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The Education and Labor Market Performance of Immigrants in Europe, Long-term View

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1. Introduction

Even though, the vast majority of people continue living in the countries that they were born. According to IOM one person out of thirty are immigrants. The number of international migrants is showing an increasing trend in all UN regions, and the biggest increase is observed in Europe and Asia. As once being an emigration region, Europe has become an immigration destination for most immigrants. Nowadays immigrants represent an average of 12 percent of the total of European population (Mcauliffe & Triandafyllidou, 2021).

Migration factors, such as economic, geographic, and/or demographic matters shape migration corridors. Largest migration corridors tend to be between developing countries to developed nations (Mcauliffe & Triandafyllidou, 2021). Immigration is accepted to be one of the important socioeconomic policy issues in most developed regions. When it comes to creating new policies, we see that social and economic transitions induced by migration waves and patterns are mostly discussed trough numbers and data analyzes. Considering the very complex nature of migration, migration dynamics can never be fully measured and understood through empirical analyzes. However, these tools can help us to understand and study ongoing situations.

Considering the political climate in most European countries, understanding how well immigrants integrate to destination country labor markets and whether labor market outcomes differ by country of birth is very important. Starting from the last decade, we are following a rise of immigration discourse in political agendas. Many people have strong opinions regarding immigration; however, the number of quantitative evidence that can support our arguments is relatively restricted. In this political climate that we are living, it is essential to have some knowledge regarding how immigrants are affecting the society and what is their replacement in the host country. The aim of this thesis is to provide an overall image on how well non-European origin immigrants are performing in European labor markets in terms of their earnings, in employment ratio, years of work experience, number of hours worked per week, and type of work contract they have when compared to native born individuals.

The data is taken from the 2016 wave of European Union Statistics on Income and Living Conditions (EU-SILC) and to be accounted the extent to which factors favorable to labor market outcome differences that may arise from being of a non-European origin, multiple regression analysis techniques are used to reassess earlier research. The study focuses on non-EU origin individuals that immigrated to 27 European Union member states plus, Switzerland, Iceland, Norway, Serbia, and the UK.

Overall, estimated results in this thesis suggest that non-EU origin immigrants have lower in employment rates, higher temporary contact ratio, lower number of number of years of paid work experience, lower number of hours worked per week, and lower individual and household gross income when compared to native workers.

The structure of the thesis is as follows. The following section provides an overview of the literature. The literature overview provides an analysis of immigration history to European countries, labor market impacts of immigrants, the effect of identity, naturalization – citizenship status and social networks on immigrant wages, measuring immigrant labor market performance, wage assimilation policies, human capital transmission across generations and finally the situation of second-generation immigrants. Then, the data used, variables and methodology are being discussed. Section 5 presents the estimation results. Section 6 concludes.

2. Background

2.1. A brief history of immigration to Europe

In today's Europe, immigration is one of the most important socioeconomic and public policy issues on the table. As once being an emigration region, nowadays Europe is experiencing being a popular immigration destination. Periods of high immigration can be associated with conflict. We can give the inflow of Algerian refugees to France after Algerian independence in 1962. However, other periods are associated with economic needs (Algan et al., 2010).

Due to post-war recovery, Western European countries started to receive high numbers of immigrants shortly after World War II. Strong economic growth resulted in demand for labor which could not be satisfied domestically (Guzi et al., 2021).

Immigration influx was mostly from lesser developed countries from Southern Europe and the Middle East regions. Immigrants' ethnicity profiles varied in each destination country. Countries with colonial history such as Belgium, the Netherlands and the UK recruited low-skilled immigrants mostly from their former colonies. Certain countries like Germany, Sweden and Denmark implemented guest worker programs. For example, Germany recruited immigrants from Southern Europe and Turkey. Some countries like France followed an immigration policy of the combination of the two; while receiving immigrants from their former colonies in North Africa and they also accepted immigrants from other countries and regions (Algan et al., 2010). Following the fall of the Iron Curtain, in the early 1990s, Eastern European migration wave reached its peak point, as a result, the Eastern European country nationals have also joined the immigration movement.

In the early periods of the migration movement, effects of migration were perceived mostly positive by both sending and receiving countries. For receiving countries, immigrants were providing the desired labor force and sending countries were benefiting from the decrease of unemployment rates. Most immigrant workers were providing financial support to their families who stayed in their native countries and these remittances were strengthening stayer family members' income (Zimmermann 2005).

However, the booming impact of 1950s and 1960s did not last for so long. Along with the 1973 oil crisis and the realization of temporary immigration was becoming permanent, many receiving countries decided to stop or restrict immigration to their countries. Nonetheless, this did not stop the immigration to Western European nations. Migration inflows were smaller, nevertheless, it continued through different channels such as family reunification and formation (Guzi et al., 2021).

Throughout the time, with the participation of new countries into European Union, worker mobility within the EU was enabled. In addition to mobility within the EU, European Union continued to experience additional migration inflows of refugees and asylum seekers driven by conflicts in former Yugoslavia, Afghanistan, and Syria (Guzi et al., 2021).

Mid-2010 migration crisis and the arrival of high number of asylum seekers waken the polarized political environment. Populist parties, like Vlaams Belang in Belgium, Front National in France, and Partij voor de Vrijheid in the Netherlands, started to gain political space and significance across Europe. Their propaganda was almost exclusively based on anti-immigration and nationalist arguments. We see the similar political trend in the Vote Leave campaign in the UK. Following polarized political discourses, migration became one of the critical issues for the Brexit campaign in 2016. Starting with 2015 European migrant crisis, campaigners created an image of an EU that is not capable of handling the situation which resulted with 51.9 percentage point of votes in favor of leave the European Union (Outhwaite, 2019).

In the early periods of migration, when we look at the socio-economical background of immigrants, we see most of them were coming from rural areas. Many of them had low socio-economic backgrounds and had inferior levels of education compared to the native population (Crul & Vermeulen, 2003; Zuccotti et al., 2015). With these socio-economic background differences in mind, we do not follow any political discourses regarding any integration policies held in that era. Therefore, lack of long-term strategies and integration policies into societies and labor market is accepted as one of the political mistakes and were taken as one of the reasons for social and economic exclusion of immigrants.

Understanding the ethnic and cultural diversities and how well they adopt to labor markets in Europe, and whether labor market outcomes differ by gender and ethnicity, and it is important to understand in terms of policy making.

The word "policy" is commonly associated with planning and control. Even though most of the countries had a shared goal of the labor market support when they were recruiting immigrants; when it comes to assimilation policies, we see different types of practices across Europe. For example, while the UK adopts a multicultural approach, France follows a path which is closer to its republican values. UK's multicultural approach leads to early anti-discrimination legislation and a generally sympathetic attitude that allows cultural exemptions to laws. With this multicultural approach they aim to make immigrants feel as a part of the wider community. Unfortunately, multicultural approach has failed and while some communities have chosen to integrate into the wider society, some stayed within their communities. The situation of no-integration triggered a reaction from governments' side and led to remarkable changes in assimilation policies (Algan et al., 2010).

Today, in pursuance of attaining UK citizenship, immigrants are required to pass a test on language, culture and history and many European countries are following the same path (Algan et al., 2010).

In Germany, until 2008, eligibility criteria for citizenship were defined by descent. Consequently, children of first-generation immigrants even when they were born in Germany were not eligible to apply for German citizenship. The motive behind this issue was that first-generation immigrants were recruited to be "guest workers", they were not expected to stay in the country and become citizens. Yet they stayed, and this became a problem when their children who were born and raised in Germany could not attain a German citizenship. Now, German authorities adapted similar policies to France and the UK and children born by non-German parents who have legally lived in Germany for minimum eight years are granted a German citizenship (Algan et al., 2010).

2.2. Immigrants and their impact on labor market outcomes

Labor market performance consists of "probability of having a job" and "differences in wages" (Behrenz et al., 2007). Immigrant status is negatively associated with competitive salaries. Factors like, immigrants' socio-economic background and language skills affect the labor market performance. Multiple examples on the literature reflects this argument. Even if it is a common trend that immigrants tend to migrate to EU countries on the basis of their native language and of the destination country's language, they can still experience challenges in adapting diverse labor markets across Europe (Adsera & Chiswick, 2004).

Adsera and Chiswick's (2004) study, "Are There Gender and Country of Origin Difference in Immigrant Labor Market Outcomes Across European Destinations?", uses 1994-2000 waves of the European Community Household Panel to run an analysis of the earnings of immigrants as compared to native workers (Adsera & Chiswick, 2004). Their results present a significant negative effect of immigrant status on individual earnings of around 40 percent at the early stages of immigration. Additionally, they underline that if immigrants are from the same language group of the host country, earnings will get higher. However, the results largely alter for different countries. According to their estimations from the pooled sample, Germany and Portugal turn out the best. On the other hand, immigrants in Northwestern European countries, such as Sweden, Denmark, and Luxemburg, and from Southern Europe, Spain indicate the worst negative influence of immigrant status and labor market outcomes, particularly among non-European immigrants.

Another economical point of view regarding labor market impact of immigration is about the elasticity of capital supply. The argument suggests that if the capital is perfectly elastic, therefore the migration effect on labor market outcomes of immigrants will perfectly be similar to natives in condition of perfect substitution of skills (Boubtane et al., 2016). In this case the destination country economy will absorb the new incomers by expansion. All other things being equal, there are two migration factors that can affect per capita growth. These are age and qualification structures of immigrants (Boubtane et al., 2016). However, we cannot assume that natives and immigrants share same profile of skills and human capital characteristics. Exclusion of characteristic as a component will eventually lead to wage adjustments and redistribution. This situation will cause gains for some parties, but also loss for the others (Dustmann et al., 2008). According to a much positive approach where the qualification structure of migrants is better than of the local people, we will be observing a per capita growth.

