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ABSTRACT

Older Immigrants – New Poverty Risk in Scandinavian Welfare States?

Many European high-income countries face a rapid increase in the number of immigrants from low- and middle-income countries reaching the normal pension age. Thus, it is increasingly relevant to ask: how are older migrants from such countries faring? Here we study poverty rates and determinants of poverty among natives and persons born in Bosnia, Iran, Iraq, Yugoslavia and Turkey living in Denmark or Sweden in 2010. Income data on all such persons aged 65 to 82 living in the two destination countries are analysed.

In both Denmark and Sweden, we report much higher poverty rates among the immigrants studied than among natives. Estimated probability models show that being poor is related to a person's education, family status and age, as well as year of arrival in the destination country and the labour market and his or her residential status at the age of 55. However, the labour market in the destination country at the time of arrival also matter. Persons born in Yugoslavia or Turkey who had immigrated to Denmark during the '70s and '80s were more likely to be in poverty in 2010 than their counterparts with the same characteristics who had immigrated to Sweden.

JEL Classification: I32, J14, J15, J61

Keywords: Denmark, Sweden, poverty, older immigrants

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1. Introduction

Many high-income countries in Europe are at present experiencing a rapid increase in the number of immigrants from low- and middle-income countries reaching the normal pension age. Thus, it is increasingly relevant to ask: how are older migrants from such countries faring? As Henkens et al. (2018) ask, can the socioeconomic and cultural integration of older immigrants who are no longer participating in society through paid employment be regarded as a litmus test for the level of social integration of immigrants in general? Furthermore, one of the key challenges on the current political agenda is the integration of retired immigrants. These authors also argue that more research is needed on the living conditions and well-being of older immigrants in affluent societies, looking at the whole range of relevant outcomes from retirement processes, health and income to happiness and identity. This paper aims to answer this call.

One of our research question is: How does one outcome (income poverty) among older immigrants from the same five middle or low income countries relate to poverty among older people born in each of the destination countries (Denmark and Sweden). We also ask: Which differences across the receiving countries can be found, and how to understand such differences? Let us discuss the content of this paper starting with the outcome: poverty. It should be understood that the problem of poverty can be conceptualised and measured in different ways. For several years there has been a tradition within the European Union of conceptualising and measuring poverty, by which a household and the persons living in it are considered poor if the equivalent disposable income of the household is lower than 60 per cent of the median for the country; see, for example, Jenkins (2020).

The older immigrants studied were born in Bosnia, Iran, Iraq, Yugoslavia or Turkey and in 2010 were living in either Denmark or Sweden. Those five countries of origin were chosen for the study

as they share not having a high income level and also having sent a relatively large number of migrants to each of the two destination countries. A considerable number of such migrants have had incomplete careers in the labour market of the destination country, which, together with their relatively short periods of residence, has led to the accumulation of considerably less pension rights than those of natives. Denmark and Sweden share with several countries in the north west of Europe by having large welfare states and also having received many migrants from low and middle income countries.

Although Denmark and Sweden are rather similar in many respects, there are differences between them that can be assumed to affect the level of poverty among the immigrants studied. As we will discuss in Section 3, the relative size of the immigrant population in Sweden is larger than in Denmark, and there are also some differences with regard to the origin countries of large migration streams. Another difference is that Denmark introduced a more restrictive immigration policy prior to this study, whereas in Sweden the equivalent happened only after our period of study was completed. Furthermore, there are some differences in the pension and other transfer systems between the two countries.

However, the cross-country difference we will emphasise here is that of the two countries' macroeconomic experiences during the '70s and '80s. During those years, both countries received many immigrants from Yugoslavia and Turkey, who arrived as work migrants or tied movers. At that time, the labour market was less favourable in Denmark than in Sweden. We will show that this cross-country difference has had long-lasting consequences for those migrants. The poverty rates after retirement are much higher among those who immigrated to Denmark compared to those who immigrated to Sweden. However, at the beginning of the '90s Sweden experienced a significant

macroeconomic shock, resulting in decreased GDP and a substantial rise in unemployment. Following this, unemployment in Sweden was higher than in Denmark from 1992. When refugees and their families arrived from Bosnia, Iran or Iraq during the '80s and '90s, they met more similar labour market conditions in Sweden and Denmark. It is as a result of this background that we will report much less cross-country difference in poverty rates in 2010 for these categories of immigrants than among those who arrived earlier from guest-worker countries.

This study is about persons living in Denmark or Sweden who were either native born or born in one of five countries (Bosnia, Iran, Iraq, Yugoslavia and Turkey) that have sent substantial numbers of migrants to both Denmark and Sweden. The general level of income in these five origin countries is substantially lower than in the destination countries. Many of the migrants from these countries are distinguishable by appearance, language and name from the majority populations of the destination countries. The poverty level among those migrants is compared to that of native-born residents in the destination country in 2010.¹

For the study, we used register data on all persons living in Denmark and Sweden aged 65 to 82 who were either native born or born in one of the five countries listed. The advantages of this data set are the large number of observations and lack of non-responses with which survey data often are plagued. Furthermore, this dataset makes it possible to include information about a person's labour market and residential status before the age of 65 when specifying explanatory factors in the statistical analysis. By specifying and estimating multivariate models, we are able to show how a

¹ Bosnia and Herzegovina, previously a part of the Socialist Republic of Yugoslavia, was founded in 1992. When registering a person's country of birth, the statistical authorities in Denmark and Sweden recorded information provided by the immigrant at the time of immigration. Thus, people born in the territory of Bosnia and Herzegovina who arrived before 1992 were recorded as originating from Yugoslavia. Most people recorded as being born in Yugoslavia in our data arrived before 1992. However, a relatively small number who came from the reduced federation of Serbia and Montenegro (known as the Federal Republic of Yugoslavia) who arrived during the period 1992 to 2003 were probably also recorded as being born in Yugoslavia.

number of individual factors are related to the probability of being poor in Denmark and Sweden. We considered the person's education, family status, age, year of arrival and labour market and residential status when aged 55. This makes it possible for us to compare the risk of being poor for a person with the given characteristics according to whether they lived in Denmark or Sweden.

The paper continues as follows: In Section 2, we review earlier contributions to the literature on poverty among older immigrants to high-income countries. Section 3 describes the contexts of the two destination countries, and we report significant differences in flows and stocks of migrants to the two destinations along with major differences in their macroeconomic situations. In this section, we also describe differences in the social security programmes for older people and changes in immigration and integration policies in the two destination countries. Section 4 deals with the data, analytical approach and descriptive findings. Section 5 presents results from the multivariate analysis used to predict the probability of being poor for persons with given characteristics according to the country they live in. Finally, Section 6 summarises the study and discusses the results.

2. Literature review

Recently, several authors have studied differences in the prevalence of poverty between natives and immigrants in different high-income countries. Examples of such studies are Hooijer and Picot (2015) and Eugster (2018). However, these studies deal with immigrants and natives of all ages, rather than focusing on older people from middle- and low-income countries, who typically make up relatively small proportions of the samples analysed.

Only very few studies on poverty among older immigrants and natives in high-income countries are available that use more disaggregate data on several countries of destination and origin. Heisig et al. (2018) focused on the retirement income gap between natives and an aggregate of non-EU immigrants 65 years and older in 16 Western European countries. The authors used EU-SILC data for the years 2004-2013 and found the average retirement income for immigrants to be about 30 per cent less than for natives, with a smaller gap in countries with more redistributive pension systems. Surprisingly, they did not find a clear relationship between measures of immigrants' access to social security systems in the 16 host countries studied and poverty status. Furthermore, the authors reported a large variation in the retirement income gap between immigrants and natives across the EU-SILC countries. However, this could possibly be attributed to their samples, which for some countries contained very few immigrants from low- and middle-income countries. Consider also the fact that while pensions are typically the major income source for older people, poverty status is assessed at the household level after income received from capital and work, and income taxes have been paid.

