger demand for labour than actually can be met regionally or nationally will stimulate migration; in these regions job prospects are good and the wages in the modern and expanding sector are higher than in other sectors. In short, labour will be transferred from economically less developed sectors to modern industrialised and knowledge-based ones (Fisher and Straubhaar 1996:64–74). When the labour demand in the expanding regions has been met, wages will be relatively lower, and unemployment relatively higher in these regions. As a result, the demand for labour will subside. Wage differentials and differences in unemployment between two regions are both push and pull factors for migration (Massey et al. 1993:433–434).

The big difference between expanding and retarding regions is instead the employment size – in the expanding regions where the increased demand resulted in a transfer of people from the retarding regions, the amount of jobs and workers are larger than before while the contrary is the case in the retarding regions (e.g. McCann 2005:192–193). Even these development paths are in line with the neo-classical theory even if the outcome will be a divergent development and even polarisation between differing regions as a consequence of external or internal factors or shocks. A new equilibrium is reached but the attractiveness of the regions is quite different after than before the transformation process. This means also that the push and pull-factors will be quite different as “big is beautiful” often is one central ingredient among the migration motives that are associated with jobs, flexibility and urban life styles.

This kinds of reasoning has been developed in human capital based economic theory where individuals are assumed to undertake long term calculations where migration can be seen analo-logical with an investment in future wellbeing. The idea that the migrant is perfectly rational from the point of view and this is also a central ingredient in human capital based migration theory. The decision on both when and where to move includes then variables such as wage differentials, unemployment rates, travel costs, the ability to move, barriers and the psychological aspects of leaving friends and family etc. (Sjaastad 1962, Liu 1975, Todaro 1969, 1976, 1989, Schoorl 1995). Individual characteristics (e.g. education, experience, training, language skills) produce different outcomes regarding both the decision to migrate, and where to migrate and the time dimension is also a central ingredient as the outcome may differ between short and long term. One central assumption is that the migrant is rational – at least ex ante (Todaro 1969, 1976, 1989, Harris and Todaro, 1970). It must be kept in mind that this kind of reasoning is applicable of a free labour force and not on immigrants without residence or job permits. Thus, even if the explanatory power is less for the latter category the motives behind the migration decisions are rational from the migrant’s point of view – otherwise there would be no migration.

In the neoclassical migration theory regional vacancy ratios, regional unemployment rates are often used as indicators to measure possible pull-factors for the migration to Sweden 1975–2005. Other factors that can be used are distance and the size of people living in the cities or regions. As mentioned above the above mentioned factors are more relevant for Swedes and people from the
EU than for refugees as they are often in a situation dominated by restrictions and other hindrances. The latter seems to be of utmost importance for immigrants outside the Nordic countries or the EU as they prefer to move to places where they suppose to have the best chances to get a job on formal or informal ways. As the migrant is supposed to be rational this is a process that accentuates the concentration process and the skewed distribution of the immigrants in the second round even if the unemployment levels in these categories are very high. This type of migratory movements are predominantly oriented to special districts in the metropolitan areas and is not contradictory to the above mentioned observation that the distribution of immigrants are more evenly distributed between the counties today compared to some decades ago.

The neo-classical theory of migration cannot, however, explain the continuation of migration to certain districts in the big cities or metropolitan areas as a consequence of traditional pull-factors as job opportunities or vacancies, especially not after the initial demand for labour has subsided. The second point of departure for the theoretical framework used in this study is the Network theory of migration. Moving from point A to point B is connected with risks and costs. Networks and connections is a kind of social capital with people who are already staying/living/working in point B which will make it easier to make a living in point B (Boyd 1989:661, Schoorl 1995:5–6). "Once the number of migrants reaches a critical threshold, the expansion of networks reduces the costs and risks of movement, which causes the probability of migration to rise, which causes additional movement, which further expands the networks, and so on" (Massey et al. 1993:448–449). Migration networks as social and personal contacts can, however, overcome restrictions in admission policies. A common strategy for overcoming admission (and settlement) policies is through marriages between network members, another is the importance of close relatives (Schoorl 1995:5).