Manthei (2021), studies the long-term growth impact of refugee migration in Europe. According to his argument, as the age profile of incoming refugees is at the working age, even with lower qualification profile among refugees, a per capita growth is more likely to occur. This per capita growth in the course of time can lead to an increase at the labor force share (Manthei, 2021).

In a simple economic perspective, an increase in the labor supply generates a decrease on wages. Following Samuelson's theory, price of capital will rise and as a result of following this pattern, we will be observing a rise on foreign investments.

Manthei (2021) highlights the age structure of refugees in his case study and indicates the possibility of a long-term per capita growth. According to his study, without any migration-related increase in the private capital stock, it will be rare to observe a positive per capita growth.

In the direction of witnessing a long-term successful per capita growth, following amendments are recommended:

- Promotion of quick of successful integration of refugees.
- Granting permanent residence permits to young and highly qualified individuals.
- Reducing barriers to capital inflows (Manthei, 2021).

Manthei's recommendations concerning refugees in Europe can also be implied for immigrants.

2.3. Effect of immigration on host country wages

Do immigrant workers depress wages of native workers and "take" their jobs? Politicians and the media are highly interested on immigrants' effect on wages. Regarding whether immigration will affect native-born group's wages there has been some literature that has been published. Unfortunately, quoting Giovanni Peri's words, "30 years of empirical research provide little supporting evidence." (Peri, 2014) .

In this sense, Borjas (1986) provides a good clarification. Immigrants are recruited as substitutes of some labor groups. Borjas' (1986) argument is that impact of these shifts on the earnings of native-born white men in the US is relatively small. Even if immigrants are substitutes of labor groups the impact of their recruitment will be insignificant. The only impact of immigration on wages is observed in immigrant wages. A 10 percent increase in the supply of immigrants leads to a decrease of about 10 percent on immigrant wages. Therefore, as Borjas (1986) underlined in his paper, the increase in the supply of immigrants have a sizeable impact on the earnings of immigrants. However, since immigrants tend to reside in bigger cities, geographic density of immigrants in these areas can lead to a misunderstanding and creates an image of a negative impact of immigration on native-born wages (Borjas, 1986).

Another point of view regarding this matter comes from Peri (2014). Giovanni Peri (2014) analyzes short-term wage effects of immigrants and suggests that in order to understand the impact of immigrant workers on wages, immigration and reaction from firms must be analyzed all together. As reported in his article, native workers' wages are "protected" with different compositions of skills, adjustments in local demand and technology, expansion of production and specialization of native workers (Peri, 2014). Many countries recruit immigrants according to their educational background or skill groups. Peri's argument suggests that there is no reason to conclude that immigration will harm wages of less educated native workers more than higher educated native workers. Nowadays, in countries like the UK, Canada or Sweden higher educated group of immigrants form the larger part of

the immigrant population. Secondly, new immigrants can be stronger competitors compared to immigrants that have immigrated in the earlier years (Peri, 2014).

Peri (2014) lists certain arguments regarding the question of "why immigrants may not depress natives' wages". Some of important answers to this question are:

- The local understanding on number of immigrants can be wrong. Even though the perception is there are too many immigrants in the country, in actual numbers, immigrant recruitment can be too small.
- Skill composition and characteristics of immigrants are different than natives. Immigrants tend to take jobs that natives do not fill in. Therefore, there is no native-immigrant competition for same vacancies.
- As immigrants have different skill compositions, they bring different skills to their host country labor market which can stimulate entrepreneurship, innovation, and production.
- Immigrants' specialization in labor intensive jobs can encourage native workers to specialize in communication intensive jobs.
- Immigrants are not only workers, but they are also consumers. Higher immigration can trigger an increase in demand for goods and services which will higher the investment and lead to higher demand for labor (Peri, 2014).

2.4. Citizenship status and naturalization of immigrants

Naturalization of immigrants can create and impact that narrows down the wage gap, in employment ratio and occupational choices of immigrants to natives. However, whit this in mind, the argument suggests that assimilation of high-skilled immigrants will be faster compared to the assimilation of lower-skilled immigrants (Anderson & Huang, 2019).

Bratsberg et. al. (2002) investigated earnings and employment probability of citizens and non-citizens in the United States. What they found is that selected groups of US immigrants received an economic reward from immigrant ascension (DeVoretz, 2006).

In the literature we see certain motives that affect immigrants' earnings and employment status. Citizenship status becomes to be one of them. According to Kahanec and Zaiceva's (2008) research lack of citizenship is negatively associated with earnings for both males and females of non-EU origin in EU8 (Kahanec & Zaiceva, 2008). The study suggests that it is the immigrant status that matters both for employment and earnings of males in Europe. On the opposite side, Scott (1999) and Bevelander (2000) propose that, in the Swedish context, labor market participation diminishes after citizenship attainment(Bevelander, 2000; Scott, 1999). In this scenario, it will be better to take citizenship as a

naturalization process and ask why immigrants naturalize at different rates. One of the pioneer examples in the literature that addresses this question belongs to Mata (1999). Unlike most economists, Mata (1999) argues that naturalization choice is based non-economic motivations. The argument concludes that no economic factors can be used as explanatory factors for immigrant's naturalization decision (Mata, 1999). When the impact of the citizenship choice is not included to the research, ascension decision leaves a minor role for economic factors. Therefore, Mata's study requires a cross-disciplinary approach (DeVoretz, 2006).

Immigrants' choice of ascending to citizenship can influence their labor market performance. In order to attain host country citizenship, immigrants may invest in themselves by obtaining educational and linguistic skills and further integrating into society which will also affect their citizenship decision vice-versa (DeVoretz, 2006).

Research on labor market adjustment of immigrants in destination economies starts with Chiswick's (1978) analysis of "The Effect of Americanization on the Earnings of Foreign-Born Men" (Adsera & Chiswick, 2004). In his analyzes Chiswick uses the Mincer earnings function that explains wage income as a function of schooling and experience and adds "number of years since migration" as an additional regressor. Number of years since migration is an important variable in his extension. According to Chiswick ignoration of this variable will mask important differences among the foreign-born and also the differences between foreign-born and native-born (Chiswick, 1978).

According to Chiswick's (1978) argument, immigrants are start with a disadvantage when they enter to host country's labor market economy. Most of them lack specific human capital, language skills and knowledge about the destination country's labor market. However, according to Chiswick, this gap disappears within a certain time frame. According to his research, although starting with lower earnings, after 10-15 years a foreign-born and a native-born should be earning equal wages in the US. As the worst-case scenario immigrants will not be able to accumulate human capital and will not be able to reach to catch-up point. However, in Chiswick's (1978) argument, naturalization does not affect the earnings catch up. Citizenship effect is built on number of years spent in the country of residence while waiting to attain citizenship eligibility. Starting from their arrival in the country, immigrants gradually acquire knowledge on the native language, customs, and nature of labor markets in the destination country (Chiswick, 1978). Nonetheless, Chiswick's (1978) analysis is based on the comparison of labor market performance of adult white men, and it is difficult to generate his results for other ethnicities and female immigrants.

Prior to immigration, individuals go through a double selection process which based on the decision to migrate and the selection mechanism that is run by destination country immigration authorities.

First the individual decides to migrate, and at the second stage, following the migration request, receiving country decides on accommodating or rejecting the individual. The common argument suggests that self-selection of migration imposes productivity and unobserved individual characteristics (Licht & Steiner, 1993). Chiswick (1978) states that the double selection of immigrants comes with superior unobservable endowments, such as intelligence, energy, ethos, or entrepreneurship, that can help the immigrant to outperform in the labor market (Chiswick, 1978).

Following "The Effect of Americanization on the Earnings of Foreign-Born Men", Barry R. Chiswick published "The Economic Progress of Immigrants: Some Apparently Universal Patterns" in 1979. This time Chiswick extended his research and studied US male immigrants of all races and ethnicities from all countries of origin. He found, again, earnings catch-up within a 10 to20-year period. His analysis demonstrated that, compared to the native born, in general, immigrant earnings changed according to race and ethnicity (Adsera & Chiswick, 2004).

DeVoretz and Pivneko (2006) studied the citizenship effect on immigrants in Canada. DeVoretz's results indicated discrimination in terms of earnings according to productivity characteristics against female and male foreign born Canadian citizens from non-OECD countries. In their study they underline the difference of labor market outcomes between OECD and non-OECD naturalized immigrants. Compared to a group of natives, females from OECD countries expose no wage difference. Contrary, females from non-OECD countries show 20.8 percent wage disadvantage. OECD born males earned more as citizens and they demonstrated a 12.8 percent wage earnings advantage over native-born citizens. However, on the other hand non-OECD males received 26.5 percent lower earnings (DeVoretz, 2006).

Parallel to immigrants from non-OECD countries, Kahanec and Zaiceva (2008) stated that both female and male immigrants with non-EU origin are likewise associated with lower employment probabilities in EU member states. Furthermore, being a non-EU citizen is negatively correlated with higher earnings for male and female immigrants. Aligned with DeVoretz's (2006) results, being a male EU citizen immigrant is most likely to be an advantage. Nonetheless, this advantage is statistically significant only at the 10 percent level (Kahanec & Zaiceva, 2008). Again, the status of being an immigrant, just like as indicated in previous studies, is highly influencial for employment status and earnings.