While Heisig et al. (2018) focus on the retirement income gap between immigrants and natives, Chan and Chou (2016) directly studied the poverty status among older immigrants from mainland China to Hong Kong relative to natives. Those authors found, after controlling for differences in background factors, that higher levels of poverty persist among immigrants.

It should also be mentioned in this literature survey that there have been comparative studies of poverty between immigrants and natives in Denmark and Sweden. However, those studies do not relate to older persons. One such study is Blume et al. (2007), which, like this study, builds its analysis on population-wide register data for Denmark and Sweden, including information on

immigrants' countries of origin. The study found high and increasing poverty disparities between natives and immigrants over the period 1984-1997 in both destination countries. Furthermore, it found significant differences relative to the country of origin. Galloway et al. (2015) is another study that compared population-wide register data on immigrants by country of origin with natives in Denmark, Norway and Sweden for the period 1993-2001. The focus in Galloway et al. (2015) is on immigrant child poverty; the authors found much higher poverty rates for children from low- and middle-income countries than native children.

Two studies of income levels among older immigrants in Sweden are also relevant to this study. Using register data, Flood and Mitrut (2010) made projections of future pension income for non-OECD immigrants in Sweden and found a low expected average income for female immigrants. In contrast, Ekberg and Lindh (2016) found that in 2008, the income of non-Swedish born persons aged 65 years and older living in Sweden in 1970 was generally not lower than that of their Swedish-born counterparts. However, this is a group of immigrants who arrived to a full employment economy, with the largest sender country, Finland, being a high-income country.

We now turn to the two studies that are closest to our research questions. First there is Jakobsen and Pedersen (2017), who, using register data, analyse the incidence and determinants of relative poverty in 2011 among immigrants to Denmark from Turkey, Iran, Pakistan and Vietnam aged 60-74 years relative to natives. Immigrants from all four countries were found to experience much higher poverty rates than natives. Data made it possible to estimate the poverty rates using extended families as the income pooling unit in addition to the conventional nuclear family unit. As expected, using the extended family concept resulted in lower incidences of poverty. However, it is not

known whether living in an extended family is a result of preferences or a reaction to financial pressure.

Finally, Gustafsson et al. (2019) analyse immigrant poverty in Sweden compared with natives among individuals 65 years and older using population-wide register data for 2007. This study applied a double criterion to classify individuals as living in relative poverty, i.e. having an adjusted income below 60 per cent of the median and net assets worth less than SEK 10,000. The immigrants were divided into three groups according to the GDP per capita in their country of origin, i.e. whether they came from high-, middle- or low-income countries. Among immigrants from low-income countries, no less than 75 per cent of people aged 65 years and older were classified as poor according to either the income or asset criterion. Fulfilling both criteria, one-third were classified as 'double' poor. A key finding was that this figure is closely related to the age at which someone immigrated, functioning as a proxy for low attachment to the labour market in Sweden before the age of 65. For these people, both social security pensions and work-related pensions would be very low.

From this literature review, we conclude that little has been written on the extent of poverty in rich European countries among older immigrants from middle- and low-income countries. However, much more has been written on the problematic situation for such migrants in the labour market in rich European countries. It has been documented many times that since the beginning of the '90s, an employment and or income gap has existed between those in the foreign-born category and the native population in Denmark and Sweden.

For Denmark, see for example Husted et al. (2011), who studied employment and wage assimilation among refugees, non-refugee immigrants and Danish-born nationals using register data for the period 1984 to 1995. Leibig (2007) brought the description and analysis forward to 2005. Furthermore, Jakobsen et al. (2018) set the Danish experience in relation to those of Norway and Sweden, studying the period 1993 to 2006. This study concludes that the Danish reforms introduced in the beginning of the 2000s, having no equivalents in Norway or Sweden, had no clear-cut effect on either employment or earnings among non-Western immigrants.

The body of literature on immigrants in the Swedish labour market has grown large. It includes Rydgren (2004) and Aldén and Hammarstedt (2014), both of which provide overviews and discuss various mechanisms within the given context. Carlsson and Rooth (2007) is probably the first among many studies to have used field experiments in Sweden to study discrimination of persons with foreign-sounding names in the labour market. Another example of studies on Sweden is Åslund et al. (2014), who studied how the interplay between managers' and workers' countries of origin affects hiring patterns, job separation and wages.

It is known that the gaps in employment and income are larger in Denmark and Sweden than in most other rich countries (Dustman and Frattini 2011). Gaps in employment and income between natives and immigrants can be attributed to many factors (see, for example, de la Rica et al. 2015). Some of these relate to the immigrants themselves and their skills. Immigrants have often had shorter educations and/or their education and skills have limited transferability. Newly arrived immigrants to Denmark and Sweden typically lack communication skills in the official language of the destination country and often have limited knowledge of destination-specific institutions. Other factors relate to employers' unwillingness to hire workers with foreign backgrounds. Hiring discrimination amongst categories of immigrants is well documented in many studies. Another

perspective is to focus on the structure of the labour market in the destination countries; in Denmark and Sweden, wages are set by negotiation between employers and unions such that even the lowest wages are relatively high in both countries, consequently limiting the demand for low-skilled workers. Furthermore, policies aimed at integrating recent immigrants into the labour market of the destination countries have not always been as effective as one would expect.

3. Contexts

In this section we focus on differences between the two destination countries Denmark and Sweden that can be assumed to be relevant in an analysis of immigrant poverty. First, we show in Figure 1 how the share of immigrants amongst the whole population has been significantly higher in Sweden in all years since 1980. However, the figure also shows that the relative difference is narrowing, i.e. while the share in Sweden was 3-4 times higher than in Denmark in 1980, it was only twice as high in 2016. In other words, the stock of immigrants has increased faster in relative terms in Denmark over the period.

Our empirical analysis relates to the year 2010, this being the year for which comparable micro data are available. In Table 1, we illustrate the big differences between Denmark and Sweden in this year by focusing on the most important countries of origin for immigrants. For both Denmark and Sweden, the table lists the number of persons residing in the country from the 12 most common countries of origin for immigrants. There is only a partial overlap in the countries of origin that are represented in both Denmark and Sweden. In the paper, we focus on the same five low- or middle-income countries, shown in bold. Turkey and Yugoslavia represent mostly guest-worker countries,

while Iraq, Bosnia-Herzegovina and Iran represent countries sending mostly refugees.² For both host countries, initial entries were followed by family reunifications. Among the five countries of origin, Turkey had the highest number of residents in Denmark in 2010, with 32 000 persons, while in Sweden, the highest number were from Iraq, with 122 000 persons.

We now turn to a description of how the labour market situation has changed since 1970 in both countries of destination. Figure 2 shows aggregate unemployment rates in Denmark and Sweden since 1970. Two different sub-periods can be detected. Until 1993, unemployment was higher in Denmark, in some years significantly so. In Sweden, we see a dramatic increase in the early 1990s, followed by a number of years in which unemployment was higher than in Denmark. Compared with Figure 1, the highest relative increase in immigration to Denmark occurred during years with very high unemployment, in absolute as well as relative terms. In contrast, much of the immigration to Sweden from guest-worker countries occurred prior to 1990 to a full employment economy. This should have led to many migrants from guest-worker countries accumulating enough pension rights to keep them from being poor in old age when remaining in Sweden.