Although the existence of migration networks is very difficult to measure, which is pointed out by Schoorl (1995:6), a possible indicator for the presence of immigrant networks is the accumulated regional stock of foreign-born persons. It can be assumed that if networks exist between immigrants from one country and between immigrants in general in one geographical area, that particular geographical area will attract many immigrants. Hence, it can be assumed that if the accumulated regional stock of foreign-born persons is high so is the presence of immigrant networks, and vice versa, something that will attract new immigrants. Previous empirical studies indicate support for this (e.g. Åslund 2000).

In this study the total regional stock of immigrants will be used as a proxy variable for the existence of migration networks. It would have been desirable to use the regional stock of immigrants by origin, but the relevant data, unfortunately, does not exist for all years.

Leaving the economically motivated migration of workers, for whom the push-pull approach to migration is applicable, the movement of refugees is less voluntary. In many cases, however, economic and political forces may jointly trigger refugee movements and the degree of freedom of choice is highly relative. Governments may try to limit immigration by enforcing e.g. a new legislation to slow down or limit refugee immigration. Simultaneously, family union policies may counter-act these ambitions (Massey et al. 1993:50). In this study the strategy "Hela Sverige" will be used as an indicator for government action to control the immigration to and in Sweden 1985–1995. This
can be seen as an institutional factor that hampers the free geographic mobility and also diminish the migrations propensities among the migrants – at least the refugees – as they are registered in the official statistics.

A third theoretical point of departure, is a synthesis of the human capital theory and the segmented labour market theory that appears to be able to explain the settlement pattern among the migrants, internal as well as the migratory movements among the immigrants. As mentioned earlier the migrant is rational from the supply side of view according to the human capital theory simultaneously as demand side consists of several differing segments. This situation results in several labour market segments with little mobility and substitution between these, but high mobility and substitution within them (Johansson 1996:71–73). In the post-industrial society, the production factors are more complementary compared to the industrial society where they more easily substitute each other.

The dual or segmented labour market theory (SLM) accentuates instead the intrinsic demand for labour in modern industrial societies that create a constant need for workers at the bottom of the social hierarchy. This has also been a central ingredient since the introduction of the SLM-theories in the beginning of the 1970s (see e.g. Doeringer and Piore 1971, Vietorisz and Harrison 1973, Piore 1979). The segmented labour market consists of a number of segments more or less separated from each other by various kinds of formal or informal barriers resulting in a heterogeneous and unsubstitutable labour force. It is a well-known fact that it is in the lower segments in particular that the new immigrants, often from developing countries, are most likely to be found in the "3D-jobs" – jobs that are dirty, dangerous and degrading, which the natives more or less refuse to take (Taran 2005).

Foreigners in these sectors are also more vulnerable to economic fluctuations and unemployment than national inhabitants. This seems, however, to be not merely a business cycle phenomenon – rather there has been a long-term rise in the share of unemployed foreigners compared to nationals in recent decades. It also seems that it is more difficult for foreigners to find a new job when better times come. Low-skilled, manual workers – often men – in declining sectors and branches seem to have little chance of being re-employed (OECD 2004). This development is also in line with the theories of segmented labour markets in the way that the structural changes accentuate the mismatch on the labour market and increase the discrepancy between shortages and surpluses with regard to the production factor of labour between differing labour market segments. The result will be that the labour market segmentation more and more also will be a segmentation based on ethnicity and reinforce the segregation problems in especially the metropolitan areas.

In line with the above mentioned theories the following hypotheses are generated:

1. Many vacancies in a region will attract both male and female immigrants, but sex differences in the settlement patterns are expected. The zero hypothesis says the opposite.
2. High regional unemployment will repel both male and female immigrants, but sex differences in the settlement patterns are expected. The zero hypothesis says the opposite.
3. High regional employment will attract both male and female immigrants, but sex differences in the settlement patterns are expected. The zero hypothesis says the opposite.
Gender specific differences for these three hypotheses are more related to the economic structure and the demand for specific labour, not on vacancies, unemployment and employment per se.

Since immigration has continued long after the initial demand for labour subsided a hypothesis in line with the Network theory of migration is generated:

4. Previous migration flows to a region will generate more immigration and a gender specific impact on the initial settlement pattern will be found. The zero hypothesis says the opposite.

