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Executive summary

Young people are amongst the main catalysers of migration. They leave their home countries in search of work, to study or join their families. The most vulnerable ones are arguably those who were forced to migrate, fleeing from human rights violations, war, extreme poverty. In the context of the ‘migration crisis’ of 2015, asylum seekers were under the spotlight of the public and political discourse in many European countries, as their number increased significantly. Some politicians as well as media outlets often portrayed them as a threatening and disruptive force, capable of damaging the well-being and economic standing of European nationals.

Therefore, the aim of this report is to scientifically explore the potential impact asylum seeking youth presence and size may have on major economic and societal subsystems, in order to promote debates and discourse based on evidence rather than prejudice. The study, applies econometric modelling to investigate the potential systemic effects that the presence of young asylum seekers can have on macro-level structures such as education, the labour market and social welfare systems. Adding to previous research, this study focuses specifically on the potential influences of young asylum applicants, a group of migrants that is increasing in magnitude and in relevance across Europe and on which suitable statistical data are available.

The report is strongly intertwined with the first and second deliverables of MIMY’s Work Package 2 *Quantitative (statistical) overview on youth migration*. The data used for the analysis draws from the data inventory compiled by the consortium in D2.1 “Macro data inventory and documentation” as well as on macro (country)-level indicators on young asylum applicants and micro (individual) level data from the European Social Survey on third-country national (TCN) youth, to complement the analysis. The description and interpretation of the results is built on the findings of D2.2 “Public report on describing and comparing the dimension, characteristics and dynamics of youth migrants in European countries”. The study provided a description of the four dimensions of immigrants’ integration (employment, education, social inclusion and active citizenship) in the EU on a macro level and an analysis of the factors of vulnerability using individual-level data in nine MIMY partner countries.

The number and share of young asylum seekers as well as their origins and backgrounds, largely varies across European countries. Thus, the current research first wants to geographically profiles young European asylum seekers, providing a description of young asylum seekers in Europe (2.1) as well as of the characteristics of destination countries using cluster analysis (2.2). Using panel data modelling, the study then proceeds to analyse the effects of young asylum seekers’ on the labour market (2.3), the education system (2.4) and social protection expenditures (2.5) of the receiving countries. Finally, to check the robustness of the analysis results a counterfactual impact assessment with individual data was conducted (3).

Applying the well-known migration model developed by Van Hear et al. (2012), section 2.2 offered a categorization of European countries by employing cluster analysis along the most important macro-economic and societal factors (acting as predisposing, precipitating, mediating factors). The result of the analysis grouped European countries into four clusters: (1) northern continental, Nordic countries and the UK, which offer the most attractive conditions for immigrants and asylum seeking youth in Europe; (2) Emerging destination countries with medium economic wealth, social inequalities and business freedom, which include countries of the former Communist Block (Poland, the Baltic countries, the Czech Republic, Slovenia), as well as Mediterranean countries such as Italy, Portugal and Spain; (3) economically and/or politically less attractive countries, such as Bulgaria, Greece, Croatia, Hungary, Romania and Slovakia, and (4) outliers such as Ireland and Norway.

The panel regression analysis found no impact of asylum-seeking youth on **youth unemployment** rates (2.2). In other words: the number of young asylum seekers living in the country does not seem to have any effect on the likelihood of young nationals to be unemployed. As a robustness check of our conclusions, a counterfactual assessment was conducted for comparing labour market integration of young migrants with similar young natives (3). The results show that we cannot claim that young migrants are more likely to be unemployed compared to young natives, as initially hypothesized.

When considering **welfare systems** (2.4), the econometric modelling found a small positive effect of the share of asylum seekers on social protection expenditures: *an increase of 1% of the share of young asylum seekers in the total young population is associated with an increase of 1.3% in the social protection expenditures per capita*. Also, worth mentioning that there is no common system of social protection spending in the European Union and most of the European states do not account for specific social protection expenditures related to the asylum seekers.

Finally, the macro panel data modelling aims at identifying the potential effect on **education** (2.3). No statistically significant effect could be established between the proportion of young asylum seekers and the education system of the host country, measured by the NEET rate or by the early leavers ratio. The effects of immigration on the receiving country's education system depend greatly on the characteristic of the immigrant population (their income, their attitude towards education).

Our results lead to several possible *policy implications* that could be useful for stakeholders and policy-makers:

- ✚ Firstly, we have demonstrated the lack of effect of the share of asylum seekers on national labour markets and education systems. This suggests that fearing a pressure on economies and societies that might arise due refugees' inflows reported in some part of the public discourse, is not backed up by scientific evidence.
- ✚ Secondly, the social protection expenditures are slightly affected by the share of asylum seekers in young population. This reflects the efforts made for implementing social protection and integration policies, mostly in the European countries receiving high numbers of migrants. Such integration policies need to be further sustained, as the inflow of young immigrants may create benefits and respond to labour force shortages in many countries.
- ✚ Finally, the economic integration through labour market participation is crucial, for both TCNs and young natives. The two groups of young individuals, natives and TCNs, have similar likelihood to being unemployed, even if they have different sorts of vulnerabilities and TCNs are vulnerable on multiple dimensions compared to natives. In this sense, an *integrated policy approach* may be useful for more effectively tackling the problem of youth unemployment in Europe.

Looking to the future, we want to acknowledge that the methodological approach taken in our analysis (macro-econometric modelling) despite offering the great benefit of identifying systemic effects, is quite broad and thus not able to detect local effects. Considering smaller geographical units (local areas), where asylum-seeking youth actually reside (often with some geographical concentration) and where they benefit from local services, may yield to complementary, detailed and focused results on the effect of asylum seekers on major societal structures as well as on the influence local actors and institutions have on migrant youth integration process. This is the focus of WP5 and WP6 of the MIMY project, examining the *Effects of Local Actors on migration and integration dynamics* (WP5) and *Assessing the critical role of the local population* (WP6) respectively, using qualitative methodologies.

1 Introduction

Monica Roman and Vera Messing

The purpose of this report is to explore the intensity of the relations between youth migration and social and economic conditions in European countries that attract and host asylum-seekers and TCN migrants. Our aim is to enable the consortium, as well as policymakers, academia or the general public to better understand the complexities of possible influences of youth immigration, and in particular asylum seeking youth on macro- economic indicators and areas such as education, labour market and social welfare system.

In the context of the migration crisis of 2015, asylum seekers were under the spotlight of the public and political discourse in many European countries. Triandafyllidou (2018) shows that media often described the inflow of asylum seekers as unmanageable and disastrous (also under the influence of radical right parties), or damaging to the well-being of native groups (De Cleen et al., 2017). Moreover, Meidert and Rapp (2019: i209) show that in the case of Germany, “refugees are perceived less positively than European Union immigrants and the origin of this negative perception mainly lies in increased feelings of threat”. In these circumstances, one question may be to what extent economies and societies are threatened by asylum seekers and how real this threat is.