Figure 1 about here

Table 1 about here

Figure 2 about here

There are a few small differences between the pension systems in Denmark and Sweden that are relevant to this study and could influence the answers to our research questions. Both countries are

² In Sweden, Turkey, especially, is a mixed case as quite a large number arrived from Turkey due to antagonism against their Christian faith or as political refugees with a Kurdish background.

generally considered developed welfare states of the universalistic type, in which programme eligibility, in principle, is the same for all legal residents. Pensions are organised in three pillars in both countries: by the public sector, by labour market partners and privately through personal saving. Some pension systems are constructed in such a way that benefits are reduced after a certain number of years of retirement.

In Denmark, the public pension consists of a base amount along with a means tested supplementary amount. Full eligibility is dependent on a minimum of 40 years of residence between the ages of 15 and 64. Along with this, citizenship is required unless a person has had residency for at least 10 years between the ages of 15 and 64. If they have been a resident for less than 40 years, the pension amount is calculated on a pro-rata basis. For the period considered here, refugees were exempted from the residence requirement.

In Sweden, the public pension system is slightly different, and a major reform has been phased in since the mid-1990s. The current system consists of a basic, tax-financed component and an earnings-related component financed through social security contributions. The pre-reform system is still relevant for persons born before 1937 and is more favourable to immigrants than the new social security programme. Eligibility for a full basic pension requires 40 years of residence.³ Shorter periods of residence result in a pro-rata pension. Citizenship is not required, and, according to legislation, refugees are considered as having 40 years of residence at age 65 independent of the age they arrived in Sweden. However, there are indications of this rule not always being implemented.⁴

³ This applies to persons born in 1939 and later. For persons born before 1939, less demanding requirements apply. For details see Swedish Government (2000/01:136).

⁴ Minutes from the Swedish Parliament June 4, 2007. Available at: https://www.riksdagen.se/sv/dokument-lagar/dokument/interpellation/flyktingars-ratt-till-garantipension_GU10532

Some people leave the labour force before the normal retirement age and receive a disability pension. This can increase the amount of the old-age pension received by the person. Sweden experienced a radical tightening of requirements for disability pensions starting in 2004, for which there was no equivalent in Denmark.⁵ The implication of this cross-country difference is that we expect the poverty status among older people in Sweden to be more strongly related to labour market status at the age of 55 than in Denmark. In both countries, means tested supplements can be applied for by older persons in various programmes (housing benefits and social assistance). In Sweden, this is done according to certain norms, while in Denmark, with the exception of housing benefits, it is done on a more discretionary, case-by-case basis.⁶

To summarise, the number of years of residence and the amount of time spent in the labour market are important factors in determining a person's pension income from the age of 65 onwards in both countries. The two systems build on the same principles and structure. At the same time, they differ in aspects regarding replacement rates, basic pension, early retirement options and the use of actuarial principles. A main difference according to König (2017) that is relevant in the present context is that replacement rates for low-income workers are comparatively high in Denmark.

⁵ The number of newly granted disability pensions in Sweden fell continuously from 73 161 in 2004 to 14 121 in 2010, see Försäkringskassan (2020).

⁶ Old people with low pension incomes residing in Denmark or Sweden can apply for support from one or several means-tested public systems. For example, in Sweden there are three different programmes: housing allowances (Bostadsbidrag), social assistance (Ekonomiskt bistånd) and income support for older persons (Äldreförsörjningsstöd). The National Board of Health and Welfare (2011) statistics indicate that no more than three per cent of foreign-born persons received social assistance in 2014, with the corresponding proportion among Swedish-born persons being under half a per cent. However, available evidence indicates substantial non-use among older persons when it comes to housing allowances and social assistance for older persons (Riksrevisionsverket 2013), and the same applies to social assistance (Gustafsson 2002).

Finally, it should be understood that immigration policy has undergone several changes in both countries in recent years, characterised by consistent tightening of entry and residence rules. Of special relevance in the present context is the fact that the possibility of family re-unification with older parents was highly restricted at the time of writing. In Denmark, from 1992 it was only possible to bring parents older than 60 into the country if they had no other children living in the country of origin. From 2002, it was, in principle, no longer an option to apply to bring older parents to Denmark.⁷ The corresponding change in Sweden occurred because of the massive influx of asylum applicants in 2015, after our period of study. This cross-country difference should mean that between 2002 and 2009 Sweden admitted some people born in low-income countries either already 65+ or just under 65 and therefore having low chances of finding a job and being at a high risk of being poor when turning 65, whereas this would not be the case in Denmark.

To summarise the discussion in this section, there were large differences in the macroeconomic situations in Denmark and Sweden during the '70s and '80s that should have meant that work migrants from middle- and low- income countries who arrived in Denmark and stayed there had less opportunity to accumulate pension rights than their counterparts who moved to Sweden during the same period. This cross-country difference is expected to show up in considerably higher poverty rates amongst old-age migrants from Turkey and Yugoslavia who moved to Denmark compared to their counterparts who moved to Sweden. Migrants from Bosnia, Iran and Iraq who arrived in the two Scandinavian welfare states as refugees or tied movers during the '90s and thereafter met similar situations at the two destinations, and as a consequence we expect cross-destination differences in poverty rates amongst old-age migrants from Bosnia, Iran and Iraq to be relatively small.

⁷A detailed overview of legal changes in Denmark since 1992 is found in Hvidtfeldt and Schultz-Nielsen (2017).

4. Data, analytical approach and descriptive findings

We used population-wide micro data for the year 2010 from the statistical agencies in Denmark and Sweden and refer to people registered as residing in the respective country. Thus, the data do not include people who in 2010 were applying for a residence permit, for example, while living in a migration centre. We focused on people who were aged 65 to 82 in 2010. Please notice that we were not working with samples but with information on all persons in the aforementioned age bracket who were registered as living in Denmark or Sweden in 2010. The data include a comprehensive range of demographic and economic variables, including age, gender, civil status, education and various components of income. We also knew the number of other adult household members for each older person and their incomes.⁸ For immigrants, we know their country of origin and their year of arrival to the host country. However, for a non-trivial proportion of immigrants, the level of education is unknown. Through our data, we can follow people during preceding years in the case that they were living in Denmark or Sweden.

Based on the micro data, we computed the disposable incomes for the households in which older persons resided and adjusted this measure for differences in household size using equivalence scales.⁹ When doing this we assigned the same income to all household members. Our definition of relative poverty follows current practice when measuring income poverty in the European Union. This means we first computed median household income for the entire population residing in Denmark and Sweden respectively in 2010. Thereafter, poverty status was determined as having an

⁸ A number of immigrants have returned to their country of origin or moved on to a third country. This is analysed for Denmark by Jensen and Pedersen (2007) and for Sweden by Klinthäll (2006 and 2007), Nekby (2006) and Monti (2020).

⁹ In Sweden, we used the equivalence scale: 1.0 for the first adult, 0.51 for the second adult, 0.6 for the third adult, 0.52 for the first child 0-19 years old and 0.42 for child 2, 3, 0-19 years old. For Denmark, we use the modified OECD scale with 1.0 for the first adult, 0.5 for each subsequent adult and 0.3 for each child. This cross-country difference is due to differences in the data to which we had access.

equivalent income lower than 60 per cent of the median in the country studied in 2010. Using those assumptions, the poverty rate among native people aged 65 years or older living in Denmark and those living in Sweden was estimated to be under 10 per cent in 2010.

As a first look at the data, Figure 3 shows the poverty rates for immigrants aged 65 to 82 years old in Denmark and Sweden for the five countries of origin and for natives. In all cases the poverty rates for immigrants were higher than the 8-9 per cent for all people aged 65 years or older in both Denmark and Sweden. However, the variation in poverty rates among foreign-born residents was dramatic. The highest rate was 70 per cent, for immigrants from Turkey living in Denmark. In contrast, no more than 20 per cent of immigrants from Yugoslavia living in Sweden were considered poor. For some of the immigrant groups, the difference in poverty rates across the destination country was small. For others, like those coming from Yugoslavia and Turkey, it is rather large. Finally, while the poverty rates in Denmark were mostly at or above those in Sweden, there are exceptions, i.e. immigrants from Bosnia and Iraq.