These hypotheses so far apply to labour immigration, but not to a refugee immigration where the refugees are placed in refugee centres anywhere in the country; the choice of settlement is thereby determined by institutional factors and not by the free choice of the migrants. A fifth hypothesis is therefore

5. The institutional impact of the countrywide strategy for refugee reception – *Hela Sverige-strategin* – will not lead to a gender specific impact on the initial settlement pattern. The zero hypothesis says the opposite.

3. Data and method

A multivariate cross-section OLS regression model will be used for estimating the relative regional distribution of immigrants in Sweden for the years 1967, 1975, 1990 and 2005. The method has been chosen because it enables us to control for a subset of explanatory variables and examine the effect of a selected independent variable when estimating the regional pull-factors to immigration. The data used is regional macro data, which means that we do not have any information on single individuals.

The dependent variable is the regional number of immigrants per 1000 inhabitants, $F$, by gender, $g$, to Sweden in region $i$, $F(g)_i$, for year $t$. This data is collected from the migration statistics of Statistics Sweden (SOS Befolkningsförändringar del 3, SOS Befolkningsstatistik and SOS Folkmängd del 3). At a regional level, the differences in initial settlement patterns by gender are marked, not only in a regional perspective but also over time (see figure 2).

For the independent variables unemployment, $U$, and employment, $E$, the regional unemployment and employment rates are used. This data is collected from the annual labour market surveys by Statistics Sweden (*Arbetskraftsundersökningen*, AKU). The regional vacancy ratio, $V$, is commonly defined by dividing the number of vacancies in region $i$ with the number of persons in the labour force in region $i$ for year $t$. This data is collected from the National Labour Market Board (AMS). The accumulated regional stock of immigrants per 1000 inhabitants, $S$, refers to the regional number of foreign citizens per 1000 inhabitants for 1975 2, and for the regional number of foreign born persons per 1000 inhabitants in 1990 and 2005. This data is collected from the population statistics of Statistics Sweden (SOS Befolkningsförändringar del 3, SOS Befolkningsstatistik and SOS Folkmängd del 3).

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2 For 1967 and 1975 only data for foreign citizens exists; country of birth was not registered.
Figure 2 The number of immigrants per 1000 inhabitants by gender and region 1967–2005

source: Own calculations from SOS Befolkningsförändringar del 3, SOS Befolkningsstatistik and SOS Folkmängd del 3.
The heterogeneous data for \( S \) means that the results of the analysis for 1967 and 1975 are not fully comparable to the results obtained for 1990 and 2005. The independent variable for the accumulated stock of previous immigrants is also so highly correlated with the dependent variable that a first order serial correlation for 1967 and 1975 is generated.\(^3\) To control for this heterogeneity and the first order serial correlation we insert a dummy variable (Industrial regions) in the model for 1967 and 1975. The major industrial regions (Stockholm, Uppsala, Södermanland, Östergötland, Skåne, Västra Götaland, Örebro, Västmanland, Dalarna, Gävelsberg and Norrbotten) are given the value 1, while all other regions have the value 0. Since it was the industry which demanded immigrant labour these regions ought to attract immigrants (Johansson & Rauhut 2008:43–45, Rauhut & Johansson 2010, 2011). Indirectly this dummy controls for the stock of immigrants including those who have become Swedish citizens.

The motives for migrating to Sweden differ depending on if the migrant is a labour immigrant, refugees or a returning Swedish citizen. Hence, it can be assumed that their motives for settling down in a specific region may differ. Since the labour market in Sweden is highly gender segregated (see e.g. Melkar & Anker 1998) it can be assumed that the motives for migrating to Sweden and where to settle down may differ between the different genders. In line with the theoretical reasoning above we have constructed four models. Model 1 specifies the initial settlement patterns for 1967 and 1975:

\[
\ln F(g)_{i,t} = \alpha_1 + \beta_1 \ln U_{i,t-1} + \beta_2 \ln E_{i,t-1} + \\
+ \beta_3 \ln V_{i,t-1} + \beta_4 \text{INDREG} + \varepsilon
\]  