The analysis presented in this report uses macro-econometric and statistical instruments with the aim of presenting a macro perspective on the potential effect of migration on EU and national levels. The questions posed in the Project proposal to which this report aims to find answers are:

- Does youth migration impact local economies and labour markets?
- Does youth migration affect the education system in the receiving countries?
- Does youth migration affect the social welfare system in the receiving countries?

These are key questions that were generally addressed by several research projects and publications prior to ours, however without a specific focus and relation to young (adult) migrants in vulnerable conditions, such as asylum seekers. According to Eurostat³, the 2015 migration crisis doubled the number of asylum applications in 2015 compared to 2014. Also, a FRA report⁴ on the integration of young refugees in the EU during and after the 2015 migration crisis showed that most asylum seekers were young: over 80% of the persons who arrived between 2015 and 2018 were under 34 years of age (FRA, 2019).

There is significant literature on how EU mobility affected national economies, labour markets and welfare regimes, but most addressed internal mobility within the EU. Also, the effects are mainly addressed at micro (individual) level rather than at macro level. According to Baas et al. (2011), immigration from the EU2 (Romania and Bulgaria) and from the Visegrad countries to Western Europe seems to have minor positive effects on GDP, on wages and on labour markets, in general. Analyses did not find proof for displacement effects (immigrants would displace natives in the labour market) or a significant effect on wages, either. On the contrary, it was found that the increase of east-west mobility within the enlarged EU has brought about larger economic wealth while it did not harm local populations’ labour market opportunities or wages (as many politicians predicted). Several studies analysed how EU mobility influenced the economies, labour markets and welfare systems of sovereign states. Kahanec et al. (2009) did not find any evidence that economic migrants from EU2 countries “would displace native workers or lower their wages (and even if crowding out happened in certain sectors or occupation, aggregate data suggest that such natives found well-paid jobs elsewhere), or

³ See: <https://ec.europa.eu/eurostat/web/products-press-releases/-/3-04032016-AP>

⁴ See: <https://fra.europa.eu/en/publication/2019/integration-young-refugees-eu-good-practices-and-challenges>

that they would be more dependent on welfare than the natives". Macro-economic modelling of labour migration from the EU8 to the EU15 between 2004 and 2007 found gains of migration for the enlarged EU: the aggregate GDP of the integrated area increased by about 0.2%; the total income of the native population increased slightly in the receiving countries; surprisingly small effects were found on labour market migration: in the short-run, wages declined by about 0.1% in the EU15 group, and the unemployment rate increased by about 0.1 percentage points. In the long-run, migration by and large was found to be neutral for wages and unemployment. Another study by Brenke et al. (2009) focused on how EU8 enlargement has influenced Germany's labour market. It found that EU8 immigrants are more likely to compete with TCN immigrants for low-skilled jobs than competing with German natives. It seems that due to the EU enlargement, EU8 immigrants are replacing TCN migrants in low-skilled jobs.

There are also studies analysing the impact of global mobility and TCN migration on host country economies and labour markets. It may be challenging to assess the general impact of immigration on host country economies as this is dependent on the host country's characteristics, the functioning of its economy, and the type of migration that characterizes the country and the inclusiveness of the labour market. In spite of these challenges, labour economics authors claim that the presence and size of immigrant population has no effect on the employment rates of natives. Large refugee inflows (France 1960's, Israel 1990's, Europe 1990's) have had small or no effects on the local labour market (Clemens & Hunt, 2019). Other studies using macroeconomic data (Angrist & Kugler, 2003) also didn't find a significant impact of non-EU immigrants on the local labour market, in general (the labour market outcome being measured by the employment to population ratio for natives).

Several studies tried to assess how vulnerable migrants (refugees) impact on host economies and major public services. For example, Altindag et al. (2019) studied how the sudden arrival of 3 million Syrian refugees to Turkey has affected Turkish businesses, finding out that "*refugee inflows induced a positive impact on the intensive and extensive margins of firm production. The effects are stronger for smaller firms and for firms that operate in the construction and hospitality sectors, they are also largely concentrated in the informal economy*". Still, the literature on how specific subgroups of immigrants, such as asylum seekers, and, within this group, young asylum seekers, influence various spheres of local sectors is scarce. This is specifically where our report aims to contribute.

It is important to highlight that most of the existing evidence in the literature of migration economics relies mostly on survey data, identifying effects at individual-level. In a comprehensive approach, in this report we aim to capture potential systematic effects on three crucial dimensions at macro (country) level.

We capitalize the previous results from Work Package 2 "Quantitative (statistical) overview on youth migration", namely we use the *D2.1 Macro data inventory*⁵ (henceforth D2.1). The D2.1 consists of data from all EU-28 countries and Norway, as an EFTA country and also as a consortium partner, with a total of 29 country-cases. The D2.1 covers a core period of 10 years (2010-2019). Note that the data for the most recent years, 2019 or 2018, were not available for some indicators at the moment of the data collection, April-June 2020. The data set consists of 76 indicators further subdivided into 432 different variables, included in 14 worksheets of a single, user-friendly Excel file.

At this stage we need to specify that the selection of our target group, asylum seekers, was driven not only by their relevance, but also by the data available. We have taken into account the variables that may be suitable candidates for answering the research questions, including: young TCNs (available data only starting 2013), population with citizenship non-EU (available data only starting 2014) and young asylum seekers (available starting 2010). Therefore, the current analysis considers the profile and the effects of the specific group of asylum seekers, as this group has the best data coverage.

⁵ D2.1 was prepared by the ASE Bucharest team, with the contribution of CEU and was submitted in July 2020.

We also make use of D2.2 *MIMY Public report on describing and comparing the dimension, characteristics and dynamics of youth migrants in European countries*⁶ (henceforth D2.2) that provided the description of the European context in relation with four dimensions of migrants' integration: employment, education, social inclusion (health included) and active citizenship. D2.2 also offers a micro-level analysis using individual-level data on immigrant youth from the nine European Social Survey's rounds. The central hypothesis in this case is that the vulnerable position of young immigrants occurs when concerned with opportunities of integration on various dimensions of social life.

Moving forward to a more detailed analysis, in the current report (D2.3) *we aim to identify the potential impact of young asylum seekers on labour market, education and social protection systems*. The main method employed for reaching this goal was panel data regression (Green, 2002), appropriate for at least two reasons: it allows to capture the effects of various factors on a result variable; it makes use of the variability between various units (in our case, countries) and also considers the time variability for each unit. In the context of a small sample and also using a short time period, the panel data regression has the advantage of producing reliable results by increasing the number of observations.

Our task is grand and challenging. Statistical data and macro-level analysis allow for the identification of large scale economic and societal impact of large population segments. However, in our analysis, the independent variable, i.e. the impact which is measured, regards a very specific migrants' subgroup, namely asylum seekers aged 18 to 34 years. In line with the existing literature on TCNs migration and intra EU mobility introduced previously, we do not hypothesize large effects of young asylum seekers on macro-economic and societal processes measurable on the macro level.