Considering the importance of citizenship status, Aderson and Huang (2019) recommend three policy options that can facilitate a faster assimilation of immigrants:

- Development of immigrant skills and documenting them. Facilitating language courses and actions like the Competency Card in Denmark can be given as an example.
- Increasing employment opportunities for immigrants. Wage subsidies can promote immigrant employment. With these types of programs immigrants' have access to better jobs and they can be trained on the job.
- Lowering the citizenship costs for immigrants (Anderson & Huang, 2019).

2.5. Immigrants' Identity

In many studies immigrants' identity is taken as an explanatory factor of immigrants' economic behaviors. Identity can affect preferences that can initially create consequences on economical outcomes.

Ethnic identity development starts at younger ages of 3 or 4 years. The influence of parents on identity development is not negligible. Immigrant parents' assimilation level can create an impact on children's ethnic group identity development. It is possible that children of immigrants may have a strong ethnic minority identity or a strong identity with both host and home country (Casey & Dustmann, 2010).

We cannot strictly define identity and therefore its measurement can vary from one research to another. For instance, Casey and Dustmann (2010) used a one to five scale regarding how strong "German" the immigrant feels and how strongly they feel connected to their home country cultures. According to survey answers, immigrant's response demonstrated the measure of identity.

Casey and Dustmann's (2010) article exposed a strong association between years since migration, years of education and a stronger German identity. As stated in the article, their argument suggests that time spent in the country enhances the probability of associating with the destination country identity.

For first-generation immigrants, looking at connection between identity and economic achievements, Casey and Dustmann saw no significant alliance between German identity and economic outcomes for first-generation males. On the other hand, for females the situation is divergent. Estimation results show that female immigrants who held a stronger destination country identity are more likely to have higher employment and labor market participation probability (Casey & Dustmann, 2010). As reported by their paper, interaction with natives can lead to stronger host country identity attainment for females who participate actively in the labor market (Casey & Dustmann, 2010).

Casey & Dustmann's (2010) analysis suggest that, for second-generation immigrants' host country identity is supportive element and home country identity is unfavorable factor for economic achievements.

Their research highlights the complex relationship between ethnic identity and labor market outcomes of immigrants and a detailed analyzes possibly requires different implications for different gender groups.

2.6. Wage assimilation policies and measuring immigrant-native wage gap

2.6.1. Understanding wage assimilation policies

Effective wage assimilation policies aim to narrow down the initial earnings gap between immigrants and native workers. Wage assimilation theories can be discussed under two theories: "human capital" and "segmented labor market" theories (Anderson & Huang, 2019).

According to human capital theory, markets are competitive and labor markets are open for all workers. Firms hire the most productive workers at the lowest competitive wage possible. Wages are dependent on employee's educational background, work experience and language skills. With this in mind, we can assume that first-generation immigrants' wages are lower compared to native workers at the entry to the host country. However, an improvement of immigrants' skills is expected if they invest their time and resources on learning native language and cultural norms. As immigrants' skills increase the immigrant-native wage gap narrows (Anderson & Huang, 2019). Wage assimilation policies based on human capital theory aims to improve immigrants' skills with the goal of improving remuneration gap.

Second theory is segment labor market theory. According to this theory, unlike human capital theory, labor markets are not competitive. Markets are not completely open to immigrants neither. Only some workers are eligible to work and in order to enter to the labor market they need credentials or recruitment programs like "guest-worker" programs. The theory suggests that selective recruitment of immigrants can make the assimilation of wages more difficult, and immigrants' wages will never be equal to native wages. Governments take segment labor market theory as a reference can promote labor market diversity and naturalization of immigrants. Naturalization will signal the employer that the immigrant can speak the local language and is familiar with customs and the local culture. Therefore, naturalized immigrants will have the opportunity of better paid, variable employment choices (Anderson & Huang, 2019).

Assimilation of immigrants has various impacts. What economists tend to focus is more on its effects on earnings and employment rates. Immigrants' labor market success is most likely to be linked to the number of wages earned and their employment status. In an objective perspective these parameters are relatively easy to measure and are easy to compare. Hence, they were used by economists to analyze the assimilation of immigrants and its effects in the labor market.

2.6.2. Measuring immigrant's labor market performance

As one of the pioneer literatures on this matter, Chiswick's (1978) paper opened the doors to the question of whether immigrants' earnings can catch up to those of natives. As it is mentioned above Chiswick's (1978) hypothesis is giving a timeframe of 10 to 15 years for immigrants' earnings to adjust to earnings of natives. According to his argument, even though a first-generation immigrant starts with lower income to their employment, with comparable measured characteristics, eventually they will catch up and they can even overtake the earnings of natives.

Empirical tools used by Chiswick (1978) in his analysis are based on the standard earnings function, and it is referencing on the theory of human capital with and addition of including "years since migration" (Licht & Steiner, 1993). The literature on the assimilation hypothesis has accepted Chiswick's methodology for granted and continued their research with building on it. For example, Dustmann (1990) reinterpreted the earnings function and in addition to "years since migration", he included "the expected duration of stay in the host country" as an additional regressor. Considering Dustmann's German background, where the "guest worker" system was in implication, Dustmann's interpretation of the earnings function is relatable and it is important for most European countries that had variable total duration of stays (Licht & Steiner, 1993).

2.6.3. A perspective on economic inequality and migration

Migration changes the population composition of sending and receiving countries (Guzi et al., 2021). Understanding the relationship between migration and income inequality is important for policy makers when designing economic and welfare policies.

During the early periods of European migration, which is shortly after World War II, migration flows were highly influenced by income inequalities. Most immigrant workers were coming from rural areas of poorer countries (Guzi et al., 2021). And economic differences between sending and receiving countries were highly observable. Income levels and the high labor demands were making the Western European countries an attractive choice of immigration.

While providing the requested labor force and sustaining the economic growth, migration was also improving the productivity at destination countries' production markets.

According to Davies and Wooton's (1991) argument, the skill composition of immigrants effects the income inequality in the receiving country. Employment of lower skilled immigrants tend to increase income inequality and higher skilled immigrants likely to reduce income inequality (Davies & Wooton, 1991). To clarify, increased number of skilled immigrant workers tend to depress the wages of natives.

As a result, recruitment of high skilled immigrants can narrow the difference of income between high and low skilled workers (Guzi et al., 2021).

2.7. A simple perspective on first-generation immigrants' impact on labor market dynamics

According to this simple point of view, introduction of immigrant labor force into destination country labor markets depreciates the human capital value. This argument can be used to explain low-income rates of immigrants compared to wages of nationals right after their arrival. Immigrants, in their first following years, to adjust to host country labor market needs and conditions, invest on their human capita. As a result, their earnings follow a much steeper trend compared to natives and eventually their earnings may even overtake those of nationals. This scenario is more likely to be relatable in case of self-selection of immigrants, in which host countries select the immigrant according to their valued qualifications and correspondence.

Foreigners who have self-selected to immigrate are observed to be more productive than their associates. Self-selected immigrants' productivity can be related to unobserved individual characteristics such as work ethics, drive, or entrepreneurship (Licht & Steiner, 1993). This understanding can shift the common understanding on the "quality" of immigrants and allows rooms for readjustment of immigration policies.

However, considering the fact that it has been more than 70 years since the start of labor market migration in Western Europe, can we really support the argument whether immigrants have the same human capital endowment or, even, they earn more than natives?

Licht and Steiner (1993) results regarding immigrants' duration of stay in the destination country is interesting. Compared to Chiswick's (1978) hypothesis, their analysis demonstrates strong positive effect of schooling in Germany on earnings. Remuneration of labor market experience is still higher for natives compared to most foreigners. Therefore, Chiswick's (1978) assimilation hypothesis is not accurate for their research.

As stated in their paper, excluding immigrants that stayed in Germany for a relative short duration, immigrants' earnings are lower on arrival, and they rise less steeply with the accumulation of labor market experience. As opposite, immigrants with relatively short duration of stay accumulate earnings rather equal to those of natives with comparatively steeper growth rate. Their explanation to this difference is that temporary immigrants could be working harder during their shorter period of stay in the destination country whereas the other group can be formed of negatively self-selected immigrants (Licht & Steiner, 1993).

2.8. Immigration patterns: movers and stayers

Mincer (1977), in his paper of "Family Migration Decisions", analyzes migration within the family context. Paper defines family ties relevant to migration decisions and explains their effects on the probability of migration, on consequent changes in employment and earnings of family members (Mincer, 1977). As it is stated in Mincer's paper, in the immigration context there are not just movers and stayers. Reality and family dynamics are more complex. We can expand the concept of movers and stayers. According to Mincer there are "primary movers", "primary stayers" and "tied movers", "tied stayers". Spouses are "tied", and they move or do not move according to the aim of maximizing family earnings rather than individual earnings (Adsera & Chiswick, 2004). Tied movers are usually formed of women and the possibility of unemployment or being out of labor market is higher for them. They are more likely to have lower earnings compared to primary women movers. Given that they are tied movers, presumably they will have poorer labor market opportunities than female primary movers (Adsera & Chiswick, 2004). The situation can be explained with postponement of job search until after moving, change in intra-family income and temporary increases in family demand for house-hold activities (Mincer, 1977). In the context where the tied movers are men and primary movers are women, unemployed men with working spouses tend to look for a job for a longer period compared to unemployed men with non-working spouses. Mincer (1977) concludes that the growth of two-earner families increases unemployment of both sexes and tied migration leads to slower growth of wages.

Baker & Bejamin's (1997) hypothesis is that in the early migration period tied mover women chose to work rather than invest on their destination country specific human capital endowment. They simply work to finance their immigrant spouses' human capital investments. Even though, according to this scenario, initial earnings will raise, it will result with flattening the earnings-duration profile of immigrant women (Adsera & Chiswick, 2004).

