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**Growing apart: Increasing labour market  
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**ABSTRACT**

This article investigates labour market segmentation of EU-13 workers in Sweden. Labour market segmentation is a driver of income differences between natives, EU-15 migrants and EU-13 migrants in many EU member states. There are, however, indications that labour market inequalities as a result of segmentation among EU-13 migrants is less pronounced in Sweden. Previous research, both quantitative and qualitative, has shown surprisingly low levels of labour market segmentation among the employed. The structural differences on the labour market has, instead, been between the employed and unemployed, with a large employment gap between natives and all migrant groups including EU-13 migrants. We address the functional integration in the labour market from a longitudinal perspective, using several quantitative indicators to measure the degree of labour market segmentation. Natives and other migrant groups (EU-15 and refugees) are used as reference groups. Our results shows a low but increasing labour market segmentation among the employed born in EU-13 countries. The dissimilarity between employed natives and EU-13 workers is increasing, especially among men. Men from EU-13 countries is the only category where the occupational position has deteriorated. From having a similar occupational position as EU-15 migrants in 2007, their position in the labour market in 2015 is more similar to the refugee group. This development is driven by a large increase of Polish construction workers on the Swedish labour market.

**KEYWORDS**

Labour market segmentation, Labour market segregation, Labour market integration, EU Migrants

**BIOGRAPHICAL NOTES**

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## **LABOUR MARKET SEGMENTATION OF EU-13 WORKERS IN SWEDEN**

Previous research, both quantitative and qualitative, has shown surprisingly low levels of labour market segmentation among EU-13<sup>1</sup> workers in Sweden (Andersson & Hammarstedt, 2011; Gerdes & Wadensjö, 2013; Olofsson, 2012; Apsite et al., 2012, Emilsson & Adolfsson, 2019). Instead, the structural difference on the labour market has been between the employed and unemployed where EU-13 (and EU-15<sup>2</sup>) migrants have low employment rates in Sweden compared to in other EU member states (Fries-Tersch et al., 2021). Since the quantitative studies mentioned above is about ten years old, it is time to re-visit the topic. This article, thus, investigates labour market segmentation of EU-13 workers in Sweden. We address the functional integration in the labour market from a longitudinal perspective, using several indicators to measure the degree of labour market segmentation. Natives and other migrant groups are used as reference groups.

The article begins with some theoretical perspectives on migration and labour market segmentation. Next, we provide an overview of intra EU mobility from EU-13 to EU-15 and a review of the literature about labour market segmentation among this group. After the method and material are outlined, we present our findings. The article ends with conclusions and a discussion of the results.

## **THEORETICAL PERSPECTIVES ON MIGRATION AND LABOUR MARKET SEGMENTATION**

Labour market employment outcomes is often explained with human capital theory (Becker, 1994). The level of human capital, especially education, has been shown to be important for predicting both individual economic success and the economic developments of countries. Migration complicates this relation since human capital tends to be geographically and historically specific, and difficult to transfer between countries (Chiswick & Miller, 2009; Erel, 2010:643). Thus, favourable human capital characteristics, such as schooling and experience, that are acquired in source countries do not always translate into better labour market outcomes in the destination countries (Aydemir, 2011: 453–454). Higher qualifications are, for example, often only valued by employers if they can be supported by fluency in the host country's language (Esser, 2006; Adsera & Pytlikova, 2015; Dustmann, 1999). The idea of human capital has also been important in migration theories. In neo-classic micro-economic theory, migration is seen as an investment that is undertaken if a person calculates that the benefits outweigh the costs of the move (Sjaastad, 1962). When making a decision to move, a migrant must take into

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<sup>1</sup> Include the countries that have entered EU since 2004: Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia

<sup>2</sup> EU-15 include, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and United Kingdom.

consideration the expected need to invest in country-specific human capital in order to be successful in the host labour market. In addition to language, country-specific human capital can include country-specific educational requirements and licences in certain regulated occupations like teachers, medical doctors and lawyers. Moreover, tacit knowledge and competences such as values and attitudes, as well as social and interpersonal skills that can only be acquired through living in the destination country represent important elements of country-specific human capital (Williams & Baláž, 2008).