We do not promise full-fledged answers to all the aforementioned questions as there are several limitations to our macro-economic analysis. Statistical macro-data have a limited explanatory power, as they are reported at aggregate level and do not capture the local or regional effects of the presence of asylum seekers. Also, the period under scope was short (2010-2018); however, it captures the unprecedented waves of refugees in 2015 and 2016. Despite these limitations, we consider of high importance to prove or disprove the potential effects of the presence of asylum seekers, in a European context in which scientific results should replace prejudices against migrants. We make full use of the advantages of macro-econometric modelling which is able to identify systemic effects, if any. As a genre, these analytical approaches are highly technical, but we pay attention to explaining the most important findings in a comprehensive manner, without missing the needed rigour.

The report includes four larger parts. Following the introduction, the second chapter offers an analysis of how asylum seeking youth impact domestic macro-systems of the host country: the economy, labour market (2.2), education (2.3) and social welfare systems (2.4). The chapter starts with providing a descriptive perspective on the profile of asylum seekers in Europe, (2.1). The third chapter is even more experimental, as it offers a counterfactual analysis of still the economic performance of TCN migrant youth based on individual-level data collected from the European Social Survey. Finally, in the fourth chapter, we conclude the most important findings of the analysis and consider lessons that MIMY qualitative research may build on. The conclusions also offer a perspective on the potential usage of the results by policymakers and other stakeholders. For an easy read, data, the indicators that are used in the macro-level modelling as well as the methods applied: cluster analysis and panel data regression models, were detailed in the Statistical Appendix.

⁶ D2.2 was prepared by the ASE Bucharest and CEU Budapest teams and was submitted in October 2020.

2 Macro effects of the young asylum inflows to European countries on social and economic systems

Monica Roman, Smaranda Cimpoeru, Ioana Manafi and Elena Prada

This chapter, structured into six sections, uses macro-economic data for identifying potential social and economic effects of young asylum seekers' migration to Europe. The results may contribute to the migration literature in two ways: firstly, we focus the analysis on the young migrants, a group more vulnerable than the overall migrants' population and also a group less covered in scientific outputs; secondly, we use macro-economic data for capturing systemic effects of the presence of young asylum seekers, the results being posterior validated by micro-econometric modelling.

To reach the research objectives we used macro level statistical data inventory compiled in the D2.1, having as the main source the Eurostat database. This has at least two fundamental advantages: (i) the use of a common methodology in data collection that ensures the data comparability both over time and between countries; (ii) the availability and accessibility of the data. The dataset used for the descriptive and econometric analysis contains a balanced panel starting with 2010 till 2018 (9 time periods) for 28 countries, namely 27 countries from EU (Croatia not included due to missing values) and Norway. The total number of observations was 252.

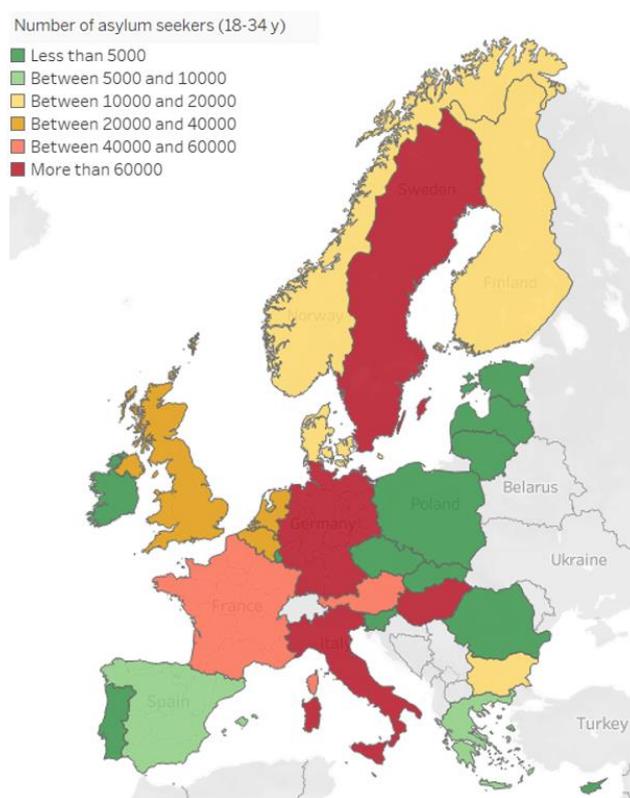
2.1 Young asylum seekers in Europe

This section aims to highlight the presence and size of the young migrants in vulnerable conditions, for measuring their potential effects on societal systems. We concentrated our analysis on asylum seekers: as the distribution and size of asylum seekers were significant in the last decade and on a sharp upward trend, it is of interest to analyse the potential effects of this subgroup of migrants for answering the research questions.

An asylum applicant is a person who has submitted an application for international protection or has been included in such application as a family member during the reference period (D2.1). In this report we use interchangeably "asylum seekers" and "asylum applicants".

Since 2010 the total number of asylum applications increased to more than double in EU-28 countries, with a peak in 2015 and 2016, when the number of applications increased almost five times. In 2015 more than one third of them registered in Germany. In Italy, as well as in Romania, the peak was reached only in 2017. Some countries are having important shares of the total application as Austria, the Netherlands, Sweden, and the United Kingdom. A special case is Hungary, a country found on the Syrian refugees' path. In 2010 only 2095 applications for asylum were registered there, but in 2015 the number was of 177 135 applications.

Considering the focus of the report is on young migrants in vulnerable conditions, the analysis will be centred on asylum seekers in the age category 18 – 34 years. The number of young asylum applications had a similar evolution with that of the general age category. The peak was reached in 2015 when about 700000 asylum applications for the 18 – 34 years' age category were registered, representing around 53% of the total asylum applications. In 2015, a third of them (236650 persons) were reported in Germany, followed by Hungary (15%), Italy and Sweden (each around 10%, about 65000 persons). Thus, about half of young asylum seekers are concentrated in three countries (Germany, Italy and Sweden). As mentioned before, Hungary is a special case as it is on the Syrian refugees' path. At the other end of the range, half of EU countries had less than 5000 young asylum seekers in 2015, as shown in Figure 1. In the map, it can be observed the significant variation in the number of young asylum seekers in the EU28 countries and Norway, as some countries are preferred destinations for young asylum seekers, a subject tackled in more detail in section 2.2.

Figure 1. Number of young asylum seekers in 2015

Source: own processing based on Eurostat data.

In the period 2010 – 2019, the number of young asylum seekers increased from around 140000 in 2010 to the maximum levels of around 700000 in 2015 and 2016, while in 2017 – 2019 it hovered around 300000 – 350000. Although there are considerable fluctuations in the number of young asylum applications, it is worth mentioning that throughout the entire period, the young asylum seekers represent about a half of all asylum applicants. Around 25% - 30% of the total number of asylum seekers are under-aged and they are not under the lens of the present study, being however integrated in other packages of the MIMY project. Regarding their country of origin, since 2013 Syria is the main country of citizenship of asylum seekers in EU countries⁷. Nonetheless, there is an increased diversity of the asylum seekers' citizenship in the past five years. At EU28 level and Norway, the top four countries of origin for young asylum seekers in 2015 and in 2018 are Syria, Afghanistan, Pakistan and Iraq. However, if in 2015 these four countries accounted for half of the asylum applications, in 2018 they are responsible for about a quarter of all young asylum. This is related to the peak in the number of asylum applicants in 2015. In 2018, 30% of young asylum seekers are from: Nigeria, Guinea, Albania, Iran, Turkey, Venezuela, Bangladesh, Eritrea, Somalia.