Model 2 uses accumulated regional stock of immigrants per 1000 inhabitants, \( S_{i} \), instead of the dummy variable INDREG. In 1990 and 2005 problems with first order serial correlation does not exist. Accordingly, the model is specified as

\[
\ln F(g)_{i,t} = \alpha_1 + \beta_1 \ln U_{i,t-1} + \beta_2 \ln E_{i,t-1} + \\
+ \beta_3 \ln V_{i,t-1} + \beta_4 \ln S_{i,t-1} + \varepsilon
\]  

In the late 1970s and early 1980s the number of refugees to Sweden increased and they settled down in the metropolitan regions around Stockholm, Göteborg and Malmö. As mentioned earlier, in 1985 a strategy for distributing refugees evenly all over Sweden was introduced (Hela Sverige-strategin). The idea was to prevent refugees to cluster in the three metropolitan regions and instead distribute them to refugee centres all over Sweden. This induces an institutional bias to the analysis for 1990.

\(^3\) The accumulated stock of foreign born persons in the Swedish regions, \( S \), should be added in the model, at least on theoretical reasons – former immigration tends to generate new immigration – and the variable should be lagged with \( t - n \) years. The problem is, however, that \( S \) as foreign citizens generates first order serial correlation 1967 and 1975. The main reason for this appeared to be that the independent variable \( S \) as foreign citizens is highly correlated to the dependent variable \( F \), which results in e.g. inconsistent OLS-estimates, a larger \( R^2 \) than the true value and the \( t \)-statistics will be overestimated (Ramanathan 1995:449–451). Several tests and actions have been taken to control for this serial correlation, but all failed. As a result, \( S \) has been excluded from the model 1967 and 1975.
as factors such as vacancies, unemployment and employment will have little effect on the settlement pattern for a significant group of immigrants. To control for this institutional bias a dummy variable (Refugee centre) will be added to the model for 1990 and 2005. The dummy variable is 1 for the regions which hosted large refugee centres (Södermanland, Östergötland, Värmland, Örebro, Dalarna, Gävleborg, Västernorrland, Västerbotten and Norrbotten), for all other regions the value is 0. Model 3 is specified as

\[
\ln F(g)_{i,t} = \alpha_1 + \beta_1 \ln U_{i,t-1} + \beta_2 \ln E_{i,t-1} + \\
+ \beta_3 \ln V_{i,t-1} + \beta_4 \ln S_{i,t-1} + \beta_5 \text{REFCENT} + \varepsilon
\]  

The returning Swedish citizens differ from the other immigrants groups as they can be assumed to have ties to a specific region – the region they previously emigrated from. In recent years the group of returning natives amongst the immigrants has been very high – around 40 per cent of all immigrants to Sweden are returning natives (Rauhut 2007:19). As the e.g. headquarters for multinational Swedish companies, public authorities, several major universities (exchange of academic scholars and students) etc. are situated in the three metropolitan regions, we assume that the returning Swedish citizens prefer moving back to where they have their ties. Theoretically, a variable measuring the regional number of Swedish emigrants per 1000 inhabitants could be used as proxy variable. Unfortunately, the time spent abroad, before returning to Sweden, is unknown. Instead we add a dummy variable (big city) into the model to control for qualitative characteristic (the wish of returning to the region of origin) of this particular immigrant group. The regions Stockholm, Skåne and Västra Götaland are given the value 1, while all other regions are given the value 0. To estimate the effect of the returning Swedish citizens 1990 and 2005 the model 4 is specified as

\[
\ln F(g)_{i,t} = \alpha_1 + \beta_1 \ln U_{i,t-1} + \beta_2 \ln E_{i,t-1} + \\
+ \beta_3 \ln V_{i,t-1} + \beta_4 \ln S_{i,t-1} + \beta_5 \text{BIGCITY} + \varepsilon
\]  

4. Estimations and results

The results of the estimations are shown in tables 2–4. In 1967 the variable vacancy ratio showed positive coefficients for both men and women which were statistically separated from zero at a 5% level. This result indicates that vacancies attracted immigrants in their initial settlement decision; vacancies did attract immigrants of both genders. The dummy industrial region is statistically separated from zero at a 1% level for both men and women in 1967. The statistically significant result for the dummy industrial region indicates that (a) immigrants came for jobs in industry, but also (b) that these regions, with many previous immigrants, attracted new immigrants. The results for unemployment and employment are not statistically separated from zero. For 1967 no sex specific settlement patterns are found, which confirms the zero hypotheses no. 1–4.
In 1975, the only result with a coefficient statistically separated from zero at a 5% level is the dummy industrial regions for men. If the result is caused by a demand on male labour by the Swedish industry, or if it is a network effect from previous immigrants is hard to tell. In any case hypothesis no. 4 is confirmed, which means that a sex difference in the settlement patterns of immigrants to Sweden did exist in 1975.