Research about intra-EU mobility and human capital indicates a difficulty to fully utilize formal human capital in destination countries, and that the utilisation of human capital is lower for immigrants from the new member states (Campbell, 2016; Zwysen & Demireva, 2018; Gilmartin & Migge, 2015). Over-qualification and presence in lower-skilled jobs could be temporary (Alberti, 2014; Trevena, 2011), and later transfer into jobs more in line with formal educational credentials (Janta & Ladkin, 2013; Rolfe & Hudson-Sharp, 2016). Nevertheless, human capital theory does predict some labour market segmentation, at least during the first years after migration. (Dahlstedt, 2017)

Human capital theory need be complemented with other perspectives to fully understand the structural differences we see in the labour markets as a result of increasing international mobility. Dual labour market theory provides important alternative perspectives. Where human capital emphasise the supply side where human capital and reservation wages explain mobility and labour market integration, dual labour market theory emphasise the demand side (employer strategies) and social networks. According to the classic study by Piore (1979) international migration is caused by structural demand for cheap and flexible labour within advanced economies. This process leading to a dual labour market is caused by several factors. Employers want to keep wages for low-skilled jobs down. This creates low motivation among native workers to take on these jobs when it comes to status, wages, and careers. While in the past women and teenagers did some of the lower-skilled jobs, their labour supply is saturated. What's left is migrants who accepts the conditions due to vulnerable status and due to low wages 'at home'. When a dual and segmented labour market is created it is sustained and reinforced through social networks, but also by attitudes among employers.

### **INTRA-EU MOBILITY FROM EU 13 AND LABOUR MARKET SEGMENTATION**

The enlargement of EU in 2004 and 2007 dramatically changed the mobility patterns in Europe. The new EU-citizens were eager to take advantage of the free movement, creating what Favell already in 2008 called a new migration system in Europe (Favell, 2008). By 2013 half of all intra-EU migrants were from the new member states, although these countries account for about 21 % of the total EU population (Castro-Martín & Cortina,

2015). The yearly reports on intra-EU mobility (European Commission, 2022) provides a good overview of the intra-EU mobility. In 2020, EU-movers<sup>3</sup> made up 3.8 % of the working-age population in the EU. The corresponding number for Sweden is slightly lower. Mobile EU workers are overrepresented in sectors such as construction, accommodation and food services, administrative and support services, and activities of households as employers. They are overrepresented in lowest skilled occupations while they show representativeness in the highest-skilled occupations. The report also shows that even though Sweden is not one of the top immigration countries for EU-citizens, the country has experienced increasing inflows of EU citizens. Neighbouring countries such as Germany, Norway and Denmark have, however, higher shares of EU-28 workers in 2020 and higher yearly inflows as well. New movers, defined as arrived within the past two years, had an employment rate in EU of 73 percent in 2020. In Sweden the employment rate was way lower (about 57 percent), indicating that many EU-citizens move to Sweden for other reasons than work.

A recurring finding in the literature on EU mobility is that segmented labour markets and social networks are facilitators for mobility, especially for east to west mobility and for those moving to do lower skilled, lower paid jobs. Previous research (mainly on the UK) has shown that EU13 migrants are over-represented in industries characterised by low-pay and low-skill jobs (Recchi 2015). There is strong evidence of a segmented labour market in the UK and elsewhere, where EU-migrants fill certain low-skilled sectors on the labour market and where occupational downgrading is common (Johnston et al., 2015; White, 2016). Felbo-Kolding et al. (2019) study of labour market segmentation of EU citizens in the UK, Denmark and Germany show that the main part of the differences in hourly wages is a result of a division of labour, where EU-15 migrants from north western countries on average occupy the 'top' occupations, while EU-13 migrants occupy the bottom occupations, with EU-South migrants taking a middle position. Even between countries within the EU-13 group, sectoral segmentation explains wage differentials, as a study of Polish and Romanian workers in Denmark show (Felbo-Kolding & Leschke, 2021). The importance of networks is emphasized among Latvians occupying lower-skilled jobs in the UK, where three out of four used friends and family as the main route into work (McCollum et al., 2013; McCollum & Apsite-Berina, 2015). Similar results are found in Norway and Iceland where Polish migrants' decisions about settlement and return are shaped by their opportunities within segmented labour markets, and their embeddedness in transnational families and social networks (Friberg, 2012; Napierała & Wojtyńska, 2017). Labour market segmentation is, thus, both a driver, and a result, of intra-EU mobility.

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<sup>3</sup> The definition is based on citizenship.