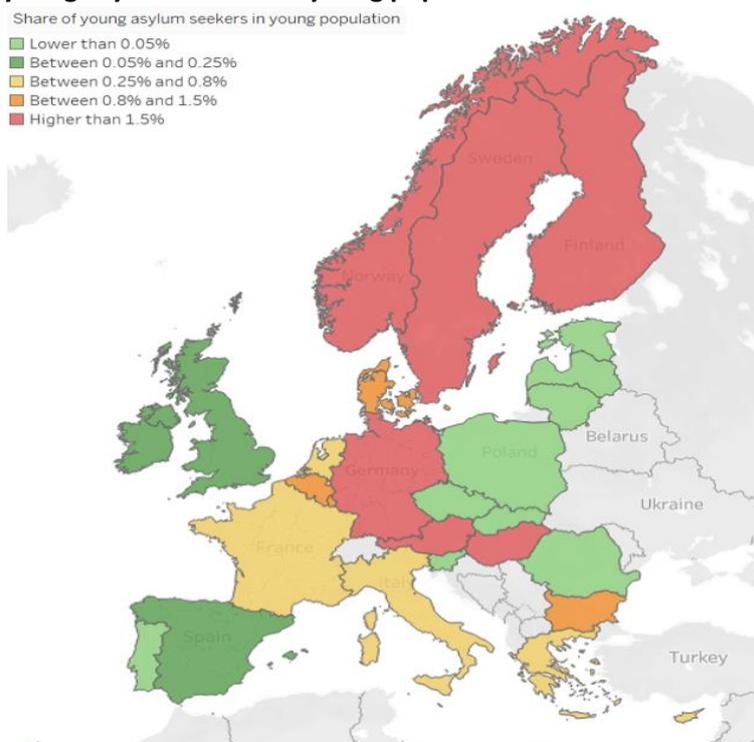
The top five citizenships of asylum seekers vary considerably from one EU country to another. For instance, in 2019, Syria is the main country of citizenship for asylum seekers in Germany, Belgium, Austria, Netherlands, Sweden, Norway, Denmark or Cyprus, while in France, Slovakia, Hungary,

⁷ https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Asylum_statistics#:~:text=Since%202013%2C%20Syria%20remains%20the,from%2014.6%20%25%20to%2012.1%20%25.

Bulgaria most of them are from Afghanistan. In Poland, Estonia and Lithuania the main citizenship of asylum seekers is Russian, while in Spain is Venezuelan.⁸

In the Consortium Countries, as shown in D2.2, there is a high heterogeneity of young asylum seekers in terms of their country of origin. In Germany, the main origin countries in 2018 are: Syria, Afghanistan, Iraq, Eritrea, Somalia, Iran, Turkey, Nigeria, while in Italy the structure is different, with Pakistan, Nigeria, Bangladesh, El Salvador and Afghanistan the main origin countries in 2019. In Norway, young asylum seekers come mainly from Syria, Turkey, Eritrea, Afghanistan, Iraq, Iran, Somalia. The situation is different also in Poland, where Russia and Ukraine are the first two origin countries for asylum seekers.

Figure 2. Share of young asylum seekers in young population. 2015.



Source: own processing based on Eurostat data.

Regarding their *gender distribution*, there are more young men (around 70% at EU28 and Norway level) than young women seeking asylum. In Poland however, the share of young men is lower, between 50% and 60% throughout the period 2010 – 2019. There is scarce information concerning other socioeconomic characteristic of young asylum seekers, but usually they have lower education levels and they are more likely to be unemployed, as shown by the analysis provided in D2.2.

Since the number of asylum seekers varies greatly in the European countries, for comparability purposes, we have computed *the share of the young asylum seekers in the total population of the corresponding age group* which is 18-34 years (as according to the Eurostat data disaggregation by age groups).

The Figure 2 visually describes the distribution of the shares of asylum seekers in 2015. The distribution looks slightly different then in the case of the absolute values and show, however, larger

⁸ Based on: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Five_main_citizenships_of_first-time_asylum_applicants_\(non-EU-27_citizens\),_2019_\(number,_rounded_figures\).png](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Five_main_citizenships_of_first-time_asylum_applicants_(non-EU-27_citizens),_2019_(number,_rounded_figures).png)

The figures are reported for all asylum seekers, but considering that young asylum seekers represent about a half of all applicants, we don't expect significant changes in this structure.

shares in the case of the larger recipients: Germany, Austria, Sweden, Norway, but also Finland and Hungary. Countries in the Eastern Europe have the smallest shares (Romania, Poland, Czechia, Slovakia and Baltic counties).

To conclude, this section geographically profiles the young European asylum seekers: their number and share largely varies across Europe and they have different origins and backgrounds; also, they are mostly men in most of the destination countries.

2.2 The characteristics of destination countries as migration factors: a country cluster analysis

Recent refugee and asylum seeker flows are not unprecedented. They do represent, however, only a small share of total migration. In 2016, in Germany, the share of refugees and asylum seekers composed about 10.5 percent of the total immigrant population (D2.2). Irregular border crossing into the EU peaked in 2015 to 1.8 million people, but decreased to more than one third of the immigrant population in 2016. Only part of the migrants receives the refugee status, while the asylum rejection rate is at about 40% in 2016. In the past, refugees experienced smaller return rates than the other migrants (World Bank, 2017).

The purpose of this section is to find similarities among European host countries, considering as determinants factors that might influence migration from third countries. By employing cluster analysis, we aim to explain how country-specific factors may relate to the magnitude of migration flows.

2.2.1. Factors of migration in a changing world

In 2003, according to Van Hear, Bakewell and Long (2012, p. 9), the former Department for International Development of the United Kingdom (also known as UK Aid) defined the drivers of change⁹ as “the interaction between structural features, formal and informal institutions and individual agents”. The same authors studied the context in which these drivers operated and shaped both forced and voluntary migration. Starting from the work of Giddens and Richmond (1994), that divided the determinants of migration into proactive and reactive factors, Van Hear, Bakewell and Long (2012) presented these factors as having a wide range of functions in the migration process and classified them into four categories:

- **Predisposing factors** offer a context in which migration is likely; this category includes economic and environmental disparities and geographical factors, such as income per capita, expenditures on health and education, level of school enrolment;
- **Proximate factors** have a more direct bearing on migration and are related to both countries of origin and to destination countries. For the countries of origin, factors such as the phase of the business cycle, low security, human rights etc. were considered. For the destination countries, the factors included were the economic upturn, new employment opportunities, the chance to set up a business, educational openings. However, development in the countries of origin countries will initially increase people’s capabilities and aspirations to migrate (EU, 2018).
- **Precipitating factors** usually occur in the country of origin, but to some extent also in the destination country. Financial collapse, financial system, level of health and educational system can be included among the precipitating factors;

⁹ Drivers of Change’ (DoC) is an approach developed by DFID to address the lack of linkages between a country’s political framework and the work of development agencies. The approach focuses on “the interplay of economic, social and political factors that support or impede’ poverty reduction” (OECD, 2005)

- **Mediating factors**, which are usually considered to accelerate or consolidate migration, are divided into facilitating and constraining factors. The implication of national and international organizations has a high impact on migration, being a mediating, enabling factor. Education, agriculture, rural development, welfare, and housing may be both enabling and constraining factors.