While the three models in 1990 actually explain a lot regarding the initial settlement patterns of women, the same models fail to explain the initial settlement patterns of men (table 3). For all three models on the immigration of women to Sweden in 1990 the accumulated stock of previous immigrants, $S$, show positive coefficients and they are statistically separated from zero at a 1% level. Consequently, hypothesis no. 4 is confirmed, which means that a sex difference in the settlement patterns of immigrants to Sweden did exist in 1990.

The accumulated stock of immigrants, $S$, show positive coefficients which are statistically separated from zero at a 0.1% level for both genders in all models in 2005 (table 4). Furthermore, the dummy big city also show positive coefficients for both genders which are statistically separated from zero at a 5% level. These results are expected. Hence, the result for the dummy variable refugee centre is unexpected; the coefficients are not statistically separated from zero for either gender. Finally, the coefficients for men on the variable employment rates show negatively coefficients statistically separated from zero at a 6% level in model 2005 and 2005 (1), and at a 5% level in model 2005 (2). This means that the lower employment rates a region have, the more male immigrants will be attracted. Regions with large universities usually have relatively low employment.
Table 3 Regional pull factors 1990. *-stat within brackets. Dependent variable: Immigrant men and women per 1000 inhabitants to the Swedish regions in 1990.

<table>
<thead>
<tr>
<th></th>
<th>1990</th>
<th>1990 (1)</th>
<th>1990 (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td></td>
<td>(–.801)</td>
<td>(–1.254)</td>
<td>(–.691)</td>
</tr>
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<td>ln V t−1</td>
<td>−.004</td>
<td>.009</td>
<td>−.021</td>
</tr>
<tr>
<td></td>
<td>(−.023)</td>
<td>(.040)</td>
<td>(−.108)</td>
</tr>
<tr>
<td>ln U t−1</td>
<td>.068</td>
<td>.381</td>
<td>.113</td>
</tr>
<tr>
<td></td>
<td>(.239)</td>
<td>(1.121)</td>
<td>(.377)</td>
</tr>
<tr>
<td>ln E t−1</td>
<td>.220</td>
<td>.439</td>
<td>.195</td>
</tr>
<tr>
<td></td>
<td>(.746)</td>
<td>(1.242)</td>
<td>(.639)</td>
</tr>
<tr>
<td>ln S t−1</td>
<td>.655**</td>
<td>.450 a</td>
<td>.652**</td>
</tr>
<tr>
<td></td>
<td>(3.562)</td>
<td>(2.042)</td>
<td>(3.473)</td>
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<td>Refcentr</td>
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<td>–.059</td>
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<tr>
<td></td>
<td>(−.578)</td>
<td>(−.221)</td>
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<td>d.f.</td>
<td>16</td>
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<td>15</td>
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<tr>
<td>Durbin–Watson</td>
<td>1,949</td>
<td>1,355</td>
<td>1,803</td>
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<tr>
<td>Adj.–R²</td>
<td>.409</td>
<td>.150</td>
<td>.383</td>
</tr>
</tbody>
</table>

*** Statistically significant at 0.1%-level, ** Statistically significant at 1%-level, * Statistically significant at 5%-level, a. Statistically significant at 6%-level

Table 4. Regional pull factors 2005. *-stat within brackets. Dependent variable: Immigrant men and women per 1000 inhabitants to the Swedish regions in 2005.