2.9. Role of social networks and relationships on the employment opportunities of immigrants

Economic conditions, educational background and language skills known as primary factors that affect immigrants' labor market outcomes. The significance of each factor alters by different ethnic groups. Labor market performance of immigrants can be used to interpret their identity or assimilation status (Kahanec & Mendola, 2007). Some ethnic groups can be economically isolated and compared to natives they exhibit lower profiles of employment status, wages, and careers.

Kahanec and Mendola's (2007) paper "Social Determinants of Labor Market Status of Ethnic Minorities in Britain" studies the influence of social networks and relationships for the employment opportunities

of immigrant and ethnic minorities. Their argument suggests that the social environment and the strength of the connection to their native culture shapes immigrants' work values and identities. Social interaction with the host society can be added as a third element.

The connection between family structure and the type of employment creates influences immigrants' choices of whether being self-employed or paid employed. According to Kahanec and Mendola (2007) being married increases the likelihood of being in paid employment or self-employed. The likelihood of being self-employed is higher compared to being in paid employment for married immigrants. Having a minor child in the family reduces the probability of both being in paid employment or being self-employed. Another factor that reduces the probability of being in paid employment or being self-employed is living together with parents. However, the results for cohabitation with parents are statistically significant only if both parents are cohabiting (Kahanec & Mendola, 2007).

Kahanec and Mendola (2007) also analyze the effect of voluntary work and membership of clubs on immigrant's employment type choice. According to their article commitment to voluntary work or being a member of a club effects immigrant's probability of being in paid employment. They measure immigrants' ties and categorize them into two groups as weak and strong ties. They measure weak ties with engagement in voluntary organizations or clubs and they use contacts with parents and children outside household as variables to measure the strong ties. They analyze links between strong ties and the likelihood of self-employment and weak ties and likelihood of being in paid employment.

Furthermore, the probability of being self-employed is not only affected by volunteering and being a member of a club. There can be additional variables like the ethnic composition of immigrant's friends that also has an influence the employment type. With local ethnic community support self-employment is run relatively easily and having ethnic friends is positively allied with being self-employed (Kahanec & Mendola, 2007).

Facilitation of family reunification would promote entrepreneurship and self-employment within the immigrant community. These types of policies could reinforce stronger ties among immigrants and ethnic communities.

On the other side, communication with the native population creates new opportunities for ethnic communities and immigrants. It opens the doors to be informed on current vacancies and following the job market. In this sense we can say that immigrants are dependent to the native population.

2.9.1. Human capital transmission

To study intergenerational mobility, Borjas (1992, 1993, 1994) uses Becker and Tomes model with an introduction ethnic capital as an additional variable. Ethnic capital is an ethnic group specific variable

that works as an externality in the human capital accumulation process (Hammarstedt & Palme, 2012). In this model second-generation immigrants' labor market outcome and earnings depends on parental investment and the average quality of ethnic environment. Ethnic differences in labor market outcomes are presumed to be transmitted across several generations. Limitation of the Becker and Tomes model is that it only explains persistence in the economic perspective (Hammarstedt & Palme, 2012).

According to Hammarstedt and Palme's (2012) argument, for second-generation immigrants, higher degree of intergenerational human capital transmission improves the possibility of having a better labor market position. Their findings show lower earnings mobility across generations for immigrants. According to them family is an important institute for intergenerational transmission of human capital for immigrant. Considering some immigrants groups' reduced connection with the native population, an unequal successful transmission of human capital between generation is highly possible. The successful groups that manage the transmission of human capital improve their position on the labor market in the second-generation (Hammarstedt & Palme, 2012).

2.10. Second-generation immigrants

Even though there will be differences for each ethnic community, it is expected that first-generation immigrants will be uniformly disadvantaged in the employment process. Cultural differences, language skills and educational backgrounds will still be an obstacle for them to encounter. However, can we generalize this argument for all generations? In this sense studying labor market performance of second-generation immigrants becomes more valuable. These analyzes will give us some insight into long-term consequences of immigration and immigrant assimilation (Behrenz et al., 2007).

Second-generation immigrants are children of first-generation immigrants born in the destination country or arrived at the host country before age sixteen (van Ours & Veenman, 2002). Second-generation immigrants are exposed to the local education, and they can speak the local language. Therefore, it is assumed that assimilation costs for second-generation immigrants should be lower, and their assimilation process should progress faster (Anderson & Huang, 2019).

Chiswick (1977) claims that positive selection policies of first-generation immigrants regarding their labor market skills and aspirations can be observed in labor market achievements of second-generation immigrants. First-generation immigrants that are successful in the labor market can promote better employment opportunities for their children. It is expected that children of the first-generation immigrants that do well, will also have a tendency to perform well. It is also suggested that first-generation immigrant parents' earnings influence the earning opportunities of their children (Barry Chiswick, 1977).

Discussions on second-generation immigrants' labor market performance is quite diverse. According to Maani (1994) second-generation immigrants have higher probability of unemployment and longer duration of unemployment in the Austrian context. Their paper suggests a negative influence of immigrant identity on labor market outcomes (Maani, 1994). On the other hand, Ekberg reports a totally different result. According to his results, there are only small differences in labor market participation among second-generation of immigrants and natives. In the Swedish context, their earnings are higher in comparison to male natives. Also, second-generation immigrants have lower unemployment rates compared to children of natives. The given explanation for their positive labor market performance is the recruitment policies that were introduced for first-generation immigrants. Simply, positively selected first-generation immigrants transmitted their skills and abilities to their children (Ekberg, 2007). Österberg (2000) suggests another argument in his paper. Österberg's (2000) finding is that moving up the earnings distribution scale is more difficult for ethnic communities. Compared to natives, second-generation immigrants are more likely to move down on the scale (Österberg, 2000).

Even though the results are diverse, majority of the literature stress an unemployment disadvantage of immigrants. Regarding earnings distribution, results are changeable from one country to another. In the US, second-generation immigrants earn more than natives. However, in the European context, non-European second-generation immigrants have higher possibility to earn lower wages compared to children of natives (Behrenz et al., 2007).

Van Ours and Veenman's (2002) study analyzes the question whether second-generation immigrants closed the socioeconomic gap with natives. They compare the early labor market experiences of second-generation immigrants with natives at the same age group. They highlight those children of better educated first-generation immigrants earn higher wages and are more likely to marry someone from outside the immigrant population. Controlling the parental background, second-generation immigrants are more likely to attain higher education diplomas and earn higher wages compared to children of natives (van Ours & Veenman, 2002).

Yet not all researchers are on the same page. For some studies parental capital and family background are important for educational attainment and success of second-generation immigrants (Datta Gupta & Kromann, 2014) and for other economists, results demonstrate no significance. According to Gang and Zimmermann (2000), parental schooling does not have an impact on educational choices of second-generation immigrants. They argue that social and cultural differences continue with the second-generation (Gang & Zimmermann, 2000). On the other hand, as it is stated in Riphahn's (2001) study, parental schooling has a strong impact on their children's educational attainment. Children of

the parents with lower educational backgrounds have significantly lower probability of attaining higher educational diplomas. Besides, longer duration of stay at the destination country increases the probability of enrolment to higher educational institutions for second-generation immigrants. Additionally educational success is positively correlated with language skills. The ability of speaking host country language increases the years of education (Riphahn, 2001).

Van Ours and Veenman's (2002) results suggest similarity between native Dutch population and second-generation immigrants regarding salaries, job levels, probability of employment and probability to have a steady job. They find an intergenerational relation between the employment position of first-generation immigrants and their children, second-generation immigrants. According to this, second-generation immigrants tend to have parents without a job. As reported by their paper, ethnicity is not a relevant determinant of labor market performance for second-generation immigrants.

Results from Behrenz et al.'s (2007) regression estimations show that both second-generation males and females have the likelihood having lower probability of having a job by 10 percentage points (Behrenz et al., 2007).

Parental capital and family background also influencing on the waiting time until the first employment and the duration of the employment for second-generation immigrants. Immigrant's concentration on certain neighborhoods reduces the immigrant's language skills and this triggers a negative impact on educational attainments and earnings. This negative impact influence immigrants' earnings in a negative manner (Datta Gupta & Kromann, 2014).

Datta Gupta and Kromann (2004) address the differences in the labor market entry of second-generation immigrants in Denmark. Their results show lower employment rates for second-generation immigrants and attained results are independent of their parents' country of origin. Compared to native Danish population, their results indicate that, only a lower percentage of second-generation immigrants complete their vocational education. A higher percentage of second-generation immigrants only hold primary school diploma. The ones that complete their vocational education, face difficulties at getting into a job. Experienced troubles can be related to the existence of hiring discrimination in Denmark. Nonetheless, second-generation immigrants that manage to find a job after their education are offered the same entry level salary as a native person. Study analyzes demonstrate a higher percentage layoff for second-generation immigrants. Even though second-generation male immigrants have the right educational attainment, they are more likely to have poorer interaction with future employers, like attending wrong internships or apprenticeships. On the positive side, both Western and non-Western second-generation female immigrants perform better

compared to native Danes and in the case for second-generation male immigrants, they tend to have higher average of productivity compared to ethnic Danish population.

Another point to be highlighted is that, either it is done consciously or unconsciously, connecting immigrant status and lower labor market attainments make it easier to justify the exclusion of immigrants (Melzer et al., 2018).