The selection of the factors used in the current analysis is also supported by other recent evidence. Using data from the European Social Survey for 2008-2016 period, Kogan and Shen (2019) studied how economy, democracy, and quality of public goods (such as health and education systems) in the receiving societies contribute to life satisfaction. Using the ordinary least squares (OLS) regression analysis, the authors found that migrants coming from countries with less well-functioning economies to countries with more favourable economic conditions displayed higher levels of perceived satisfaction with the host country economies, which considerably contributed to their overall life satisfaction. Haller and Hadler (2006) found that welfare state expenditure and political freedom (not only GDP and economic growth) correlate with individual life satisfaction. The wealthier the country is, the more satisfied the citizens are because of the high quality of educational, health, and legal systems (Diener and Suh, 1999). But for immigrants, Kogan et al. (2018) found that a country's wealth level is not correlated with life satisfaction, but that the level of human development plays a crucial role.

In the final Report of Migrare Project (2019)¹⁰, a cluster analysis (using the K-means algorithm) has been performed to provide a systematic mapping and classification of European regions and metropolitan areas/cities with respect to the refugee influx, and their potential for a successful reception and integration of asylum seekers and refugees. The purpose of the cluster analysis was to identify regional typologies according to their "absorption" potential of immigrants and refugees, using a set of socio-economic indicators (such as demographic, economic, labour market indicators etc.). The results show that European regions may be grouped into six clusters related to the migration trajectory of asylum seekers.

The country cluster analysis was performed in our research for two years, 2015 and 2018, in order to identify the potential changes over time within clusters. We selected 2015 as the year of the Refugee crisis, while 2018 was the most recent year for which all the statistical data were available. Initially, all the EU-28 countries and Norway were considered for the analysis. However, we have excluded Cyprus, Malta, and Luxembourg because of their small populations. For avoiding a modelling bias caused by special conditions of small countries, macroeconomic analyses (on the national level) should mainly consider countries with a minimum of two million inhabitants (Sachs, 2005).

As countries are grouped in clusters based on their similarities across a profile of variables, and the results are sensitive to the considered indicators, the selection of variables is a crucial step in the analysis. Following the factors suggested by Van Hear, Bakewell and Long (2012), we have selected the following indicators: GDP per capita, GINI index, inflation rate and youth unemployment rate as predisposing factors; corruption index and business freedom as proximate factors; severe material deprivation and healthy life years at birth as precipitating factors. Variable considered in the cluster analysis are either active or illustrative input variables. In this analysis the active variables are previously described, while the illustrative variables are used only for interpreting the results and are related to immigration, such as asylum seekers and immigration flows.

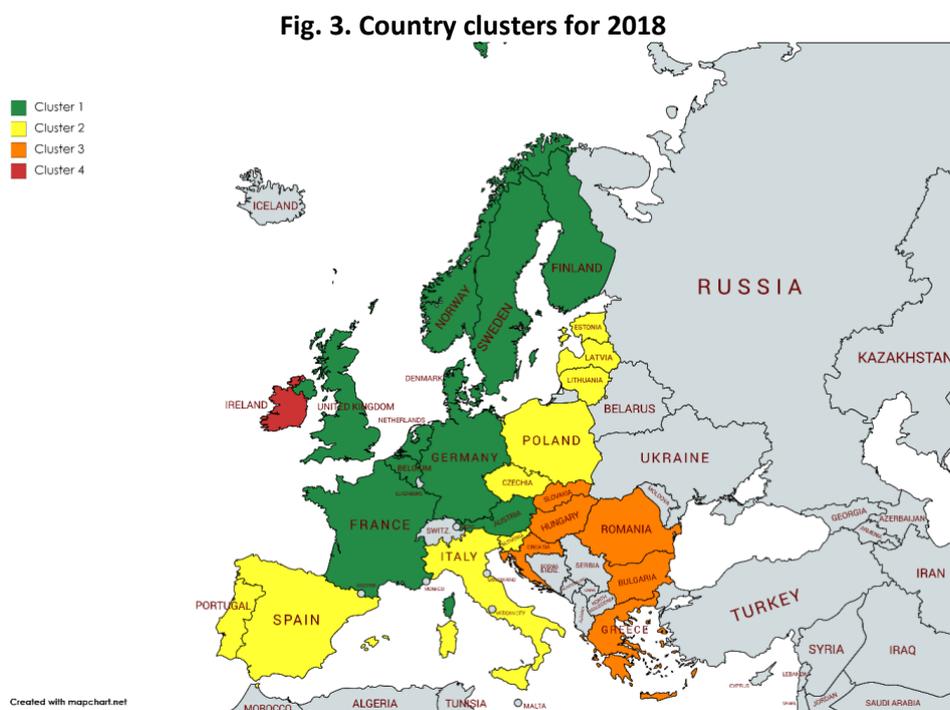
The indicators were selected in order to capture all the four categories and to use the variables adequately covered with data. The correlation analysis (see Tables A1 and A2 in the Annexes) for 2015 and 2018 do not show significant relationships between the considered factors. The highest correlation coefficient in the 2015 matrix is 0.7, between the corruption index and GDP per capita. The countries were grouped into clusters using the K-means method, which required to carefully

¹⁰ [MIGRARE Final Report.pdf \(espon.eu\)](#)

specify the number of clusters. When choosing too many clusters, some of them will contain only one or two countries; when choosing only few clusters, a single cluster will include different patterns, so we decided to test the method for three or four distinct clusters.

2.2.2. Results of the cluster analysis

The results of the cluster analysis with four clusters provided the most promising results, for both 2015 and 2018. For the year 2018, the country distribution by clusters may be visualized in the following figure.



Source: own processing based on Eurostat data

The four clusters, differently coloured in the Fig. 1, are described below.

- **Cluster 1**, entitled *Top Destination and Economically Performing Countries*, includes France, Germany, Belgium, Sweden, Finland, the United Kingdom, Austria, and Norway. Countries grouped in this cluster present high rates of GDP per capita, medium values for the Gini Index, high values of business freedom, low rates of severe material deprivation, small rates of youth unemployment rates in Germany and Belgium (and high for the rest) and small values for “at work poverty rate”, lowest rates of corruption perception index.