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2005 (1)</th>
<th>2005 (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>Constant</td>
<td>7,060</td>
<td>13,398</td>
<td>6,924</td>
</tr>
<tr>
<td></td>
<td>(.347)</td>
<td>(1.653)</td>
<td>(.924)</td>
</tr>
<tr>
<td>ln V t−1</td>
<td>−.024</td>
<td>.125</td>
<td>−.010</td>
</tr>
<tr>
<td></td>
<td>(−.141)</td>
<td>(.798)</td>
<td>(.054)</td>
</tr>
<tr>
<td>ln U t−1</td>
<td>.000</td>
<td>−.094</td>
<td>−.032</td>
</tr>
<tr>
<td></td>
<td>(.001)</td>
<td>(.503)</td>
<td>(.141)</td>
</tr>
<tr>
<td>ln E t−1</td>
<td>−.306</td>
<td>−.467 a</td>
<td>−.303</td>
</tr>
<tr>
<td></td>
<td>(−1.998)</td>
<td>(−2.011)</td>
<td>(−1.151)</td>
</tr>
<tr>
<td>ln S t−1</td>
<td>.897***</td>
<td>.932***</td>
<td>.907***</td>
</tr>
<tr>
<td>Refcentr</td>
<td>.073</td>
<td>−.018</td>
<td>.073</td>
</tr>
<tr>
<td></td>
<td>(.383)</td>
<td>(−.105)</td>
<td>(.383)</td>
</tr>
<tr>
<td>d.f.</td>
<td>16</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>Durbin–Watson</td>
<td>1,797</td>
<td>1,573</td>
<td>1,759</td>
</tr>
<tr>
<td>Adj.–R²</td>
<td>.512</td>
<td>.597</td>
<td>.484</td>
</tr>
</tbody>
</table>

*** Statistically significant at 0.1%-level, ** Statistically significant at 1%-level, * Statistically significant at 5%-level, a. Statistically significant at 6%-level
rate (as an effect of all the non-working students in the population), which could indicate that the male immigrants are students. In any case hypothesis no. 3 is confirmed, which means that a sex difference in the settlement patterns of immigrants to Sweden did exist in 2005.

5. Concluding remarks

With one exception, vacancies, $V$, did not influence the immigrants by gender when they settled down in Sweden for any of the studied years; the exception is 1967. This is also in line with results from previous other study as e.g. Wadensjö (1973) and Rauhut & Johansson (2008) that have attained the same conclusions. Vacancies attracted both men and women in their initial regional settlement decision in 1967. Hypothesis no. 1 is however rejected as no sex differences were found.

In line with the findings in Rauhut & Johansson (2008, 2010) no statistically significant coefficients were obtained in this study regarding unemployment. The unemployment rate, $U$, did neither repel men nor women in their initial regional settlement decision 1967–2005. Due to the absence of sex differences hypothesis no. 2 is also rejected.

The employment rate, $E$, did not have an impact on the immigrants initial settlement decisions 1967, 1975 and 1990, neither for men nor for women. In two of the models for men in 2005 – models 2005 and 2005 (1) – the obtained coefficients are negative and statistically separated from zero at a 6 % level (see table 4). In model 2005 (2) for men the coefficient for employment rate is negative and statistically separated from zero at a 5 % level (see table 4). This means that men were attracted to regions with relatively low employment rates in their decision on settlement. Usually, regions with large universities usually have relatively low employment rates as the students are not regularly working. The coefficient for $E$ in 2005 indicates that many of the (male) immigrants are students. Hypothesis no. 3 is however rejected for the years 1967, 1975 and 1990 as no sex differences were found; for 2005 hypothesis no.3 is however confirmed.

Due to the heterogeneity in the variable for the accumulated stock of immigrants, $S$, in 1967 and 1975 compared to $S$ in 1990 and 2005 a dummy, industrial regions, was inserted into the models for 1967 and 1975. It was in the old industrial regions immigrant labour was demanded 1967–1975, so this dummy variable enables us indirectly to control for the accumulated stock of immigrants. The dummy industrial regions show positive coefficients, which are statistically separated from zero in 1967 and 1975. For both men and women the coefficient is statistically separated from zero at a 1 % level in 1967 and at a 5 % level for men in 1975. Previous immigrants attracted both men and women in their initial regional settlement decision 1967 and men in their initial regional settlement decision 1975. The findings confirm hypothesis no 4 for 1975, but not for 1967 as no gender differences were found that year.