3. Data and Variables

3.1. Data

Our data is taken from the 2016 wave of European Union Statistics on Income and Living Conditions (EU-SILC). The EU Statistics on Income and Living Conditions (EU-SILC) collects timely and comparable cross sectional and longitudinal data on income, poverty, social exclusion and living conditions. EU-SILC project has started in 2003 with participation of 6 EU Member States (Belgium, Denmark, Greece, Ireland, Luxemburg, and Austria) and Norway. By 2016, EU-SILC covered all EU countries with addition to Iceland, Norway, Switzerland, and some other countries' (Albania, North Macedonia, Serbia, and the UK) voluntary participation. The data is used to monitor poverty and social inclusion with the aim of coordination of economic policies across the EU (Eurostat, 2022a).

The survey data provides information on social exclusion, housing conditions, labor, education, and health. Information on social exclusion and housing conditions are collected at the household level. Information on labor, education and health is collected from individuals aged 16 and over (Eurostat, 2022a).

The sample data is formed of 549,017 observations from 32 European countries (Austria, Belgium, Bulgaria, Switzerland, Cyprus, Czechia, Germany, Denmark, Estonia, Greece, Spain, Finland, France, Croatia, Hungary, Ireland, Iceland, Italy, Lithuania, Luxemburg, Latvia, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Sweden, Slovenia, Slovakia, the United Kingdom). 2016 EU-SILC survey answers comprises first and second-generation immigrants that took part in the survey in 2015 and 2016 in listed 32 countries. Through survey answers, in addition to native born individuals, individuals both from EU and non-EU origin are observed.

3.2. Selection of immigrants and comparison strategy

To investigate immigrant-native labor market outcome differences, I focus on non-European origin immigrants. Through provided survey answers we can classify immigrant population under two different group identities. First, immigrant group is described according to country of birth. Individuals who are born in a different country other than the country of residence are specified as immigrants.

The second group is defined according to citizenship status. Individuals who are not entitled to country of residence citizenship, either EU or non-EU citizenships, are identified as immigrants. However, an immigrant born outside the destination country can be entitled to local citizenship. Therefore, I will be taking the first group as my reference with the purpose of identifying immigrants within the dataset. In my analysis, I will be defining the immigrant status according to country of birth.

EU-SILC survey categorize country of birth under three subgroups: Abroad EU; Local; Abroad Non-EU. Focus group of the analysis will be "Abroad non-EU".

3.3. Variables

The sample consist of 549,017 observations of individuals aged 16 and older - 261,572 men and 287,445 women. The average age of the sample is 50 years old. Average age of non-EU origin immigrants is 46, for native born is 51 and for EU origin immigrants the average age is 49 years old. Immigrants from outside the EU tend to be younger by age compared to individuals from the resident country and immigrants from EU countries. Table 1 represents the distribution of observations, individuals of non-EU origin and the percentage across 32 destination countries. Immigrants from countries outside the EU represent 4.29 percent of the sample. Table A1 in the Appendix, describes the proportion of non-EU immigrants according to their citizenship – local or non-EU – by country. Among non-EU origin immigrants, 57.15 percent are citizens of the country of residence. 39.26 percent of non-EU participants are citizens of a non-EU country.

Table 1: Distribution of observations, immigrants of non-EU origin and the percentage across 32 destination countries

Country	N. Of Obs.	% Total	Abroad Non-EU	% Abroad non-EU
AT	10848	1.99	894	38.19
BE	1091	0.20	1131	48.31
BG	15515	2.85	71	3.03
CH	14538	2.67	1307	55.83
CY	9388	1.72	784	33.49
CZ	16157	2.96	172	7.35
DE	23144	4.25	0	0.00
DK	11758	2.16	381	16.28
EE	12498	2.29	0	0.00
EL	3785	0.69	1749	74.71
ES	30432	5.58	2042	87.23
FI	20742	3.81	551	23.54
FR	21325	3.91	1387	59.25
HR	16957	3.11	181	7.73
HU	15826	2.90	28	1.20
IE	10119	1.86	436	18.62

IS	6721	1.23	235	10.04
IT	41463	7.61	25	1.07
LT	9614	1.76	604	25.80
LU	8224	1.51	833	35.58
LV	11637	2.13	0	0.00
MT	9209	1.69	0	0.00
NL	24007	4.40	1116	47.67
NO	13547	2.49	725	30.97
PL	24374	4.47	177	7.56
PT	22681	4.16	1164	49.72
RO	15795	2.90	4	0.17
RS	15057	2.76	709	30.29
SE	11172	2.05	1128	48.18
SI	21874	4.01	0	0.00
SK	14089	2.58	9	0.38
UK	1764	0.32	1463	62.49
Total	545111	100	2341	100

Explanatory variables included in the analyses

Variable **country of birth** is used to distinguish native-born (born in the reporting country) and foreign-born. Variable indicates whether the individual is born outside of EU, at an EU member state or at the local country. EU-SILC 2016 data does not include information regarding a specific country of birth; however, it divides the section into three subgroups as local, abroad EU, abroad non-EU. Hence the aim of this analysis is to study non-EU origin immigrants labor market outcomes, I will be only focusing on group non-EU origin individuals.

The measure of **highest educational attainment** is based on International Standard Classification of Education (ISCED). ISCED is the reference international classification for organizing education programs and related qualifications by levels and fields (Eurostat, 2022b). The measurement consists of ISCED level 0, level 1, level 2, level 3, level 4, and level 5.

- ISCED level 0 defines the early childhood education. At this level, programs target children below the age of entry into ISCED level 1. These programs can be referred as early childhood education and development, play school, pre-primary, pre-school. For classifying educational attainment, level 0 is used for individuals who never attended an education program, attended some early childhood education, or attended some primary education but have not succeeded (UNESCO Institute for Statistics., 2012).
- ISCED level 1 is used to define primary education that is designed to provide students with basic reading, writing and mathematics skills. Students are planned to complete level 1 within

four-to-seven-year period. This level programs can be referred to as primary education, elementary education, or basic education (UNESCO Institute for Statistics., 2012).

- ISCED level 2 is also referred as lower secondary education and it is designed to build on learning outcomes from ISCED level 1. ISCED level 2 education starts following four to seven years of ISCED level 1 education. Programs in this level can be given as secondary education, junior secondary school, middle school, or junior high school. ISCED level 2 ends after an education duration of 8 to 11 years (UNESCO Institute for Statistics., 2012).
- ISCED level 3 defines upper secondary education. Students start this level between 14 to 16 years old. Level 3 programs end usually 12 or 13 years after the beginning of level 1. Programs under this level can be referred as secondary school, senior secondary school, or high school (UNESCO Institute for Statistics., 2012).
- ISCED level 4 is also called post-secondary non-tertiary education. This level aims to prepare the student to the labor market entry and tertiary education (UNESCO Institute for Statistics., 2012).
- ISCED level 5, tertiary education programs are designed to provide students professional knowledge, skills, and competencies (UNESCO Institute for Statistics., 2012).

Table A2 in the appendix' represents the percentage of non-EU origin immigrants based to highest educational attainment. According to our data, 23.54 percent of immigrants who are born outside of EU are entitled to ISCED level 2 diploma. The percentage is the highest when comparted to locals and European origin immigrants. Percentages for level 3, 4 and 5 are as follows: 34.40, 2.05, and 27.15. Again, when we compare the percentages, in contrast to level 2 percentages, non-EU origin immigrants who have a ISCED level 5 type diploma is 3.31 percent higher compared to natives. 2016 EU-SILC data do not provide a continuous variable for education like years of schooling.

The explanatory variable that measures marital status is the variable **married** which represents being currently married (married=1, 0 otherwise). As a result, never married, separated, widowed, and divorced are omitted categories.

Work experience is measured with variable **years spent in paid work**. This variable provides a summary of measure of the labor force experience of the person. It covers the number of years since the respondent started their first regular job, that they have spent at work, whether as an employee or self-employed. Part-time jobs, student jobs are not included. If the individual worked in a formal regular work during their studies, it is included in the survey data (Eurostat, 2020).

Years since migration is calculated as year of migration minus the year of the survey, which is 2016. Unfortunately, there are missing observations for this question. The variable describes the amount of

time starting from the year of the establishment their current residency in the reporting country. It is expressed in completed years.

Variable **age** refers to age in completed years at the end of income reference period which is end of previous calendar year or tax year (Eurostat, 2020). By including **age-squared**, we aim to explore relationships between age and the dependent variables that are non-linear.

Country of residence is the country that the individual or the household has their residence.

4. Methodology

This section outlines the methodological frameworks used to analyze the extent to which changes immigrants' labor market outcome characteristics can be attributed to shifts in gross annual earnings, both individual and household incomes, and labor force status including in employment rate, type of employment contract, year spent in paid work, and hours usually worked per week. To be accounted the extent to which factors favorable to labor market outcome disadvantages that may arise from being of a non-European origin, multiple regression analysis techniques are used to reassess earlier research. In this wise, multiple regression analysis allows to control for many other factors that simultaneously affect dependent variables including demographic control variables. It considers the effect on labor market outcomes of differences in individual characteristics and allows us to isolate the contribution of each characteristic. However, it is impossible in a multiple regression analysis to control for every possible factor that may affect immigrant's labor market outcomes.

The paper investigates whether labor market outcomes are affected by the extend to foreign origin, specifically non-European. Finally, the paper uses the indicator years since immigration to investigate the impact of length of time spent in the destination country on individual and household annual gross earnings.

4.1. Determinants of the labor market outcomes

Previous literature shows that individual gross annual earnings, household gross income, in employment rate, type of work contract entitled to the individual, number or years spent in paid work, hours usually worked per week play an important role in demonstrating non-European immigrants' labor market outcomes. In addition, literature documents that human capital variables, such as highest educational attainment, are important determinants of labor market performance.