It seems that countries in this cluster are not only the most desirable for migration (EC, 2015, 14), but they are also the best connected (receiving immigrants from many countries) (see D2.2.) The previous results obtained within the MIMY project (D2.2) showed that these countries host the largest number of TCNs and asylum applicants. In 2018, Germany registered the highest flow of youth immigrants in EU-28, followed by the United Kingdom. In 2015, except for France, Belgium, and Holland, all the other country grouped in this cluster registered a share higher than 1.5% of **young asylum seekers in young population** (see Figure 1).

As reported by DG Migration (EC, 2015), the most frequent destinations for smuggled¹¹ migrants were Germany, Sweden, France, the United Kingdom, Austria, the Netherlands, Belgium, and Denmark, but their overriding aim was to make it “to Europe”. They considered a destination to be “a good country” if it offered favourable conditions for residence and work, as well as links to networks of relatives and compatriots.

The same set of countries are reported as being the most preferred by Eritrean migrants. In a surveyed hierarchy of the destinations, the first positions were occupied by European Northern Countries, while Italy was in between and Greece and Spain were viewed as undesirable and even unsafe destinations (Belloni, 2015).

- **Cluster 2**, entitled **Emerging Destination Countries** includes the Czech Republic, Estonia, Spain, Italy, Latvia, Lithuania, Poland, Portugal and Slovenia. Countries in this cluster are characterized by medium levels of all GDP per capita, Gini Index, corruption perception index and business freedom. These countries are not among the most preferred TCNs’ destinations, however, the number of TCNs residing in Cluster 2 countries is increasing. If we consider only the flow of youth migration in Spain and Italy, we might expect to find these countries in the first cluster, but when also considering other socio-economic variables, Spain and Italy drop into the second cluster. Belloni (2015), after having surveyed Eritrean migrants, found that they considered Mediterranean countries to be “unsafe and undesirable”. Skuflic et al. (2018)¹², when studying migration and the economic crisis using cluster analysis, found that Spain left the previous cluster due to negative growth rates in the pre-crisis period and due to the rising unemployment rates. The paper also mentioned that Spain became a net emigration country in the same period.
- **Cluster 3**, entitled **Periphery Countries/Less Economically Performing Countries** (but on migration routes) includes Bulgaria, Greece, Croatia, Hungary, Romania and Slovakia. Countries grouped in this cluster are less economically performant than the countries included in the previous two clusters, having the lowest values for GDP per capita and for business freedom, and also the highest perceived corruption index, as well as the highest values of severe material deprivation. Our prior results in D2.2 show that apart from Greece, the countries in this cluster are the least connected to other countries by migration flows (see D2.2), meaning that they receive immigrants from a lower number of countries. Cluster 3 countries may be perceived as transit countries, being placed on migration routes, and to a much lower extent, as destination countries (European Commission, 2015). The number of immigrants residing in Cluster 3 countries is significantly lower compared to the one in Cluster 1 and 2 countries.
- **Cluster 4**, entitled “**Outliers**”, only includes one country: Ireland. Ireland has an excellent economic performance, with Celtic Tiger between 1994-2007, and registers the highest rate of GDP per capita, the smallest inflation rate, the second lowest in at work poverty rate (after Finland), and also a high value of business freedom. When analysing the share of immigrants from countries with a small and medium human development index (see D2.2), Ireland registered a low share of TCN immigrants, although considering the economic conditions, it may actually be a top destination country; it might be connected with high inflow of intra-EU movers.

¹¹ Smuggled migrants are moved illegally for profit. Smuggled migrants may include those who have been forcibly displaced as well as those who have left their homeland in search of better economic and social opportunities.

¹² [The Concept of Infamy In Roman Law \(jssidoi.org\)](https://www.jssidoi.org/)

The results of the country cluster analysis show that socio-economic characteristics of countries may explain the destination of the migrants. The analysis was conducted for both years (2015 and 2018), using a similar set of variables. For both years, the results were similar, except for cluster 4, where in 2015, two outliers instead of one were included: Norway and Ireland.

The country considered to be the final destination changes depending on various factors such as relocation programmes at the EU level, decision-making abilities, geographic factors, finances, available routes, visa options, networks, chance, migrants' knowledge of potential destination etc. For a great share of migrants choices are limited and in some cases they do not even exist. Migration order was first introduced by Van Hear (1988), linking micro-level social processes to macro-level structures, although crises were considered to be the only periods of chaotic events. In 2012, Van Hear explained the shift in migration flows by the rise of new economic powers in the Global South and West, and by the restrictive migration regimes in the North. The social order typically refers to macro-level, including economy, education, politics etc. (Duwell, 2020). Strangio and De Rose (2015) anticipated new patterns of migration, with new sending and receiving countries, as well as a new order.

To conclude, the results of the cluster analysis revealed that European Union countries and Norway may be grouped into four clusters, considering the socioeconomic variables corresponding to the predisposing, proximate, precipitating and mediating factors for host countries, as described by Van Hear, Bakewell and Long (2012). The first cluster included top destinations – economically performing countries. In the second cluster we find emergent destination countries, the third cluster includes peripheral and less economically performing countries, while the final cluster consists of a small number of outliers (Ireland and Norway). This may suggest that in 2015, the year of the refugee crisis, and also in 2018, the migration factors for host countries acted in a similar manner in shaping the migration flows. The main destinations were the same, even if with a different magnitude. The countries of arrival and transit may change over time, but the final destination countries seem to be more stable and selected in relation to economic and social criteria.

This section highlights the following main results:

- ✚ Considering predisposing, proximate, precipitating, and mediating factors for host countries introduced by Van Hear et al (2012), European Union countries (plus Norway) are grouped into four clusters.
- ✚ The four clusters are: *Cluster 1 - Top Destination and Economically Performing Countries*, *Cluster 2 – Emerging Destination Countries*, *Cluster 3 - Periphery Countries/Less Economically Performing Countries*, *Cluster 4 – Outliers* and they suggest a connection to migration trajectories.
- ✚ Countries of arrival and transit may change over time.
- ✚ Final destination countries seem to be more stable and usually they are selected in relation to economic and social criteria.

2.3 Evaluating young asylum seekers' effects on labour markets: the case of youth unemployment

Generally, foreign workers (from a country outside the EU) who wish to work in the EU need a residence and a work permit, but the types of work permit, the duration and the eligibility conditions vary significantly between EU countries. The work permit is usually required for employment assignments. However, in most EU countries, high-skilled employees from outside the Union have a different regime and are exempt from the work permit, or they go through simplified procedures. For other TCNs, the work permit is usually associated with the corresponding job and if the job changes, a new permit has to be issued (Eichhorst et al., 2011).

Vulnerable migrants¹³ have a slower integration onto the labour markets of the host country compared to regular labour migrants since they were not primarily selected for the labour market of the host country. Refugees' integration is also slowed down by the asylum procedures, but also by the intake policies that do not provide enough assistance to refugees who try to integrate on the labour market (Bevelander, 2020).