How sensitive were our results to the decision to set the poverty line at 60 per cent of the median disposable income in the country? We have answered this question by drawing Cumulative Density Functions (CDFs) for each of the five immigrant categories in Denmark and Sweden and for native born. From the two figures reported in the Appendix, we can conclude that, for poverty lines set lower or higher than 60 per cent, poverty is more prevalent in each of the five immigrant categories than among natives.

5. Model specification and estimates

In this section, we present results from probit regressions on the determinants of poverty risk, defined as an individual having an equivalent disposable income below 60 per cent of the median income.¹⁰ We apply a specification that includes variables measuring age, gender, civil status and education. We further account for the fact that information on education is missing in some cases by including a dummy variable. When a person entered the country of destination, as well as his or her history of labour-market activity in the country of destination, are deemed to be important for poverty status as observed in 2010. Therefore we construct three dummies measuring year of entering the country of destination (before 1980 as the omitted category) and one dummy variable measuring labour market status during an age when many are still work active in the destination country. We also aim to consider if the person was living in the destination at the same age and chose for both dummy-variables the age of 55 years. We expect that people present in the country of destination when aged 55 will have a lower probability of being poor in old age than those who were not present in the country at that age. Similarly, we expect that people who were members of the labour market when aged 55 have a lower probability of being poor than others. One argument for defining those two dummy variables, and not use continuous variables, is that the results will be easier to interpret, particularly in a cross country study. The specification also includes the country of origin.¹¹

The mean values of the explanatory variables are shown in Table 2 for Denmark and in Table 3 for Sweden. The older Iranian migrants stand out in both destinations as having similar education levels

¹⁰ In the research process we estimated probit regressions as well as logit regressions and found no substantial differences in results between the two alternatives.

¹¹ Although our data are rich in terms of the number of observations, and also making it possible to follow people over time, it has limitations when it comes to some of the factors that have been shown in the literature to relate to immigrants' degree of integration in the host countries. Examples of such circumstances are foreign education and language proficiency.

to older natives. In contrast, for both countries of destination, older people born in Turkey represent the largest proportion with only compulsory education or less, much higher than among natives.

Table 2 about here

Table 3 about here

As expected, most immigrants from Yugoslavia and Turkey are registered as having arrived to each of the destination countries before 1980, while the opposite is the case for migrants from Iraq, Iran and (of course) Bosnia. Half of the older Iraqi migrants to Sweden had arrived as recently as during the 2000s. As mentioned in the introduction, the immigration of guest workers to Sweden started earlier than to Denmark. However, this is not reflected in Tables 2 and 3, as from our data we could only see if a person immigrated before 1980 or not. The fact that a larger proportion of persons born in Turkey are recorded as having arrived in Sweden after 1980 is probably due to the fact that the country received a relatively high number of family re-unifications, including older parents, as well as a relatively high number of Kurdish refugees compared to Denmark.

For both destination countries, the highest mean value for the variable indicating that at age 55 the person was present in the country of destination and working was found for persons from Yugoslavia and the lowest for immigrants from Bosnia and Iraq, two groups that arrived as refugees. From the descriptive statistics, we also learn that in both countries it is more common for foreign-born persons to not have a job when aged 55 than for natives. Among native-born persons living in Denmark, 82 per cent had income from work when aged 55, and the corresponding proportion, 89 per cent, was even higher in Sweden.

Table 4 about here

We first report estimates for natives in Table 4. For the age variable, the omitted category is 65-69-year-olds. We find unsurprisingly that the probability of being poor increases at this age. This can be traced back to at least two factors. One is that older generations have on average accumulated smaller pension rights than younger ones. The second is that, as discussed in Section 3, some pension systems are constructed in such a way that benefits are reduced after a given period of retirement.¹² Education is a significant predictor of poverty risk in both countries. Close attention should be paid to this in the case that information on education is missing in the data, as this elevates the probability of being classified as poor. Regarding the importance of gender and marital status, the omitted category is married men. In both destination countries, being unmarried increases the probability of being poor. The indicator variables both for not having an income from work at age 55 and, particularly, for not having arrived in the destination country at this age indicate higher probabilities of being poor. This is true for both destination countries.

Table 5 about here

Table 5 shows the results when only immigrants are included in the estimations. The coefficients for age do not increase linearly in this case. As is the case among natives, the probability of being poor is related to length of education, and in this case the positive coefficient when there is no information available on education is larger than among natives. The coefficients for year of

¹² Selective mortality can also play a role in opposition to the observed pattern. It is to be expected that older people with a high income live longer than those with lower incomes.

immigration are as expected: the poverty risk is lower the longer the duration of residence in the host country. Yugoslavia is the omitted category in Table 5. For Denmark, we find, with the exception of Turkey, that the other country variables show a significantly lower poverty risk compared with immigrants from Yugoslavia. We also see that the differences between the countries of origin are much smaller in Sweden than in Denmark. In the following, we illustrate how strong the relationships of interest are in the two countries.

Based on the estimation results shown in Tables 4 and 5, we predict the probability of being poor for individuals with specific characteristics living in each of the two countries at the given time. This is to illustrate the importance of labour market integration, as indicated by having income from work at age 55, and the importance of duration of residence. We will also illustrate that having or not having an income from work at age 55 has greater consequences for poverty status when retired in Sweden than in Denmark.

Table 6 about here

In Table 6, the left panel shows the computed expected poverty risk for a 65-69-year-old married man having completed compulsory education and with income from work at age 55. We predict the probability of being poor for such an individual from each of the five selected countries of origin and for a native. For persons born in Turkey or Yugoslavia, the probability of being poor is much higher if they live in Denmark than in Sweden. In contrast, the risk is similar between the destination countries for immigrants from Iraq and Iran. For a person from Bosnia with the given characteristics, the probability of being poor is lower in Denmark than in Sweden. When looking at a person with the same characteristics but without income from work at age 55 (the right panel), we

see higher poverty risks for Sweden than Denmark with regard to people from all three refugee-sending countries (Bosnia, Iraq, and Iran). Having an income from work at age 55 has a greater consequence for poverty status in Sweden than in Denmark, as is shown in the two last columns of Table 6.

Table 7 about here

In Table 7, we show the predicted probabilities of being poor for the same base demographic characteristics, i.e. a 65-69-year-old married man having completed compulsory education, but now we illustrate the importance of the duration of residence. For both host countries, the probability of being poor decreases with length of residence. We also see a much higher poverty risk in Denmark than in Sweden for immigrants from the two guest-worker countries, Turkey and Yugoslavia. For immigrants from the three refugee countries, there are only small systematic differences in poverty probabilities between Denmark and Sweden.¹³

6. Summary and conclusions

In this paper, we have analysed the incidence of relative poverty among immigrants from Bosnia, Iran, Iraq, Turkey and Yugoslavia aged 65 to 82 living in Denmark and Sweden, as well as among natives aged 65 to 82 in the same two countries, for 2010. Poverty was defined as living in a

¹³ The explanation of the lower probabilities of being poor in Denmark than in Sweden among migrants from Bosnia is probably a combination of more favourable pension rules, not only for refugees but also for family members arriving as tied movers, and a higher basic social security pension in Denmark. In Ankestyrelsen (2014), it is concluded that nearly all family members of Bosnian refugees were treated in accordance with the rules for refugees, i.e. they were not under the fraction rules for social security pensions based on years of residence before the eligible age.

household with a median income below 60 per cent of the median in the country of destination, which we determined using register data on all persons residing in Denmark and Sweden respectively. To better understand the factors that are related to poverty, we estimated probit models for each destination, relating the probability of being poor to education, family status, age, year of arrival, labour market status when aged 55 and an indicator of whether the person lived in the country of destination when aged 55. Understandably, we found all these factors to be related to the probability of being poor in the country of destination.