It has been argued that employers' perception of EU-13 migrants' as hard working and flexible has made them preferred over national workers, especially in lower-skilled jobs (Friberg & Midtbøen 2018; McCollum & Findlay 2015), leading to high employment levels as well as labour market segmentation. This can be exemplified by a study in Iceland, where Polish women had higher employment rates than natives, but concentrated in a few low-skilled occupations that bring little prestige and low income (Napierała & Wojtyńska, 2017).

It must also be noted that also Third Country Nationals tend to experience similar labour market segmentation as EU-13 migrants. At the EU-15 level 22.3% of all TCNs were employed in primary jobs in comparison to 44.4% of the total of native population. At the same time, 42.5% of all the TCNs were hired in the secondary segment in comparison to one fifth of the total of all natives (Grubanov-Boskovic & Natale, 2017).

Previous research about Sweden indicates, however, relatively low levels of labour market segmentation of EU-13 migrants and relatively low employment rates. Looking at employment rates, Sweden stand out with a much lower employment rate among EU-28 movers (60 %) compared to the EU-average (76 %). At the same time, Sweden attracts many higher skilled movers (66 %) compared to the EU average (33 %) (Fries-Tersch et al., 2021). In general, EU-13 migrants in Sweden tend to have low employment rates (Olofsson, 2012; Apsite et al., 2012, Emilsson & Adolfsson, 2019), while those who are employed have a similar occupational structure and wages as native born (Andersson & Hammarstedt, 2011; Gerdes & Wadensjö, 2013). Andersson and Hammarstedt (2011) study the income- and occupational positions in 2007 among employed EU-10<sup>4</sup> immigrants who came to Sweden in 2005 and 2006. Bearing in mind that they are new to the labour market their labour market position is quite good. After controlling for education, men were three percentage points and women seven percentage points more likely to be employed in occupations that do not have educational requirements. Also, males and females had about 8 percent lower monthly income than native men and women. In comparison, EU-15 migrants had a 6 percent higher, and non-European migrants had about 20 percent lower, income than natives. In a later study, Gerdes and Wadensjö (2013) do not find particularly big differences between EU-10 migrants and the general population when it comes to occupational distribution of those employed. They also find that EU-10 migrants have similar average earnings and work similar amounts of hours. Taking into account differences in age and education, there is a difference in income of about 6 percent. Lastly, looking at income transfers, EU-10 migrants do not receive different types of income transfers, nor are the amounts received higher than those

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<sup>4</sup> The 10 countries that joined the EU in 2004: Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia



for people born in Sweden. Similarly, a 2019 thesis about segmentation in the food manufacturing, transportation and storage sectors (Plummer, 2019) concludes that the Swedish labour market in comparison to the UK, does not display strong evidence of a segmented structure among EU workers. However, the conclusions also add that ‘there is the potential for it to become more segmented, partly as a result of the presence of EU migrants’ (Ibid. p i).

There are some attempts to explain the relatively modest immigration to Sweden from EU-13 countries and their low levels of labour market segmentation. The importance of language has been put forward as an explanation of relatively low intra-EU mobility to Sweden (Gerdes & Wadensjö, 2014; Wolfsson et al., 2014; Apsite et al., 2012), an explanation supported in research where migration rates is found to increase with linguistic proximity and with English at destination (Adsera & Pytlikova, 2015). In addition, the Swedish labour market is highly regulated and organised to guarantee equal pay and conditions for all workers, including migrant workers. Thus, the employers have little to gain from recruiting workers from lower-wage countries in EU-13 just to gain cheap labour (Thörnquist, 2015). The Swedish labour market model with low wage spread and high entry wages (Bengtsson et al, 2005), has also contributed to making the low-skilled sector the smallest in the EU. While low-skilled jobs in EU on average make up 9 percent of the employed, Sweden has the lowest share in EU with five percent (Eurostat). The low-skilled jobs that do exist also tend to be filled with non-EU migrants that have stronger networks in these sectors, and have access to subsidized jobs (Sjögren & Vikström, 2015). One case study in the cleaning industry confirms that EU-13 migrants does not occupy positions in this otherwise segmented labour market (Thörnquist, 2015). According to Thörnquist (2015), this is due to the already existing labour supply in Sweden consisting of non-EU migrants, from where employers easily can recruit with considerable wage subsidies. This is very different from Poland where 50 percent female EU-10 workers are employed as cleaners (Napierała & Wojtyńska, 2017). A similar pattern has been found among Latvians. While, for example, nine in ten Latvians in UK worked in low-skilled jobs (Apsite, 2011), Latvians in Sweden tended to work in their original professions, such as IT, education, engineering, forestry, medicine and construction (Apsite et al., 2012). It has also been noted that the Nordic countries initially lacked pioneer migrants to establish social support networks that would attract newcomers (Apsite et al., 2012). And those pioneer migrants who moved to Sweden before the EU-expansion were often family migrants with weak social networks in their former home countries, making them poor bridging actors for further migration (Olofsson, 2012).