I will be analyzing non-European origin immigrant's labor market performance through six headings (in employment rate, temporary contract vs permanent contract, years spent in paid work, hours usually worked per week, individual gross earnings, household gross income). Additionally, to make a

remark regarding their position within the destination country population I will be studying household at risk of poverty rate and homeownership rate among non-EU origin immigrants.

4.1.1. In employment rate

To measure the impact of country of birth on in employment rate the following multiple regression model is used:

(1) $$empl_i = \beta_0 + \beta_1 cbirth_i + \beta_2 fem_i + \beta_3 cnt2_i + \beta_4 age_i + \beta_5 agesq_i + \beta_6 sisced_i + \beta_7 married_i + u_i$$

$empl_i$ indicates the employment status (1,0) of the individual i; $cbirth_i$ gives a vector describing the country of birth of the individual; fem_i equals to one if the individual is female, and zero otherwise; $cnt2_i$is the explanatory variable that describes the country of residence; age_i and $agesq_i$ are the continuous variables describing the age and its squared value for individual i; $sisced_i$is the explanatory variable that describes highest educational attainment of the individual; and $married_i$ equals to one if the individual is married, zero otherwise. The multiple regression model implies that the coefficient β_1 gives the difference in in employment rate between non-EU origin immigrants and natives after adjusting for differences in the characteristics between the two groups.

4.1.2. Temporary vs permanent contract

Following regression model is used to estimate the temporary contract ownership differences between natives and non-EU origin immigrants:

(2) $$temp_i = \beta_0 + \beta_1 cbirth_i + \beta_2 fem_i + \beta_3 cnt2_i + \beta_4 age_i + \beta_5 agesq_i + \beta_6 sisced_i + \beta_7 married_i + \beta_8 exp_i + u_i$$

$temp_i$ indicates the temporary contract entitlement status (1,0) of the individual i. With the addition of variable exp_i which is the explanatory variable that describes years spent in paid work, model (2) uses the same explanatory variables as model (1) and the coefficient β_1 gives the difference in temporary contact ownership rate between non-EU origin immigrants and natives after adjusting for the differences in the characteristics between the two groups.

4.1.3. Years spent in paid work

Multiple linear regression model:

(3) $$exp_i = \beta_0 + \beta_1 cbirth_i + \beta_2 fem_i + \beta_3 cnt2_i + \beta_4 age_i + \beta_5 agesq_i + \beta_6 sisced_i + \beta_7 married_i + u_i$$

exp_i is the dependent variable that indicates the number of years spent in paid work. Model (3) has the same structure as previous models, (2) and (1). In model (3) the coefficient $\beta_1$gives the difference in years of paid work experience between natives and non-EU origin immigrants.

4.1.4. Hours usually worked per week

In the interest of measuring the gap of hours worked per week between natives and non-EU origin immigrants the following multiple regression model is used:

(4) $hours_i = \beta_0 + \beta_1 cbirth_i + \beta_2 fem_i + \beta_3 cnt2_i + \beta_4 age_i + \beta_5 agesq_i + \beta_6 sisced_i + \beta_7 married_i + \beta_8 exp_i + u_i$

In model (4), with the addition of the variable exp_i which describes the years spent in paid work for individual I, in model (4) same explanatory variables as previously indicted models are used. The coefficient β_1 gives the difference in hours worked per week after adjusting for differences in the characteristics between the two groups.

4.1.5. Individual gross annual earnings

Multiple regression analysis takes into account the effect on earning of differences in individual characteristics and allows to isolate the contribution of each characteristic. A potential discrimination can be described as the residual after all measurable variables are included in the regression analysis (Hersch, 2008). It is argued in earning discrimination cases that not all factors can be indicated, and omitted variables bias can occur under certain occasions. To experience omitted variable bias, we must observe a correlation between the omitted variable and the variable of interest, and this omitted variable should be an important determinant of the outcome. An omitted variable will lead to a biased estimation of the effect of the variable of interest on the outcome and the regression may have less explanatory power (Hersch, 2008).

In the first stage of my analysis to estimate the individual gross annual earnings difference between non-EU immigrants and native born, I included demographic, and human capital characteristic variables. In the second stage, I also included the interaction between country of birth and years since immigration variable.

The hypothesis is that recent immigrants tend to have less characteristics associated with higher earnings. They might not be fluent in the destination country language; they might not be familiar to work customs, or they can be less informed on job-specific trainings. However, throughout the time immigrants will start gaining knowledge on these missing aspects and initially the earnings gap will narrow down.

In order to measure gross individual earnings gap models (5) and (6) are used:

(5) $lgearn_i = \beta_0 + \beta_1 cbirth_i + \beta_2 fem_i + \beta_3 cnt2_i + \beta_4 exp_i + \beta_5 age_i + \beta_6 agesq_i + \beta_7 sisced_i + u_i$

(6) $lgearn_i = \beta_0 + \beta_1 cbirth_i + \beta_2 cbirth_i ysmigr_i + \beta_3 fem_i + \beta_4 cnt2_i + \beta_5 exp_i + \beta_6 age_i + \beta_7 agesq_i + \beta_8 sisced_i + u_i$

In both models $lgearn_i$ is the dependent variable and it is the natural logarithm of gross earnings of individual i; $cbirth_i$ gives a vector describing the country of birth of the individual; as included to model (7), $cbirth_i ysmigr_i$ is an interaction variable between the variable of country of birth and years since migration; fem_i equals to one if the individual is female, and zero otherwise; $cnt2_i$ is the explanatory variable that describes the country; exp_i describes the years of paid work experience for individual i; age_i and $agesq_i$ are the continuous variables describing age and its squared value for individual i; $sisced_i$is the explanatory variable that describes highest educational attainment of the individual; and $married_i$ equals to one if the individual is married, zero otherwise.

Multiple regression models (5) and (6) implies that the coefficient β_1 gives the difference in gross earnings between non-EU origin immigrants and natives after adjusting for differences in the characteristics between the two groups.

In an analysis of the earnings of non-EU origin immigrants, the number of years since migration is an important variable. To test the hypothesis mentioned above and to observe the impact of years spent in the destination country on gross annual earnings the regression model (6) is used. The coefficient β_2 will help us to calculate the number of years acquired for earnings cross over. In the absence of any explanatory variables, the coefficient of the interaction term, β_2, will measure how much faster the gross earnings gap changed in the non-European origin immigrant population relative to the change observed in the native population over the time.

4.1.6. Household gross annual income

With respect to measure the difference in household gross annual earnings between non-EU origin households and natives the following multiple regression models are used:

(7) $lhhtotalinc\_eq_i = \beta_0 + \beta_1 cbirth_i + \beta_2 fem_i + \beta_3 cnt2_i + \beta_4 exp_i + \beta_5 age_i + \beta_6 agesq_i + \beta_7 sisced_i + u_i$

(8) $lhhtotalinc\_eq_i = \beta_0 + \beta_1 cbirth_i + \beta_2 cbirth_i ysmigr_i + \beta_3 fem_i + \beta_4 cnt2_i + \beta_5 exp_i + \beta_6 age_i + \beta_7 agesq_i + \beta_8 sisced_i + u_i$

$lhhtotalinc\_eq_i$ is the dependent variable in both models (7) and (8), it is the natural logarithm of equivalized household gross annual earnings. Following explanatory variables used in both equations are same as the explanatory variables used to measure the gross earnings gap between non-EU origin

immigrants and natives. Again, just like mentioned above when measuring individual gross earnings gap, in model (8), coefficient $\beta_2$measures the rapidity of change in differences of gross annual income of non-EU origin immigrant households relative to the native households. In both models, coefficient β_1 gives the difference in household gross annual earnings between non-EU immigrant households and natives households after adjusting for differences in the characteristics between the two groups.

4.1.7. Homeownership rate

Household income, credit constraints, labor market conditions create an impact on households' homeownership likelihood (Andrews & Sánchez, 2011). Therefore, homeownership rate can also be linked to labor market outcomes. After analyzing labor market conditions of non-EU origin immigrants, I wanted to study whether there is a gap of homeownership rate between non-EU immigrant and native households. With this question in mind, I used the following multiple regression model:

(9) $house_i = \beta_0 + \beta_1 cbirth_i + \beta_2 fem_i + \beta_3 cnt2_i + \beta_4 exp_i + \beta_5 age_i + \beta_6 agesq_i + \beta_7 sisced_i + u_i$

$house_i$ indicates the household own house (1,0); $cbirth_i$ gives a vector describing the country of birth of the individual; fem_i equals to one if the individual is female, and zero otherwise; $cnt2_i$ is the explanatory variable that describes the country; age_i and $agesq_i$ are the continuous variables describing the age and its squared value for individual i; and $sisced_i$ is the explanatory variable that describes highest educational attainment of the individual. $\beta_1$gives the difference in homeownership rate between non-European origin households and native households after adjusting for differences in socioeconomic and demographic characteristics between two groups.