In the descriptions in this paper, we reported much higher poverty rates among older immigrants from low- and middle-income countries to Denmark and Sweden than among natives in the same age category. In Denmark, there was a very significant discrepancy in favour of the native population over older migrants with regard to those from Yugoslavia, of whom 57 per cent counted as poor, and particularly those from Turkey, among whom as many as 72 per cent counted as poor. An overwhelming proportion of those migrants arrived in Denmark during the '70s and '80s. In comparison, migrants with the same origins who went to Sweden are shown to have much lower poverty rates. Our analysis has shown that this cross-country difference cannot be explained by the characteristics of the migrants to whom we have access in our data. Instead, we interpret it as being a result of the much less favourable labour market conditions in Denmark compared to Sweden during the years of arrival. In broader terms, immigrants to Denmark arriving between the early 1970s and early 1990s as guest workers (before 1974) and tied movers (later) faced a labour market with high unemployment, which lasted until the mid-1990s. Therefore, labour market integration was far from perfect and the pensions generated by earnings are low as the combined result of fewer years of residence before age 65. In Sweden, in contrast, there was full employment until the early

1990s, and immigrants from guest-worker countries were in a much better position to accumulate pension rights.

We found considerably less cross-country difference in poverty rates and poverty risks for migrants from the refugee countries, Bosnia, Iran and Iraq. We found somewhat higher poverty probabilities in Sweden than in Denmark for older immigrants from these countries who had no income from work when aged 55. The reasons for this cross-country difference are not entirely clear but can probably be traced to more favourable treatment in relation to pension rights in Denmark, in combination with a more restrictive admission policy for later arrivals with respect to bringing older parents to the country.

Our results have clear implications for understanding old-age poverty in advanced welfare states. When talking about old-age poverty, it is increasingly relevant to talk about poverty among immigrants. Since the data used in this study were collected, the category of old-age immigrants not only in Denmark and Sweden but also in many other rich countries has increased rapidly. This increase is mainly the result of the aging of the immigrant population but also the immigration of older age persons, typically relatives of persons who have immigrated previously. We also learn from this study that failure to integrate immigrants from low- and middle-income countries in the labour market of the destination country can have consequences that become visible many decades later. Thus, measures promoting the successful integration of migrants from low- and middle-income countries at the time of arrival are warranted.

We began this paper by stating that little has so far been written on poverty among older immigrants in rich European countries. We hope that this paper can stimulate further research, and we will end

by pointing out some possible directions for this. The first is to develop the measures of work history and immigrant history that were used in this study, with the purpose of taking fuller advantage of the panel property of existing data. This is to study how labour market and immigration trajectories are related to poverty status in old age. We have observed that almost all research on immigrant integration in rich host countries has so far centred around entering the labour market in the destination country rather than exiting it. Therefore, there should be a motivation to study the process and timing of the exit from the labour market by immigrants from low- and middle-income countries in comparison to the native population. Interesting questions are: Do immigrants exit the labour market earlier than the normal retirement age, and if so to what extent? To what extent do such immigrants continue to work after the normal retirement age?

A further task for future studies is to investigate more recent data. One reason for this is that new migration streams have reached Denmark and Sweden. For example, in 2015, Sweden in particular received a very large number of asylum applicants, many originating from Syria. Other issues for further research relate to how the relatively high number of older immigrants who we have classified as poor perceive their economic situation. We do not know to what extent they are maintained by support from their adult children or other relatives. Finally, the results from this study lead to the question of what extent the findings from Denmark and Sweden can be generalized to other rich European countries.

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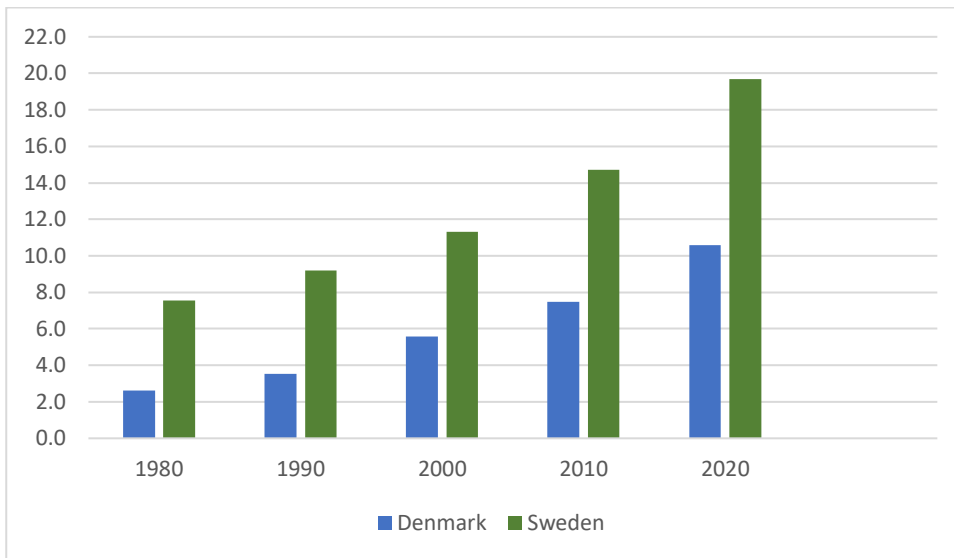
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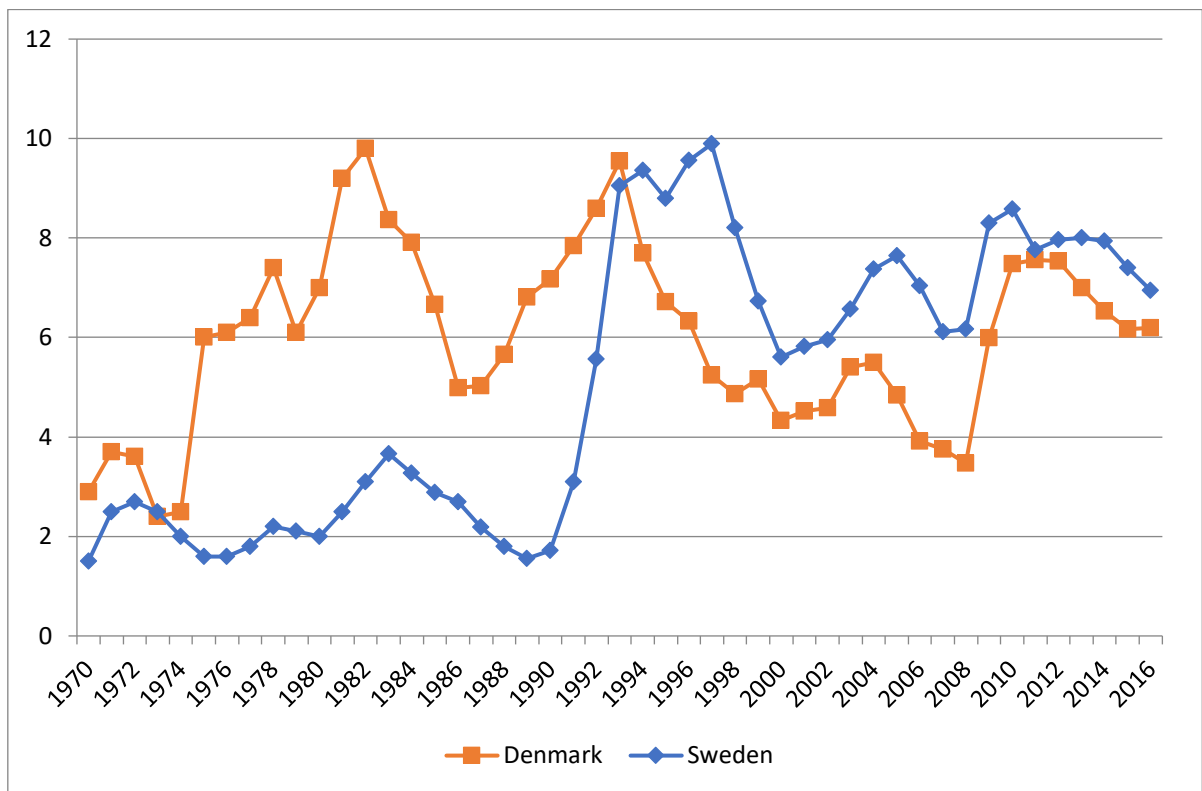
Figure 1. Share of immigrants in the populations of Denmark and Sweden, 1980–2020



Note: Numbers refer to the proportion persons with a foreign country of birth.