Previous studies, thus, indicate that EU-13 immigrants in Sweden does not function as a complement to the native work force, or occupying low-skilled segments in the labour market. Factors that have been contributing to a lower labour market segmentation are i) a high presence of refugees and other humanitarian migrants with access to wage

subsidies, ii) national labour market regulations, iii) an open labour migration policy for non-EU workers, iv) and the role of social networks.

The quantitative studies of labour market segmentation in the Swedish labour market are, however, quite old. It is time to re-visit the topic in question. In the next section we explain the method and data material of our study.

## METHOD AND MATERIAL

We use register data from Statistics Sweden’s STATIV longitudinal database. The database contains all persons registered in Sweden on 31 December of each year and is developed specifically for studying integration issues. From this database we select the employed population between 18 and 64 years with information on occupation through SSYK96 (SSYK12) for the years 2007 to 2015. SSYK96 and 12 is the Swedish versions of ISCO88 and ISCO08 (International Standard Classification of Occupations). SSYK96 is used for the years 2007 to 2013 and SSYK12 for the years 2014 and 2015.

	SSYK96							SSYK12	
	2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>Valid</b>	3 891 345	4 059 004	3 946 898	4 038 767	4 106 492	4 146 194	4 156 637	3 128 788	3 249 626
<b>Missing</b>	260 204	236 288	204 198	217 792	212 475	212 627	224 760	1 288 253	1 235 457
<b>Total</b>	4 151 549	4 295 292	4 151 096	4 256 559	4 318 967	4 358 821	4 381 397	4 417 041	4 485 083
<b>Percent missing</b>	6,3%	5,5%	4,9%	5,1%	4,9%	4,9%	5,1%	29,2%	27,5%
<b>Source:</b> STATIV, Statistics Sweden, Own Calculations.									
<b>Note:</b> Comparisons between 2007 to 2013 on the one hand and 2014 to 2015 on the other is limited due to two reasons. First the change in the occupational classifications is quite large and therefore it is difficult to compare. Second, the number of missing cases for 2014 and 2015 is significantly higher compared to the previous period.									

SSYK96 and 12 is, just as ISCO88 and 08, a standard classification with four digit-levels. We use the three digit level that includes 113 (SSYK96) respectively 147 (SSYK08) occupations. The reason for using the three digit level is that the number of missing cases is significantly higher on the four digit level. We estimate that the three digit level gives us enough details for the purpose of this analysis at the same time as we keep the number of missing cases as low as possible. (For more information on SSYK go to [www.scb.se](http://www.scb.se)).

SSYK is used in three different ways in our analysis. First we use it to calculate the ‘index of dissimilarity’ that measures to what extent two different groups work in different occupations. The index ranges between 0 (no segregation) and 1 (total segregation) and is a measure of evenness (Massey & Denton, 1988). The index can be interpreted as the percentage of one group that needs to change occupations in order to reach an even

distribution in occupations on the labour market (McKibben & Faust, 2004). The Index of dissimilarity is calculated according to the formula developed by (Duncan & Duncan, 1955).

<b>Table 2.</b> Formula of Index of Dissimilarity
$D = \frac{1}{2} \sum_{i=1}^n \left  \frac{nb_i}{NB_T} - \frac{fb_i}{FB_T} \right $
<p>Where:</p> <p>n= number of occupations</p> <p>nb<sub>i</sub>= number of native born in occupation <i>i</i></p> <p>NB<sub>T</sub>= total number of native born in the labour market</p> <p>fb<sub>i</sub>= number of foreign born in occupation <i>i</i></p> <p>FB<sub>T</sub>= total number of foreign born in the labour market</p>
<b>Source:</b> (Duncan & Duncan, 1955)

We Calculate the index of dissimilarity pairwise for each of the groups. First a pairwise comparison between EU15 and Born in Sweden, then EU13 and Born in Sweden and lastly persons granted international protection (here called Refugees) and Born in Sweden. In this way we get a D-index for the individual groups compared to the population born in Sweden for each year. This means that we can see if and how the segregation on the labour market have changed over the studied time period.