4.1.8. Household at risk of poverty

Immigrants from outside the European Union are facing higher risk of poverty compared to destination country population. According to the study published by the European Centre for Social Welfare Policy and Research, more than half of non-EU migrants with non-EU citizenship live in poverty. Paper points out relative disadvantage as the potential cause of high poverty rates among non-EU immigrants (Lelkes, 2007). Therefore, after analyzing gross annual earnings gap among immigrants from outside of EU and native born, I analyzed estimated household at risk of poverty differences between these two groups. To do so, I am using the following multiple regression analysis model where:

(10) $pov_i = \beta_0 + \beta_1 cbirth_i + \beta_2 fem_i + \beta_3 cnt2_i + \beta_4 exp_i + \beta_5 age_i + \beta_6 agesq_i + \beta_7 sisced_i + \beta_8 married_i + u_i$

pov_i represents the household at risk of poverty (1,0); $cbirth_i$ is the explanatory variable for country of birth as abroad EU, native and abroad non-EU; fem_i is one if the individual is female and zero otherwise; $cnt2_i$ is the country indicator; exp_i is the independent variable of years of paid work experience; age_i and its squared value $agesq_i$ are explanatory variables for age; $sisced_i$ is the indicator of highest educational attainment; $married_i$ is one if the individual is married and zero otherwise; u_i is the error term. $\beta_1$is the estimated coefficient that represents the difference in household at risk of poverty rate between non-EU origin households and native households.

5. Results

In order to measure labor market outcomes of non-EU origin immigrants I analyzed in employment rate, temporary contract rate, number of years spent in paid work, number of hours usually worked per week, gross annual earnings – at individual and household level, and additionally to see non-EU origin immigrants'' overall replacement in the destination country I studied whether non-EU households are owning their house and whether they are living at risk of poverty.

5.1. Labor Force Status

To grasp a better picture of non-EU origin immigrants' labor force status, I analyzed in employment rate, whether they have a temporary work contract, years spent in paid work, and hours usually worked per week.

5.1.1. In employment rate (Labor market status)

To measure the effect of country of birth on being employed, I regress the employment rates on my dummy variables for country of birth, using multiple regression models.

Table 2 presents simulated differences in labor market status of foreigners (both EU and non-EU origin) compared to native born individuals. Natives is the benchmark with a value zero and values for Abroad EU and Abroad Non-EU represents percentage deviations from native in employment rate.

Without controlling for demographic characteristics and human capital, on average, the employment rate of non-EU origin immigrants is 4.85 percent higher (resp. lower) than for natives. However, this gap is no longer accurate when age, its squared value, highest educational attainment, and marital status are considered. After controlling for these variables, compared to native individuals with similar educational attainment, non-EU origin immigrants showing a trend of 4.63 percent less being employed compared to native born individuals.

The employment rate differential can be resulting from a higher risk of becoming unemployed or a lower probability of exiting unemployment, or it can also be resulting from both causes (Lefranc, 2010). Nonetheless, with existing survey answers, we are not able to address these questions.

Table 2: The partial effect of country of birth in a regression analysis on in employment rates

	(1) In Employment†	(2) In Employment‡
Abroad EU	0.0804***	0.0105***
	(24.38)	(3.93)
Local	0	0
	(.)	(.)
Abroad non-EU	0.0486***	-0.0463***
	(14.56)	(-17.18)
Constant	0.585***	-0.442***
	(122.22)	(-67.55)
Observations (N)	545111	531866

Note – t ratios in parenthesis
† controlling for cbirth fem cnt2
‡ also controlling for age agesq sisced married
**** p<0.001*

5.1.2. Temporary contract vs permanent contract

After studying the employment rate of non-EU origin immigrants, I observed which type of work contract they are entitled to – temporary or permanent work contract. I analyzed the probability of having a temporary contract by country of birth.

Table 3 presents simulated differences in temporary contract ownership rate (both EU and non-EU origin) compared to native born individuals. Natives is the benchmark with a value zero and values for Abroad EU and Abroad Non-EU represents percentage deviations from native in employment rate.

Controlling for country of birth, gender and country variables, the estimated result shows that non-EU origin immigrants are 9.24 percent more likely to have a temporary contract compared to natives. After controlling for age and its square, marital status, years spent in paid work, and highest educational attainment, the latter group is 6.46 percent more likely to hold a temporary contract. The probability is decreasing; however, estimations still indicate a higher likelihood of having a temporary work contract for non-EU origin immigrants compared to natives.

Table 3: The partial effect of country of birth in a regression analysis on in temporary contract rates

	(1) Temporary Contract†	(2) Temporary Contract‡
Abroad EU	0.0136*** (5.17)	0.0000205 (0.01)
Local	0 (.)	0 (.)
Abroad non-EU	0.0924*** (31.90)	0.0646*** (22.95)
Constant	0.0530*** (14.29)	0.636*** (77.76)
Observations (N)	358125	335260

Note – t ratios in paranthesis
† controlling for cbirth fem cnt2
‡ also controlling for age agesq married sisced exp
**** p<0.001*

5.1.3. Years spent in paid work

Table 4 represents estimates for the analysis of years spent in paid work including demographic and human capital variables, as well as the coefficients when country of birth variable is interacted with years since migration. Estimation results of Abroad EU and Abroad Non-EU indicates the difference of paid work experience in number of years compared to native born individuals.

In the model where we control country of birth, sex, and country, number of years spent in paid work among immigrants with non-EU origin is approximately 5.28 years less compared to native born individual. When the demographic and human capital variables are introduced into the regression model the gap narrows down to an average of 2 years.

Table 4: The partial effect of country of birth in a regression analysis on years spent in paid work

	(1) Yrs. spent in paid work†	(2) Yrs. spent in paid work‡
Abroad EU	-2.936*** (-28.18)	-0.352*** (-5.74)
Local	0 (.)	0 (.)
Abroad non-EU	-5.284*** (-48.43)	-2.077*** (-32.74)
Constant	28.22***	-26.17***

	(199.70)	(-157.62)
Observations (N)	421165	412260

Note – t ratios in parentheses
† controlling for cbirth fem cnt2
‡ also controlling for age agesq married sisced
**** p<0.001*

5.1.4. Hours usually worked per week

Table 5 columns (1) and (2), include only coefficients of gender, country of birth and country. Columns (3) and (4) include the same set of variables as well as coefficients of the demographic control variables and human capital control variables.

Estimates in column (1) and (2) imply the hours worked per week for non-EU origin immigrants are 1.98 percent or 0.52 hours lower than natives. Interestingly, when the demographic and human capital variables are introduced into the model, in columns (3) and (4), differences for the same group lowers to 0.21 percent or 0.07 hours less, respectively. However, these estimations stated in columns (3) and (4) are not statistically significant.

Table 5: The partial effect of country of birth in a regression analysis on hours usually worked per week

	(1) Hours†	(2) Lhours†	(3) Hours‡	(4) Lhours‡
Abroad EU	0.739*** (8.07)	0.0225*** (7.50)	0.605*** (6.02)	0.0155*** (4.79)
Local	0 (.)	0 (.)	0 (.)	0 (.)
Abroad non-EU	-0.515*** (-5.55)	-0.0198*** (-6.49)	-0.0738 (-0.74)	-0.00205 (-0.64)
Constant	40.76*** (312.66)	3.662*** (856.43)	31.96*** (71.82)	3.352*** (234.20)
Observations (N)	256083	256046	217382	217349

Note – t ratios in parentheses
† controlling for cbirth fem cnt2
‡ also controlling for age agesq married sisced exp
**** p<0.001*

5.2. Gross earnings

Following analysis for labor force status of non-EU origin immigrants, in order to provide a comprehensive picture of immigrants' labor market outcomes and assess welfare consequences, in this section, I represent gross annual earnings differentials between non-EU origin immigrants and

natives, both in induvial and household level. Table 6 presents the differences both in individual and household gross annual earnings according to country of birth. Estimations are based on gross earnings regression who report positive earnings in the year conducting the survey. Interaction coefficient measures the rapidity of change in differences of gross annual income of non-EU origin immigrant individuals and households relative to the native individuals and households.

5.2.1. Individual gross annual earnings

To see the earnings contrast, firstly I analyzed the position of EU origin immigrants and after the non-EU origin immigrants compared to native born individuals.

The situation of EU origin immigrants is very close to that of natives. Taking demographic characteristics into account the gross earnings difference amounts to be 4.44 percent and it is statistically significant. Including the human capital endowments into our model, estimations demonstrate a change from a 4.44 percent advantage to a 3.60 percent earnings gap with natives.

On the other hand, the situation for non-EU origin immigrants is in contrast compared to the situation for EU origin immigrants who experience a relatively lower percentage of gross annual earnings gap. For non-EU individuals gross earnings disadvantage amounts to be 18.4 percent and when including demographic and human capital characteristics into the regression model disadvantage decreases to 15.4 percent level. On the other hand, after taking differences in educational attainment and demographical characteristics and the effect of year spent in the destination country into account the initial gross earnings gap persists. When we implicate years since migration effect in our regression model, estimations demonstrate that non-EU origin immigrants suffer a greater gross earnings gap compared to natives, which is a 24.7 percent difference in gross annual earnings. Given the estimated coefficients on years since migration, it takes around 37 years to earn what native workers earn on average for a non-EU origin immigrant.

5.2.2. Household gross income

For household gross income gap analyzes the equivalized coefficient is used.

When demographic and human capital characteristics are controlled, for households with non-EU origin, the difference in household gross income compared to native households is a negative 29.1 percent. Once the year spent in the destination country effect is taken into consideration the difference of household annual gross income increases to a negative 32.2 percent. The earnings gap is greater for non-EU origin household when it is compared to gross earnings difference between non-EU origin individuals and native born.