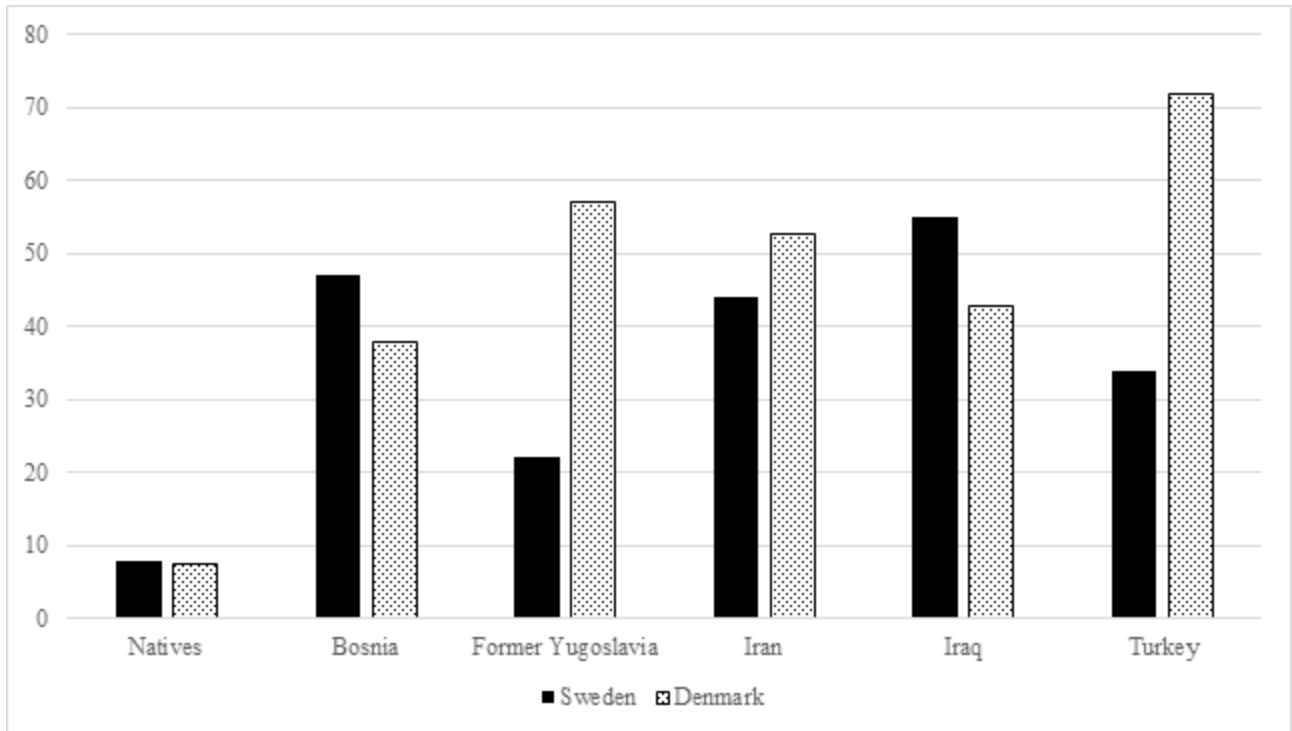
Source: Statistics Denmark and Statistics Sweden

Figure 2. Aggregate unemployment rates in Denmark and Sweden 1970-2016



Source: Statistics Denmark and Statistics Sweden

Figure 3. Share of 65- to 82-year-olds below the 60 per cent poverty line in Sweden and Denmark in 2010 by country of birth



Source: Author's calculations from data presented in Section 4

Table 1. Number of immigrants from the 12 most important countries of origin by numbers, Denmark and Sweden 2010. Countries focused on in this paper are shown in bold.

Denmark		Sweden	
Turkey	32 255	Finland	169 521
Germany	28 234	Iraq	121 761
Poland	25 443	Yugoslavia	70 819
Iraq	21 306	Poland	70 253
Bosnia-Herzegovina	17 911	Iran	62 120
Norway	14 663	Bosnia-Herzegovina	56 183
Sweden	13 233	Germany	48 158
Iran	12 098	Denmark	45 548
Lebanon	12 012	Norway	43 430
UK	11 832	Turkey	42 527
Pakistan	11 169	Somalia	37 846
Yugoslavia	11 021	Thailand	31 378

Notes: 1) Numbers refer to country of birth.

2) Total population in 2010: Sweden 9.3 million and Denmark 5.5 million.

Source: Statistics Denmark and Statistics Sweden

Table 2. Variables mean values 2010, Denmark

	Immigrants from the five countries of origin	Natives	Turkey	Iraq	Bosnia	Iran	Yugoslavia
Age interval							
65-69	0.43	0.41	0.49	0.45	0.34	0.39	0.44
70-74	0.30	0.29	0.27	0.30	0.35	0.29	0.32
75-79	0.19	0.21	0.18	0.19	0.23	0.23	0.18
80-82	0.08	0.10	0.06	0.06	0.08	0.09	0.05
Civil status							
Men, married	0.33	0.33	0.48	0.41	0.38	0.34	0.36
Women, married	0.26	0.27	0.26	0.20	0.24	0.25	0.23
Men, unmarried	0.02	0.03	0.00	0.03	0.02	0.02	0.01
Women, unmarried	0.02	0.02	0.00	0.04	0.05	0.02	0.02
Men, divorced	0.07	0.05	0.02	0.07	0.01	0.11	0.07
Women, divorced	0.09	0.07	0.02	0.03	0.02	0.10	0.10
Men, widowed	0.03	0.05	0.03	0.03	0.05	0.02	0.05
Women, widowed	0.17	0.16	0.17	0.21	0.24	0.16	0.15

Education							
Unknown	0.21	0.01	0.26	0.55	0.56	0.51	0.21
Compulsory	0.26	0.44	0.61	0.17	0.17	0.14	0.42
Upper secondary	0.29	0.37	0.10	0.14	0.18	0.16	0.23
Post-secondary	0.23	0.18	0.03	0.14	0.08	0.19	0.14
Year of arrival:							
before1980	0.72	-	0.86	0.07	-	0.10	0.80
1980s	0.10	-	0.09	0.15	-	0.57	0.06
1990s	0.11	-	0.03	0.40	0.97	0.20	0.08
2000s	0.06	-	0.01	0.37	0.02	0.14	0.06
Status at age 55							
In labour force	0.53	0.82	0.26	0.07	0.04	0.14	0.42
Not in labour force	0.31	0.17	0.68	0.28	0.34	0.47	0.44
Not in Denmark	0.16	0.01	0.06	0.65	0.62	0.39	0.14