The second way we use SSYK in our analysis is to analyze the average occupational status for each group. This is done by converting SSYK to the Standard International Occupational Prestige Scale (SIOPS) originally developed by Donald J. Treiman (Treiman, 1976). The scale is a continuous scale measuring the occupational prestige, i.e. the subjective social prestige connected to occupations. The higher the points on the scale, the higher the prestige of the occupation. The third measure of segmentation we use is the International Socio-Economic Index of Occupational Status (ISEI) which also is a continuous scale. But instead of measuring the subjective prestige, it measures the objective social status in that it weighs in factors as educational level and income in order to assign the Socio-Economic scale points for each occupation (Ganzeboom et al, 1996; Ganzeboom & Treiman 1996 & 2010).

In order to calculate the score for the occupations in SSYK we convert SSYK back to ISCO and then use it (Ganzeboom & Treiman, 1996 & 2010) to assign the SIOPS and ISEI scores to the occupations. When this is done, we calculate the mean occupational status

for each of the studied group. Lastly we perform an ANOVA analysis to see if the differences between the groups in the mean scores are significant or not. This is done for each year between 2007 and 2015. For a description of the SIOPS and ISEI scores see (Ganzeboom, 2010).

The fourth way we use SSYK in our analysis is by calculating how large share of the total number of individuals in a specific occupation that belong to the studied groups. This share is compared to the share of the group in the labour market as a whole. In this way we get an indication of which occupations that a specific group is under or over represented in.

It is important to note that the population registry only reflects the permanent population in Sweden. A migrant need to have a minimum expected length of stay of a year to be included. This limitation omits several migrant groups that would be necessary to fully understand labour market segmentation. Seasonal workers and posted workers are thus not part of this study. Other omitted migrant groups are EU and non-EU labour migrants with an expected stay of less than one year, as well as asylum seekers and irregular migrants.

## **RESULTS**

Before going into the labour market segregation it is needed to say something about employment and the employment rate in Sweden. Two things must be said, first, Sweden is a country with high employment rate and one of the countries with the highest employment rate for women. For men the employment rate is between 78% and 81% for men and 75% to 80% for women during the studied period. But this have not always been the case, The economic boom of the 1950s and 1960s created a high demand for labour, especially within heavy industries like shipbuilding and car manufacture. The low unemployment levels and high employment rates of both foreign born and Swedish born men typifies the 1950s and 1960s, whereas Swedish women were outperformed by foreign born women when it came to employment rates. This situation changed gradually from 1970s and onwards when the employment rates for the foreign born population dropped at a steady rate until the mid 1990s when the gap in employment rate cemented around a 22 percentage points lower employment rate for the foreign born population. The gap in employment rate is due to two converging developments, first the increasing demand for higher skills in the labour market and second, to the changing migration pattern to Sweden (Bevelander, 2000). These changes led to a higher mismatch between the skills and competences among migrants and the skills and competence demanded by the employers.

The gap has settled at about 22 percentage points for both men and women (Dahlstedt, 2017) but as we can see in **Table 3** it differs a bit depending on what foreign born group we are studying. So not only are there differences (as we shall see) in what jobs natives and different immigrant groups hold on the labour market, there is also differences in when it comes to holding a job or not.

In Table 3 below we see the development of the employment rate between 2007 and 2015. For all of the studied groups there is a small dip in employment rate in 2009 after the economic crisis but this dip is regained in almost all groups in 2011. Native born and the three immigrant groups have experienced a positive development in employment for both genders. Still, all migrant groups have a significantly lower employment rate compared to natives. EU15 and EU13 does not differ much with EU15 at a somewhat higher employment rate. The lowest employment rate is recorded by the refugees.

		2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>Men</b>	Refugees	52,9	56,1	51,4	54,0	57,4	56,8	56,6	55,9	56,6
	Sweden	78,9	81,0	77,9	79,3	80,5	80,5	80,6	80,8	81,6
	EU15	63,6	65,0	61,4	63,0	63,8	64,9	65,7	66,0	67,1
	EU13	62,9	61,3	55,3	57,6	60,8	62,9	64,1	65,4	66,7
	<b>Total</b>	<b>75,5</b>	<b>77,4</b>	<b>73,7</b>	<b>75,1</b>	<b>76,3</b>	<b>76,4</b>	<b>76,4</b>	<b>76,5</b>	<b>77,3</b>
<b>Women</b>	Refugees	47,9	50,0	47,3	49,3	48,2	50,9	51,3	52,3	54,1
	Sweden	76,1	78,1	75,9	77,6	78,0	79,0	79,4	79,8	80,9
	EU15	57,7	57,8	55,6	57,3	57,5	58,1	58,5	59,3	61,1
	EU13	58,5	56,7	53,6	55,7	55,5	57,1	57,9	59,2	62,0
	<b>Total</b>	<b>72,3</b>	<b>73,7</b>	<b>71,2</b>	<b>72,7</b>	<b>73,1</b>	<b>73,9</b>	<b>74,1</b>	<b>74,5</b>	<b>75,7</b>