The coefficients for the accumulated stock of immigrants, $S$, are positive and statistically separated from zero at a 1 % level for women in 1990, but not for men. The findings confirm hypothesis no 4. With one exception, the accumulated stock of immigrants, $S$, show positive coefficients which are statistically separated from zero at a 0.1% level for both genders in the models for 2005; the
exception is for women in the 2005 (2) model, where the coefficient is statistically separated from zero at a 1% level. Accordingly, hypothesis no. 4 is rejected for 2005.

The coefficient for the dummy variable *refugee centre* showed no positive value, neither for men nor women, which is statistically separated from zero at a 5% level in 1990 or 2005. This is a bit puzzling at first glance. In the study by Rauhut & Johansson (2010) some refugee groups showed statistically significant coefficients for the dummy variable *refugee centre*. One possible explanation can be that in a *gender perspective* the initial settlement patterns actually are inconclusive or irrelevant for refugees; as the refugees do not decide themselves where to settle, so how can there be any gender differences? If this should be the reason for the absence of statistically significant results in 1990, then it could be expected that gender patterns would emerge in 2005 since the “*Hela Sverige*”-strategy was relaxed in 1995. Hence, the result is the same for 2005 as for 1990. In any case, hypothesis no 5 is confirmed.

The dummy variable *big city* had a positive coefficient in 2005 and the coefficient was statistically separated from zero at a 5% level. This dummy was inserted in the model to control for the returning Swedish nationals. They have networks and ties to the region they previously emigrated from. The obtained result show no gender differences and thereby giving hypothesis no 4 support.

The overall conclusion regarding the impact of previous immigration on the initial regional settlement pattern is that of previous immigration matters. Previous immigrants had a gender impact on their initial regional settlement pattern in 1975 and 1990, on men in 1975 and on women in 1990. Although the inter-regional distribution of immigrants have been more evenly distributed at regional level during the past decades (Johansson & Rauhut 2008), Ravenstein’s old law about the size of the destination area (Ravenstein 1885) – in this case the size of immigrant stock in certain metropolitan regions – appears to be of interest. The network theory appears to have more explanatory power than the traditional push- and pull-theories regarding the initial settlement in Sweden. The findings suggest that the traditional neoclassical push-pull theories concerning labour market conditions seem, thus, to be of low relevance in explanation of the immigrants’ initial settlement patterns and the factors behind. Only for the regional employment rates, $E$, a statistically significant gender difference could be found. Returning natives and refugees appear not to be affected by economic conditions in the same way as blue-collar workers from abroad.

As gender specific differences for vacancies, unemployment and employment are more related to the economic structure and the demand for specific labour; not on vacancies, unemployment and employment *per se*, future research has to focus in depth on the pull-factors causing sex differences in the settlement patterns. Sex differences in combination with age structures and educational level should also be investigated further; age structure and education could eventually explain the sex differences found in this study.

This study has, hopefully, made a contribution in an attempt to fill the very fragmented knowledge on female immigrants to Sweden. Hence, lots of work remains until to do so.
References

Data

Arbetskraftsundersökningen (AKU), Grundtabeller, årsmedeltal, Statistiska Centralbyrån
Arbetsmarknadsstyrelsen (AMS), Arbetsmarknadsstatistik, www.ams.se
SOS Befolkningsförändringar del 3
SOS Befolkningsstatistik
SOS Folkmängd del 3

Literature

EKBERG, J. (1993), Geografisk och socioekonomisk rörlighet bland invandrare, ERU Rapport 78, Stockholm: Fritzes


RAUHUT, D. (2007), 'How to get the "good" immigrants', Journal of Nordregio Vol 7 No 2:18–19


SCB (2004), Efterkrigstidens invandring och utvandring, Demografiska rapporter 2004:5

SCB (2006), To measure and monitor internal migration based on national population register, Befolknings- och välfärdsstatistik rapport 2006:7

SCB (2008), Invandrarens flyttsätt. Demografiska rapporter 2008:4


TODARO, M. (1976), Internal Migration in Developing Countries. ILO.


WADENSJÖ, E. (1973), Immigration och samhällsekonomi, Lund: Studentlitteratur