Table 3. Variables mean values 2010, Sweden

	Immigrants from the five countries of origin	Natives	Turkey	Iraq	Bosnia	Ira-	Yugoslavia
Age interval							
65-69	0.37	0.40	0.34	0.43	0.32	0.41	0.40
70-74	0.31	0.27	0.31	0.30	0.32	0.28	0.34
75-79	0.22	0.22	0.24	0.20	0.27	0.21	0.19
80-82	0.10	0.11	0.11	0.08	0.09	0.10	0.07
Civil status							
Men, married	0.29	0.31	0.39	0.38	0.32	0.32	0.36
Women, married	0.25	0.27	0.26	0.27	0.32	0.24	0.21
Men, unmarried	0.04	0.05	0.02	0.01	0.01	0.01	0.04
Women, unmarried	0.03	0.04	0.01	0.02	0.02	0.01	0.01
Men, divorced	0.09	0.07	0.07	0.06	0.04	0.15	0.11
Women, divorced	0.12	0.09	0.05	0.03	0.04	0.11	0.11

Men, widowed	0.03	0.04	0.02	0.02	0.04	0.01	0.03
Women, widowed	0.15	0.12	0.18	0.21	0.20	0.16	0.13
Education							
Unknown	0.10	0.01	0.21	0.55	0.41	0.17	0.09
Compulsory	0.37	0.39	0.59	0.20	0.26	0.35	0.47
Upper secondary	0.35	0.39	0.14	0.10	0.22	0.26	0.34
Post-secondary	0.18	0.22	0.07	0.14	0.11	0.23	0.10
Year of arrival:							
before1980	0.66	-	0.54	0.02	-	0.05	0.75
1980s	0.10	-	0.32	0.13	-	0.66	0.06
1990s	0.08	-	0.09	0.31	0.92	0.19	0.12
2000s	0.08	-	0.03	0.53	0.04	0.08	0.04
Status at age 55							
In labour force	0.64	0.89	0.31	0.06	0.07	0.26	0.45
Not in labour force	0.22	0.10	0.55	0.20	0.35	0.43	0.43
Not in Sweden	0.13	0.01	0.14	0.74	0.58	0.31	0.12

Table 4. Estimation of the poverty risk among natives, 2010, Denmark and Sweden

Natives	Denmark			Sweden		
	dy/dx	SE	P- value	dy/dx	SE	P-value
60% poverty line						
Age group						
70-74	0.012	0.001	0.000	0.011	0.000	0.000
75-79	0.028	0.001	0.000	0.024	0.001	0.000
80-82	0.039	0.001	0.000	0.036	0.001	0.000
Education						
Unknown	0.004	0.002	0.052	0.018	0.002	0.000
Upper secondary	-0.027	0.001	0.000	-0.019	0.000	0.000
Post-secondary	-0.075	0.001	0.000	-0.039	0.000	0.000
Gender and marital status						
Women, married	0.006	0.001	0.000	0.003	0.001	0.000
Men, unmarried	0.070	0.001	0.000	0.186	0.002	0.000
Women, unmarried	0.043	0.002	0.000	0.206	0.003	0.000
Men, divorced	0.062	0.001	0.000	0.084	0.002	0.000
Women, divorced	0.040	0.001	0.000	0.170	0.002	0.000
Man, widower	0.036	0.001	0.000	0.041	0.002	0.000
Women, widow	0.045	0.001	0.000	0.149	0.001	0.000
Status at age 55						
No labour income	0.025	0.001	0.000	0.078	0.001	0.000
Not in the country	0.082	0.002	0.000	0.268	0.007	0.000

N	741823	1224383
Log Likelihood	-163455	-240454.27
Pseudo R2	0.071	0.201

Source: Author's estimates from data presented in Section 4

Table 5. Estimation of the poverty risk for immigrant groups, 2010, Denmark and Sweden

Immigrants	Denmark			Sweden		
	dy/dx	SE	P-value	dy/dx	SE	P-value
Age group						
70-74	0.025	0.005	0.000	0.017	0.002	0.000
75-79	0.041	0.006	0.000	0.005	0.003	0.067
80-82	0.033	0.008	0.000	0.031	0.004	0.000
Education						
Unknown	0.062	0.007	0.000	0.051	0.005	0.000
Upper secondary	-0.030	0.006	0.000	-0.040	0.002	0.000
Post-secondary	-0.086	0.006	0.000	-0.076	0.002	0.000
Gender and marital status						
Women, married	0.034	0.006	0.000	-0.025	0.003	0.000
Men, unmarried	0.172	0.012	0.000	0.202	0.007	0.000
Women unmarried	0.154	0.013	0.000	0.197	0.008	0.000
Men, divorced	0.145	0.008	0.000	0.119	0.005	0.000
Women, divorced	0.132	0.008	0.000	0.195	0.004	0.000
Man, widower	0.087	0.011	0.000	0.041	0.007	0.000
Women, widow	0.108	0.006	0.000	0.113	0.004	0.000
Status at age 55						
No labour income	0.082	0.005	0.000	0.157	0.003	0.000
Not in the country of destination	0.115	0.009	0.000	0.173	0.006	0.000
Year of immigration						

1981-1991	0.106	0.007	0.000	0.232	0.005	0.000
1992-1999	0.149	0.009	0.000	0.304	0.007	0.000
2000-2010	0.178	0.011	0.000	0.542	0.007	0.000
Country of Birth						
Turkey	0.159	0.015	0.000	0.059	0.008	0.000
Iraq	-0.344	0.017	0.000	-0.030	0.006	0.000
Bosnia	-0.388	0.014	0.000	0.016	0.006	0.012
Iran	-0.251	0.019	0.000	0.007	0.007	0.295
N	33730			173310		
	-			-		
Log Likelihood	14277,000			66083,167		
Pseudo R2	0,282			0,271		

Source: Author's estimates from data presented in Section 4

Table 6. Predicted poverty by country of origin and country of destination in 2010 (per cent) for a married man aged 65-69 years having completed compulsory education. Importance of having income from work at age 55.

	Income from work when 55 years old Poverty rate Per cent		No income from work when 55 years old Poverty rate Per cent		Relative risk of being poor if having no income from work when age 55 compared to having income from work	
	Denmark	Sweden	Denmark	Sweden	Denmark	Sweden
Turkey	68.1	23.7	79.3	43.7	1.16	1.84
Iraq	11.9	14.4	20.2	30.7	1.70	2.13
Bosnia	8.1	19.2	14.7	37.7	1.81	1.96
Iran	20.9	18.3	32.1	36.4	1.54	1.99
Yugoslavia	49.1	17.5	62.7	35.3	1.28	2.02
Natives	3.9	1.5	6.1	6.3	1.56	4.20

Source: Predictions based on coefficients reported in Tables 4 and 5

Table 7. Predicted poverty rates by country of origin and country of destination in 2010 (per cent) for a married man aged 65-69 years having completed compulsory education.