**Source:** STATIV, SCB, Own Calculations population: 18 – 64 years.

### *Index of dissimilarity*

The first step in our analysis is to calculate the index of dissimilarity. The drawback with the index is that it can only compare two groups at one time. So what we have done is to compare each of the studied immigrant groups with natives to see in what extent the studied groups work in different occupations compared to natives for men and women separately. In Table 4 we show the D-index for men and women.

		2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>Men</b>	Born in Sweden - EU15	0,22	0,23	0,23	0,23	0,24	0,25	0,26	0,29	0,27
	Born in Sweden - EU13	0,21	0,24	0,25	0,27	0,29	0,30	0,31	0,35	0,32
	Born in Sweden - Refugees	0,41	0,40	0,40	0,39	0,37	0,37	0,37	0,36	0,33
<b>Women</b>	Born in Sweden - EU15	0,17	0,18	0,19	0,19	0,20	0,20	0,21	0,24	0,24
	Born in Sweden - EU13	0,19	0,20	0,21	0,22	0,24	0,25	0,25	0,27	0,28
	Born in Sweden - Refugees	0,35	0,33	0,33	0,32	0,32	0,31	0,31	0,31	0,31

**Source:** STATIV, SCB, Own Calculations Employed population: 18 – 64 years.

The group that differs the most from natives in their occupational attainment is the refugees. But this difference seems to get smaller over the studied period, at least to 2013. (Have in mind the switch in the occupational registers between 2013 and 2014). IN 2007 41% of the refugee group had to switch occupations in order to achieve an even distribution with natives on the labour market. The EU13 group seems to have an opposite development compared to the refugees in that the D-index seems to increase over time (i.e. EU13 becomes more dissimilar to natives). The same can be said of the EU15 group, although from a lower level.

The trend among women is about the same as among men, but the index is lower for women compared to men. Refugee women becomes more similar to natives over the studied period at the same time as EU13 and EU15 becomes more dissimilar (the index increase for EU13 and EU15), but from a bit lower levels compared to men. Thus, the EU-13 group has become more segmented on the labour market over time. From being much less segmented than refugees in 2007, their level of segmentation is similar in 2015.

### *Occupational status and Socio-Economic Index*

The index of dissimilarity only measures to what extent two groups are working in different educations, it does not say anything about the status or the qualification of the occupations. This is why we have included an analysis of Occupational prestige and Socio-economic position through an analysis of the mean scores on two indexes, first the Standard International Occupational Prestige Score (SIOPS) and then the Standard International Socio-Economic Index of Occupational Status. Both Indexes are continual and each occupation in SSK have been assigned a value. This means that every employed individual has a SIOPS and a ISEI score. We have then calculated the mean score on each of the indexes to get a rough measure of the average occupational position for each group. An Analysis of Variance was performed to make sure that the differences between the groups are significantly different from each other. In this way we can get a notion of whether the studied groups differ in occupational status. In table 5 the scores are presented.

Here it is interesting to note that the group with the highest mean score is EU15, this is true for all years. EU15 differs significantly from the other three groups. The second highest score have the native population followed by EU13 and Refugees with the lowest SIOPS score. The differences between the groups are significant for all years except between natives and EU13 in 2007.

This means that EU15, on average have an occupation that have higher social prestige compared to the other groups, including natives. Conversely it means that the refugee group holds the occupations with the lowest social prestige.