For young migrants, the immigration policies have become harsher in recent years, thus migrants without proper documents would eventually work informally and be exposed to abuses from their employers, working without contract or receiving lower payment than normally or even no payment at all (ILO, 2020).

2.3.1. Conception of models and variables' selection

As mentioned earlier, in order to assess the effect of young asylum seekers on the labour market (more precisely, on the youth unemployment rate), we estimate a set of panel data regression models having as main independent variable the share of young asylum seekers in the total youth population. In order to check the robustness of the results obtained, we have estimated a similar set of models for the overall labour market, using as factor the share of asylum seekers (all ages) in the total population and as effect variable the total unemployment rate.

The youth unemployment ratio is the percentage of unemployed young people (i.e. people aged 15-24) in the total active population of this age group. It gives an unemployment-to-population measure. Similarly, unemployment rates represent unemployed persons¹⁴ (aged 15 to 74) as a percentage of the labour force. The labour force is the total number of people employed and unemployed (as per Eurostat definition – D 2.1).

Following the economic crisis of 2008-2009, the unemployment rate increased substantially, peaking in 2013 at almost 24% for the youth population and at around 11% overall (at EU28 aggregate level). However, since then, both youth and total unemployment rate entered a decreasing trend, reaching minimum levels of 14.4% (youth unemployment) and 6.3% (total unemployment) in 2019. Still, some countries exhibit very large youth unemployment rates in 2018, such as: Greece (40%), Spain (34%) or Italy (32%) and the gaps between youth and total unemployment rate remain high. This can be explained by the limited work experience of the young population, but it also shows that structural barriers exist which hinder the access of youth on the labour market (ILO, 2020). Consortium countries have a homogenous distribution of the youth unemployment rate, with Germany recording the lowest

¹³ Vulnerable migrants are in this work asylum seekers and refugees.

¹⁴ Unemployed persons comprise persons who were: a. without work during the reference week, b. currently available for work, i.e. were available for paid employment or self-employment before the end of the two weeks following the reference week, c. actively seeking work, i.e. had taken specific steps in the four weeks' period ending with the reference week to seek paid employment or self-employment or who found a job to start later, i.e. within a period of, at most, three months.

youth unemployment level in the EU, while Italy one of the highest values (Table A3). Poland, Hungary and the United Kingdom, among the Consortium Countries, record some of the sharpest decreases of the youth unemployment rate in the period 2010-2019.

As outlined in the previous work (D2.2), young non-EU28 immigrants feature higher unemployment rates than natives in most EU countries. On the labour market, immigrants are more likely to have low-skilled jobs and be active in sectors such as construction, services or trade (OECD, 2018).

A set of six models was estimated in order to assess the impact of young asylum seekers on the labour market (Tables 2 and 3).

Apart from the main factor variable (share of young asylum seekers in the total young population), we have also introduced the following control variables in the models: income per capita (in logarithm form), Gini inequality index, Education level (weight of individuals with low or medium education level), Democracy and Government index, demographic structure (the weight of youth population in the total population). The selection of the control variables is in line with the scientific literature. Income per capita was used as a proxy for the development level and economic performance, since most studies agree that aggregated economic development is a decisive factor of youth unemployment (Condratov, 2014 offers a literature survey). Likewise, the positive correlation between inequality and unemployment has been documented extensively (Cysne, 2009) and supported by a variety of quantitative models. The education level is expected to have an impact on young people's employment prospects (Isengard, 2003) and consequently on the unemployment rate. To account also for the political influence on the unemployment (relationship tackled in many studies; Veiga and Chappell, 2002, for a review) the Democracy and Governments indexes have been considered as proxies. Lastly, the demographic structure was also included as a covariate, since evidence shows that large youth cohorts lead to increases in youth unemployment rates (Korenman and Neumark, 1997).

2.3.2. Results and discussion

The results of the analysis (see Table 2) show that no statistically significant relationship can be established between the magnitude of young asylum seekers and the youth unemployment rate in any model. The result is in line with the literature in labour economics stating that the effects of immigration on the native workers' employment level is usually very small or inexistent. Large refugee inflows (France 1960s', Israel 1990s', Europe 1990s') have had very small or no effects on the local labour market (Clemens & Hunt, 2019). Borjas and Monras (2017) claim that an impact can be found if the analysis is done on subgroups of population, such as less skilled workers. This means that the impact of migrants depends to a large extent on the characteristics of the migrants' labour force in term of their skill composition, compared to the local one. Usually, if the local labour market is composed mostly of low-skilled workers, there can be a negative impact of the migrants on the native labour force (Eichhorst et al., 2011). However, since in our models we did not account for the structure of the labour force, it is not possible to observe the impact of the migrants' labour force skill distribution. Other studies using macroeconomic data (Angrist & Kugler, 2003) have not found a significant effect of non-EU immigrants overall on the local labour market (the labour market outcome is measured by the employment to population ratio for natives). Similar to the cited study, our estimated models do not consider important variables like time-varying productivity and labour demand shock, which are correlated to the share of immigrants.

Another explanation for the lack of significance of asylum seekers on the host countries' labour market could be simply the low shares of refugees in the total population and, as observed, the low shares of young asylum seekers in the total youth population. This is stated also by Barslund et al. (2018, pg. 1): *“For this reason, it is often argued that refugees' impact on wages or the unemployment rate in the receiving countries will not be economically significant. Similarly, the academic literature tends to find*

no or only modest labour market effects from previous refugee waves (...)" (Barslund et al. 2018, pg. 1). The obtained results confirm that this is also the case for *young asylum seekers' effect* on the youth unemployment rate.

It is important to mention that all the estimated models are overall statistically significant and have an explanatory power of more than 50%, confirming the adequate selection of the explanatory variables. In regard to the control variables included, as expected, the income is negatively related to the youth unemployment, while a higher inequality index is associated with increased youth unemployment rates. Both mentioned variables have a statistically significant influence on the youth unemployment rate. The government index also has a significant negative influence on the unemployment rate. Higher values for this index mean a better functioning of the government and, in turn, lower youth unemployment rates. The demographic structure (share of young population in total population) is as well a significant factor. However, the education level (low or medium) is not a significant factor for the youth unemployment rate.

Similar models have been replicated on the overall labour market (Table 3), to identify and confirm the effect of the asylum seekers (all ages) on the total unemployment rate. The results obtained for this set of models are in line to the ones from the youth models, from an economic and also from a statistic point of view.

Moreover, for a confirmatory analysis, we have also run a counterfactual analysis using micro-data from the European Social Survey in Section 3. The results are in line, showing no effect of being a young migrant from a third country on unemployment status, compared to the rest of the young residents.