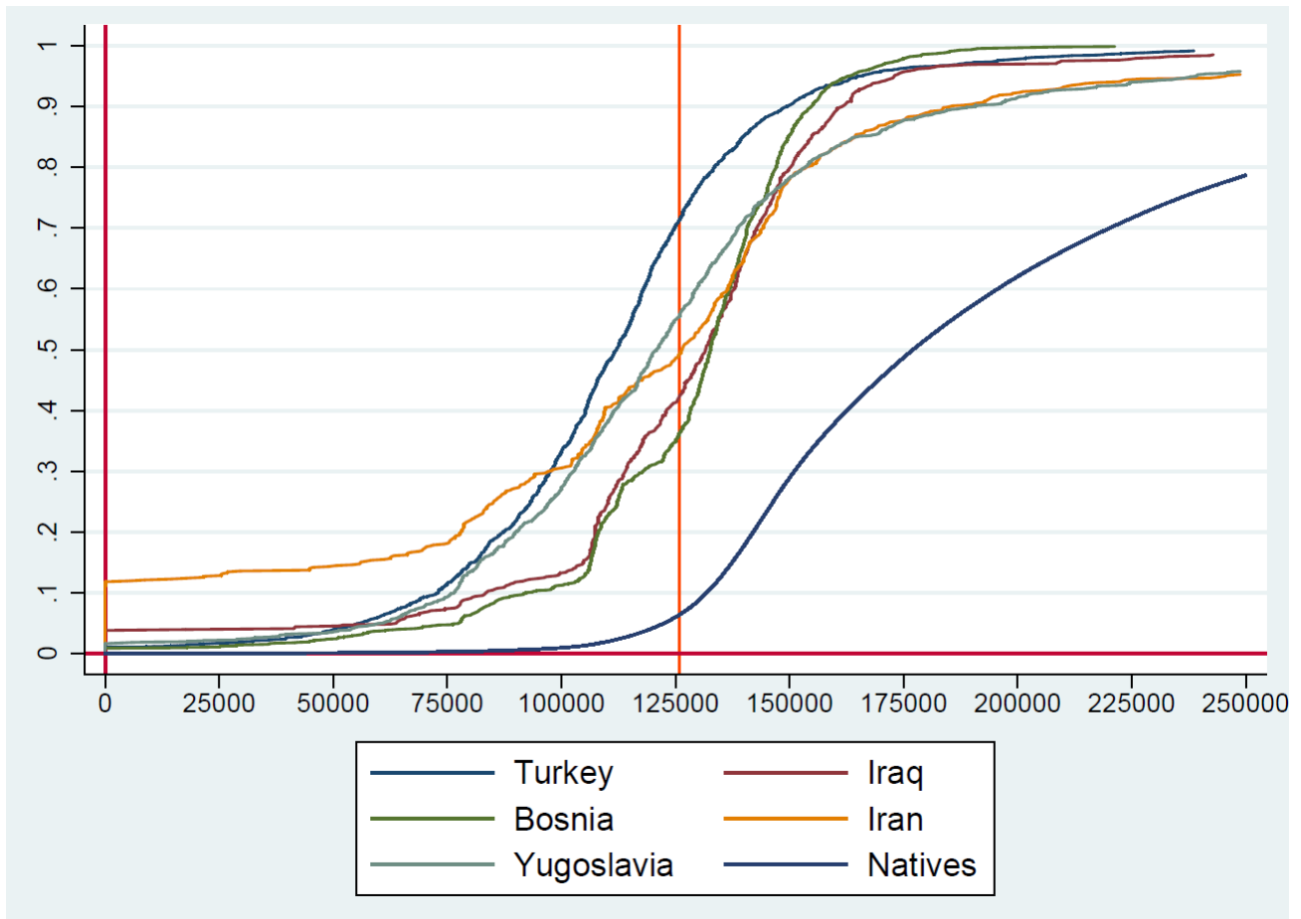
Importance of year of immigration.

	Denmark			Sweden		
	Year of immigration			Year of immigration		
	Before 1980	1981-1991	1992-1999	Before 1980	1981-1991	1992-1999
Turkey	50.9	68.1	74.3	7.2	23.7	29.8
Iraq	5.2	11.9	15.9	3.5	14.4	19.0
Bosnia	3.2	8.1	11.2	5.2	19.2	24.6
Iran	10.4	20.9	26.5	4.9	18.3	23.5
Yugoslavia	31.9	49.1	56.3	4.6	17.5	22.6

Source: Predictions based on coefficients reported in Tables 4 and 5

Appendix Figure A1

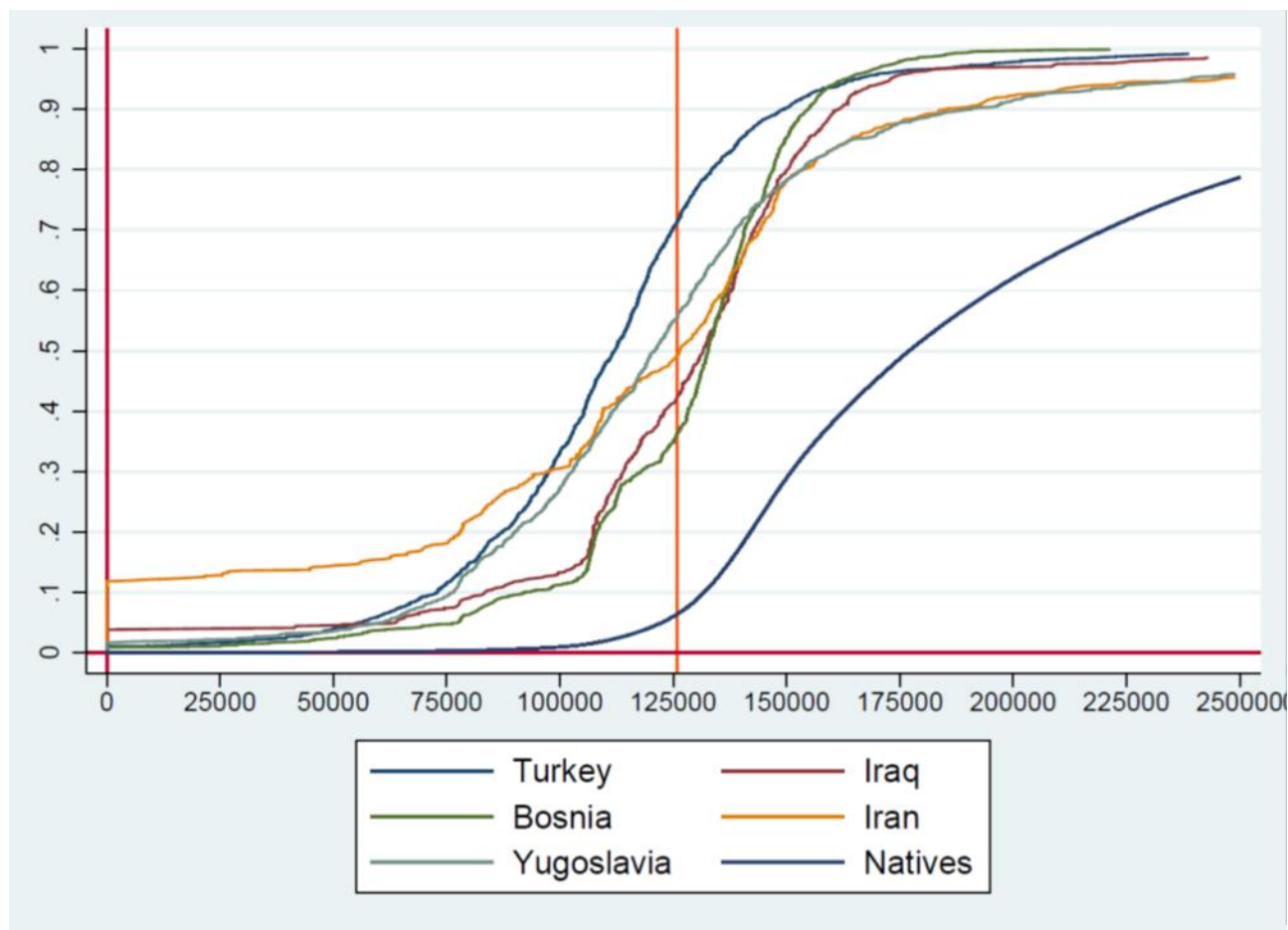
Cumulative distribution of adjusted disposable incomes (in DKK) for natives and 5 groups of immigrants from 65 to 82 years old in 2010, Denmark



Source: Author's estimates from data presented in Section 4

Figure A2.

Cumulative distribution of adjusted disposable incomes (in SEK) for natives and 5 groups of immigrants from 65 to 82 years old in 2010, Sweden



Source: Author's estimates from data presented in Section 4