		<b>SIOPS – Mean Score</b>								
		<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Men</b>	Born in Sweden	42,6	42,7	42,9	42,8	42,7	42,8	42,8	44,4	44,2
	EU15	45,6	46,2	46,8	47,0	47,5	47,7	48,0	48,8	48,7
	EU13	42,3	41,0	40,9	40,3	40,0	39,6	39,4	41,5	40,4
	Refugees	35,0	35,2	35,5	35,6	35,6	35,7	35,9	38,5	38,1
<b>Women</b>	Born in Sweden	40,9	41,1	41,4	41,4	41,5	41,5	41,6	45,8	45,2
	EU15	45,4	46,3	46,8	46,9	47,1	47,4	47,8	50,0	49,6
	EU13	39,9	39,8	39,7	39,4	39,6	39,3	39,2	42,7	41,9
	Refugees	32,9	33,4	33,6	33,9	34,2	34,4	34,5	39,4	39,0
		<b>ISEI – Mean Score</b>								
<b>ISEI</b>		<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Men</b>	Born in Sweden	44,7	44,6	45,0	44,8	44,8	44,9	44,9	45,6	45,8
	EU15	48,5	49,2	49,9	50,1	50,6	50,9	51,3	52,0	52,1
	EU13	43,9	41,8	41,6	40,7	40,2	39,6	39,3	39,3	38,8
	Refugees	35,3	35,6	36,0	36,1	36,2	36,5	36,6	39,7	39,4
<b>Women</b>	Born in Sweden	43,0	43,5	43,8	43,8	43,9	43,9	44,0	47,8	47,4
	EU15	48,1	49,2	49,7	49,8	50,1	50,4	50,8	53,0	52,7
	EU13	41,4	41,3	41,1	40,7	40,9	40,5	40,2	44,8	44,0
	Refugees	33,1	33,8	34,2	34,5	34,6	34,8	35,0	40,6	40,1
<b>Note:</b> All differences are statistically significant according to the ANOVA, except for Born in Sweden and EU13 in 2007 where the difference between these two groups were insignificant.										
<b>Source:</b> STATIV, SCB, Own Calculations Employed population: 18 – 64 years.										

Interesting to see is that we see the same pattern among women with EU15 holding the highest average social prestige and refugees holding the positions with the lowest social prestige. One important note here is that, in general, women scores higher on the social

prestige scale than men, probably due to the fact that health and service occupations have higher social prestige compared to construction work occupations. Looking specifically at the EU-13 group, we find that EU-13 men is the only group that have a lower SIOPS score in 2015 than in 2007. It is a stark contrast to all other groups where the score has increased. Just like for the Index of dissimilarity, the position of the EU-13 group has become more similar to refugees.

The ISEI score shows similar patterns both among men and women when it comes to the differences between the groups. All groups except EU-13 men have increased their ISEI average between 2007 and 2015. In 2015, EU-13 men has the lowest average socioeconomic occupational status. Again, a dramatic change has occurred in just under 10 years.

**Table 6.** Most common occupational category.

	2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>Men</b>									
Sweden	3	3/7	3	3	3	3	3	2	2
EU15	2	2	2	2	2	2	2	2	2
EU13	2	7	7	7	7	7	7	7	7
Refugees	8	8	8	8	8	8	8	8	8
<b>Women</b>									
Sweden	5	5	5	5	5	5	5	2	2
EU15	2	2	2	2	2	2	2	2	2
EU13	5	5	5	5	5	5	5	2/5	5
Refugees	5	5	5	5	5	5	5	5	5
1	Legislators, Senior officials & Managers								
2	Professionals								
3	Technicians & Associate Professionals								
4	Clerks								
5	Service Workers & Shop, Market Sales Workers								
6	Skilled Agricultural & Fishery Workers								
7	Craft & Related Trades Workers								
8	Plant & Machine Operators & Assemblers								
9	Elementary Occupations								

The SIOPS and ISEI can tell us about the average prestige of the occupation, it doesn't tell us anything about the specific occupational level or specific occupation that is most common in the studied groups. That is why we have included Table 6 and 7 where we show the most common Occupational category on the one-digit level according to SSK



(table 6). In the table we show the most common occupation for each group and for men and women respectively. In **table 6** we can see that for all years (except for 2014 and 15) the most common occupational category for native men is Technicians and Associate Professionals, this is a category that you need a shorter post-secondary education to hold. For men from EU15 the most common occupational category is Professionals, this is occupations where you need a longer post-secondary or University education to hold (this includes all the traditional professions). Compared to EU13 it is a big difference where the most common occupational category is Craft and related trades workers. Refugees in turn are mostly found within Plant and Machine operators and assemblers.