Table 6: The partial effect of country of birth in a regression analysis on natural logarithm of individual gross annual earnings and household gross annual income

	(1) Lgearn†	(2) Lgearn‡	(3) Lgearn•	(4) Lhhtotalginc_eq†	(5) Lhhtotalginc_eq‡	(6) Lhhtotalginc_eq•
Abroad EU	0.0162	-0.036***	-0.00393	-0.00812	-0.0258***	-0.0654***
	(1.54)	(-3.90)	(-0.12)	(-1.84)	(-6.11)	(-3.92)
Local	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
Abroad non-EU	-0.184***	-0.154***	-0.247***	-0.280***	-0.291***	-0.322***
	(-17.43)	(-16.82)	(-7.33)	(-62.64)	(-68.27)	(-19.99)
(Abroad EU) (YSM)			0.00192*			0.00411***
			(2.42)			(11.86)
(Local) (YSM)			0.00211			0.00279***
			(1.94)			(6.35)
(Abroad Non-EU) (YSM)			0.00897***			0.00869***
			(11.20)			(24.29)
Constant	10.04***	6.665***	7.301***	10.42***	9.800***	9.392***
	(681.45)	(186.94)	(71.14)	(1629.44)	(950.70)	(242.55)
Observations (N)	305709	246356	23468	543675	530449	47484

Note – t ratios in parentheses
† controlling for cbirth fem cnt2
‡ also controlling for age agesq married sisced exp
*• also controlling for cbirth*ysmigr*
**** p<0.001*

5.3. Additional analyzes on immigrants' social status

5.3.1. Homeownership rate

Immigration has an important role in determining demographic and economic trends in destination countries. Economic performance of immigrants can also be determining their housing demand. As it is demonstrated with estimated results, there is gross earnings gap between non-EU immigrants and natives. Individual gross annual earnings estimations point that an average non-EU origin immigrant earns 24.67 percent less compared to a native individual. The gap is even larger with a negative 33.66 percent for non-EU origin immigrant households.

Household income, credit constraints, labor market conditions, and housing prices have an important role when establishing homeownership choices (Andrews & Sánchez, 2011).

Table A3 presents the differences household homeownership rate according to country of birth.

According to our analysis, homeownership gap between non-EU immigrants and natives is a negative 25.70 percent. Non-EU immigrants are less likely to be homeowners compared to natives; however, besides socioeconomic characteristics, there can also be other factors affecting this rate. George J. Borjas' working paper "Homeownership in the Immigrant Population" covers this question in a detailed way. As reported by Borjas (2002), socioeconomic characteristics do not play an important role in determining homeownership gap between immigrants and natives. In fact, as stated in his paper, socioeconomic variables explain a limited part of the gap in homeownership rates. According to his analysis, the important variable is the difference in the residential location choices made by immigrant and native households. Borjas (2002) underlines the impact of the housing market structure and regional differences in housing costs. Immigrants tend to choose to locate in metropolitan areas compared to natives (Borjas, 2002). The variable that addresses the residential location is not included in 2016 EU-SILC dataset. Therefore, as it is indicated in model (9), explanatory variables of this estimation are formed of variables that indicate the demographic and socioeconomic characteristics of a household.

5.3.2. Household at risk of poverty

Table A4 in the appendix represents household at risk of poverty rate according to country of birth.

After controlling demographic and human capital variables, model (10) estimation results show that the difference of household at risk of poverty rate between non-EU origin households and native households is 11.55 percent. Non-EU origin households face 11.55 percentage points higher risk of poverty rate compared to native households. For households with EU origin the gap still exists but it is lower with 1.2 percentage points compared to native households. In comparison to the gap between EU origin households – native households the analysis indicates a bigger risk of poverty rate for non-EU households.

6. Discussion and Conclusion

This analysis uses the 2016 wave of the EU-SILC to conduct a systematic analysis of labor market outcomes of immigrants in comparison to native born by analyzing in employment rate, temporary contract rate, number of years spent in paid work, number of hours usually worked per week, individual gross annual income, and household gross annual earnings.

The significant negative effect of non-EU origin immigrant status on in employment rates is about 4.63 percent in the pooled sample. In employment rate of immigrants born in a European country is approximately 1.05 percent less compared to native born.

Analyzing the type of work contract held by individuals show that, immigrants with non-EU origin are holding 6.46 percent more temporary work contracts compared to native born workers. On the other hand, the difference between immigrants coming from EU member countries native workers is about 1.36 percent.

Following analyzes of in employment rates, and the type of work contract, estimated results show that non-EU origin immigrants have an average of 2.08 years less paid work experience compared to native workers. However, when we analyze the number of hours worked per week, we see that immigrant workers with non-European country of origin work approximately 0.5 hours less per week compared to a native worker.

Above all, there is a significant negative effect of non-EU immigrant status on individual earnings of around 25 percent in the sample. The gross income gap on the household level is around 32 percent. On average, after 37 of migration, the earnings of non-EU immigrants reach equality or parity with the earnings of natives. This is about the same as reported in findings for the US by Barry R. Chiswick in 1979, as published in "The Economic Progress of Immigrants: Some Apparently Universal Patterns".

Non-European immigrant households are 25.7 percent less homeowners compared to native households. On the other hand, the estimated result is calculated according to socioeconomic variables and households' neighborhood choices are not included in the regression model. Therefore, homeownership rate difference can alternate once explanatory variables such as neighborhood or city of residence are added to the regression model.

Finally, non-EU immigrant households are on average 11.5 percent more at risk of poverty compared to native households. On contrary, the percentage for EU origin households is only 1.2 percent.

This paper presented an analysis of non-EU immigrant labor market outcomes that focused on differences by country of origin as Abroad EU, Local and Abroad Non-EU. Overall, immigrants in 27 European Union member states plus, Switzerland, Iceland, Norway, Serbia, and the UK, tend to have:

- Lower in employment rate,
- Higher temporary contract ownership rate,
- Lower number of years of paid work experience,
- Lower number of hours usually worked per week,
- Lower individual gross annual earnings,
- Lower household gross annual earnings,
- Lower homeownership rate,
- Higher at risk of poverty rate, compared those born in the destination country – natives.

There is tendency for earnings catch-up with the duration in the destination country. The non-EU origin immigrant-native gross income gap catch-up is expected with a duration of an average of 37 years period. However, giving the fact that the expected duration of working life in the EU in 2020 was 35.7 years (Eurostat, 2022c), the initial estimated individual gross earnings catch-up is less likely to happen within an average immigrant's working life, for non-EU origin immigrants who resides in an EU member state.

The analyzes aims to provide a comparable picture on labor market performance of immigrants by comparing labor market outcomes in terms of in employment rates, temporary contact ratio, paid work experience in years, hours worked per week and individual and household gross income. Additionally, in order to analyze non-EU origin households' living conditions I studied homeownership rate among non-EU households in comparison to native households and the difference of household at risk of poverty ratio between native and non-EU origin immigrant households. The most important message of this analysis is that labor market performance of non-EU origin immigrants is worse than of the native population, after controlling for highest educational attainment, years in paid work and demographic variables. However, with recent immigrant integration policy changes and immigration restriction policies in mind, this thesis calls for further detailed research to investigate integration policy outcome effects and whether high-skilled migrant recruitment procedures like the EU Blue Card are effective on preventing non-EU origin immigrant disadvantages.

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8. Appendix

Table A1: Distribution of local and non-EU citizenship among non-EU origin immigrants by country

Country	% Local Citizenship among Non-EU origin individuals	% Non-EU Citizenship among Non-EU origin individuals
AT	41.5	56.82
BE	55.77	38.81
BG	15.49	84.51
CH	51.87	41.32
CY	18.62	58.29
CZ	28.49	71.51
DK	46.46	51.97
EL	29.5	70.21
ES	47.31	51.27
FI	52.27	44.1
FR	63.77	35.35
HR	97.85	2.1
HU	78.57	21.43
IE	53.44	39.45
IS	73.62	25.11
IT	40.15	25.11
LT	92.38	7.45
LU	24.16	49.52
NL	87.33	10.76
NO	69.79	29.1
PL	86.44	13.56
PT	77.66	21.91
RO	75	25
RS	69.97	29.6
SE	68.57	29.62
SK	66.67	33.33
UK	61.04	34.29
Total	57.15	39.26

Table A2: Distribution native individuals and non-EU origin immigrants according to highest educational attainment

Highest educational attainment	% Non-EU immigrants	% Natives
Less than primary	4.08	2.49
Primary	8.79	10.75
Lower secondary	23.54	20.19
Upper secondary	34.4	40.27
Post-secondary non-tertiary	2.05	2.47

Tertiary	27.15	23.84

Table A3: The partial effect of country of birth in a regression analysis on household homeownership rate

	(1) Homeownership rate†	(2) Homeownership rate‡
Abroad EU	-0.126*** (-48.02)	-0.131*** (-44.19)
Local	0 (.)	0 (.)
Abroad non-EU	-0.285*** (-107.17)	-0.257*** (-83.91)
Fem	-0.0102*** (-9.58)	-0.00562*** (-4.50)
Constant	0.616*** (161.80)	0.183*** (22.47)
Observations (N)	545111	412359

Note – t ratios in parentheses
† controlling for cbirth fem cnt2
‡ also controlling for age agesq married sisced exp
**** p<0.001*

Table A4: The partial effect of country of birth in a regression analysis on household at risk of poverty rate

	(1) Household at risk of poverty†	(2) Household at risk of poverty‡
Abroad EU	0.00801*** (3.34)	0.0120*** (4.57)
Local	0 (.)	0 (.)
Abroad non-EU	0.146*** (60.30)	0.115*** (42.28)
Constant	0.0957*** (27.52)	0.179*** (24.60)

Observations (N)	545051	412339

Note – t ratios in parentheses
† controlling for cbirth fem cnt2
‡ also controlling for age agesq married sisced exp
**** p<0.001*