Women differs quite a lot from men in that the studied groups are quite similar when it comes to which occupational category they work within. Here we can see that natives, EU13 and Refugees mostly work within the category of Service Workers and Shop, Market Sales Workers. However, we also see that women from EU15 work as professionals just like men from EU15.

<b>Table 7. Most common occupation on the 3-digit level for each group, 2007, 2011 and 2015</b>			
	<b>2007</b>	<b>2011</b>	<b>2015</b>
<b>Men</b>			
<b>Sweden</b>	341 Sales persons, purchaser, real estate agents	341 Sales persons, purchaser, real estate agents	332 Insurance advisors, Sales, sales persons & purchaser
<b>EU15</b>	512 Catering and restaurant staff	231 University teachers	231 University teachers
<b>EU13</b>	222 Health care specialists	712 Construction workers	711 Construction workers
<b>Refugees</b>	832 Vehicle drivers	832 Vehicle drivers	833 Lorry- and bus drivers
<b>Women</b>			
<b>Sweden</b>	513 Health care staff	513 Health care staff	234 Preschool- and compulsory school teachers
<b>EU15</b>	513 Health care staff	513 Health care staff	231 University teachers
<b>EU13</b>	513 Health care staff	513 Health care staff	911 Cleaners and home service staff
<b>Refugees</b>	513 Health care staff	513 Health care staff	532 Assistant nurses

Just to give the reader some notion of the most common occupation among the groups we have included **table 7** which presents the most common occupation among the studied groups for the years 2007, 2011 and 2015. Starting with native men we can see that the most common occupation (on the most detailed level we have access to), is sales men, purchaser and real estate agents. For EU15 it is interesting to see that the most common occupation in 2007 was restaurant staff and for the other two years it is

University teachers (which is reflected in the SIOPS score). For EU13 it is specialists within healthcare for 2007 and then construction workers for 2011 and 15. For refugees it is vehicle drivers for all three years.

For women the situation is a little bit different. For native women the most common occupation is staff within health care for 2007 and 11 and pre-school and compulsory educators in 2015. For women from EU15 the most common occupation is staff within health care for 2007 and 2011 and university teachers in 2015. For women from EU13 the most common occupations is staff within health care for 2007 and 2011 and cleaners and home service staff for 2015. For refugees the most common is staff within health care for 2007 and 11 and assistant nurse in 2015.

### **SOME GENERAL CONCLUSIONS**

The aim of this article is to investigate labour market segmentation in Sweden, with a particular focus on EU-13 migrants. The topic is motivated by the fact that previous research showed a low labour market segmentation among EU-13 migrants, while at the same time most research found a widespread segmentation among the group in European labour markets.

Labour market segmentation in Sweden is first and foremost characterized by very large employment level gaps between natives and all other migrant categories. The gaps is also stable over time. All other aspects of labour market segmentation must be evaluated with this in mind, since the other indicators of segmentation we use look at the employed. While the employment gaps have slightly decreased over time, we have experienced a growing segmentation among the employed from EU-13 according to the dissimilarity index. For the refugee group, on the other hand, the similarity has increased over time. The dissimilarity index does not, however, say anything about the status of the employment. Therefore we use SIOPS and ISEI to indicate average employment status among the eight categories. We find clear employment hierarchies and changes over time. Women has over the period of analysis surpassed men in average employment status according to both indicators. For both men and women, EU-15 migrants do have the highest average status scores over the entire period. Another result that stands out is that all eight groups except one has on average increased their employment status over time. The exception is employed males from EU-13 countries that has had a negative trend in their average employment status according to both indicators. According to the 2015 ISEI, this group even has the lowest employment status, surpassed by both refugee men and women.

Our results shows that something has changed during the last decade. Earlier research showed, similar to our results, low employment rates among EU-13 migrants but quite

low segmentation among the employed (Andersson & Hammarstedt, 2011; Gerdes & Wadensjö, 2013). Qualitative research has also indicated that it is refugees that tends to be employed in lower-skilled jobs due to employment subsidies and strong networks in these sectors (Thörnquist, 2015; Sjögren & Vikström, 2015).

The article shows that the segmentation among EU-13 workers in Sweden has increased a lot between 2007 and 2015. EU-13 migrants, especially men, has an employment pattern that is becoming more dissimilar to natives and their occupational prestige and socioeconomic levels are decreasing. In 2015, EU-13 workers find themselves on a structural similar level as refugees in the labour market. Important to remember is that our analysis doesn't include posted, or temporary, workers. If they would be included the levels of segmentation would be even greater.

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