Main findings:

- ✚ In this section we have estimated a set of panel data regression models to assess the effect of young asylum seekers on the labour market (on the youth unemployment rate). For ensuring robustness of the models, we have also added control variables depicting development, education, democracy and the demographic structure.
- ✚ No statistically significant relationship was established between the magnitude of young asylum seekers and the youth unemployment rate in any model.
- ✚ The result is in line with the literature on labour economics: the effects of immigration on the native workers' employment level is usually very small or inexistent.
- ✚ The lack of significance could be due to the very low shares of young asylum seekers in the youth population, but also to limitations involved using macro-economic data to estimate the models.
- ✚ For consistency, comparable models have been estimated for assessing the effect of all ages asylum seekers on the unemployment rate and similar results.

Table 2. Dependent variable: Youth unemployment (Fixed effects, robust option)

	model 1		model 2		model 3		model 4		model 5		model 6	
	Coef.	P>t	Coef.	P>t								
Youth unemployment												
Ln Income	-25.968	0.000	-26.010	0.000	-24.355	0.000	-24.480	0.000	-24.394	0.000	-24.406	0.000
Gini	0.674	0.106	0.671	0.098	0.677	0.088	0.670	0.101	0.676	0.092	0.677	0.094
Low Edu			-0.043	0.749	0.016	0.915						
Medium Edu	-0.022	0.882					-0.068	0.677				
Government					-0.294	0.038	-0.297	0.038	-0.292	0.042	-0.292	0.041
Democracy	-0.076	0.746	-0.070	0.768								
Weight young pop	167.158	0.000	167.599	0.000	186.235	0.000	185.358	0.000	186.157	0.000	186.813	0.000
Share asylum young	-4.734	0.911	-6.915	0.870	-7.879	0.856	-8.340	0.846	-8.608	0.843		
_cons	226.716	0.001	227.711	0.000	221.209	0.000	226.829	0.000	222.252	0.000	222.155	0.000
R-Square within	0.5167		0.5169		0.5401		0.5406		0.5400		0.5400	
R-Square between	0.0909		0.0885		0.1203		0.1233		0.1196		0.1194	
R-Square overall	0.1149		0.1123		0.1395		0.1425		0.1387		0.1386	
F	13.89	0.0000	13.44	0.0000	23.20	0.000	24.17	0.0000	27.46	0.0000	34.17	0.0000
Rho	0.9428		0.9435		0.9531		0.9526		0.9534		0.9536	

Table 3. Dependent variable: Unemployment (Fixed effects, robust option) / Share asylum all ages

	model 1		model 2		model 3		model 4		model 5		model 6	
Unemployment	Coef.	P>t	Coef.	P>t								
Ln Income	-13.020	0.000	-12.921	0.000	-12.132	0.000	-12.312	0.000	-12.202	0.000	-12.199	0.000
Gini	0.428	0.060	0.433	0.052	0.424	0.045	0.414	0.057	0.421	0.048	0.421	0.048
Low Edu			0.001	0.986	0.030	0.683						
Medium Edu	-0.057	0.420					-0.086	0.239				
Government					-0.185	0.002	-0.187	0.002	-0.181	0.004	-0.181	0.003
Democracy	-0.187	0.122	-0.187	0.123								
Weight young pop	73.819	0.004	74.786	0.003	82.692	0.001	81.536	0.002	82.549	0.001	82.467	0.001
Share asylum all ages	16.560	0.689	15.743	0.710	8.905	0.826	5.341	0.889	3.972	0.922		
_cons	124.441	0.000	121.553	0.000	109.925	0.001	117.683	0.000	111.865	0.000	111.860	0.000
R-Square within	0.5472		0.5454		0.5744		0.5780		0.5737		0.5737	
R-Square between	0.1133		0.1094		0.1414		0.1475		0.1394		0.1395	
R-Square overall	0.1304		0.1263		0.1565		0.1626		0.1546		0.1546	
F	13.22	0.000	13.71	0.000	17.68	0.000	18.79	0.000	19.95	0.000	25.06	0.000
Rho	0.9587		0.9595		0.9625		0.9620		0.9628		0.9630	

2.4. Evaluating young asylum seekers' effect on the education system in the receiving countries

Access to education is a fundamental right, recognized under international and regional human rights law¹⁵. However, in practice, the “type, quality and duration of schooling offered to asylum-seeking, refugee and migrant children depends more on where they are in the migrant/asylum process than on their educational needs”¹⁶. Refugees and asylum-seeking children are legally entitled to the Host’s country education system under the same conditions as nationals, although for asylum-seeking children education could be provided in accommodation centres¹⁷. “Migrant children in an irregular situation (e.g. those who have not applied for asylum or lack legal documents) are the most at risk of staying out of school” (UNICEF, 2019).

Most European Union countries have faced challenges in integrating the refugees and immigrants into mainstream education. Moreover, these challenges become more severe after 2015, with the arrival of a significant number of refugees, forcing the Member States to adapt their educational system in order to integrate the young refugees or asylum seekers (Koehler & Schneider, 2019).

The challenges in accessing education for migrants are related to: legal barriers; administrative challenges (including residence and other documentation requirements; movements of refugees and migrants from one accommodation to another, distance and transportation costs, cost of school materials etc.); not enough resources of education (human and financial – places in schools, insufficient training for teachers working with refugee and migrant students); lack of psychological support since refugees and migrants may be affected by trauma and could have difficulties to concentrate; not enough language instruction, lack of additional language and cultural support; discrimination, prejudice and even bullying (UNICEF, 2019).

2.4.1. Conception of models and variables' selection

Measuring the impact of young migrants on the education system is a statistical challenge considering that only 10 out of 28 EU Member States (MS) register the migration status in their education statistics (UNHCR, 2019). Moreover, referring to the consortium countries, the previous analysis of the MIMY project (D2.2) shows that only Sweden out of the nine countries seem to systematically collect and report data on refugees' education.

In order to assess the effect of young migrants in vulnerable conditions on the education systems in receiving countries we consider once more, as explanatory factor the weight of young asylum seekers in the total young population. The objective of the models developed in this section is to assess the – potential effects (if any) of young asylum seekers on the education system captured by **the NEETs rate**, and **the early leavers rate**. The selection of the dependent variables is explained below.

The NEET rate measures the share of the population aged 15 to 29 who is not employed and not involved in education or training. The numerator of the indicator refers to persons who meet the

¹⁵ International Covenant on Economic, Social and Cultural Rights (Article 13), Convention on the Rights of the Child (Articles 28 and 29), revised European Social Charter (Article 17) and – for EU MS – to Article 14(1) of the EU Charter of Fundamental Rights.

¹⁶ ACCESS TO EDUCATION FOR REFUGEE AND MIGRANT CHILDREN IN EUROPE, Sept. 2019, IOM / UNHCR / UNICEF

¹⁷ Article 27 of the Directive 2011/95/EU of the European Parliament and of the Council of 13 December 2011 on standards for the qualification of third country nationals or stateless persons as beneficiaries of international protection, for a uniform status for refugees or for persons eligible for subsidiary protection, and for the content of the protection granted (Recast) (Qualification Directive), OJ 2011 L337/9 pp9–268.; Reception Conditions Directive (2013/33/EU), Article 14(1).

following two conditions: (a) they are not employed (i.e. unemployed or inactive according to the International Labour Organisation definition) and (b) they have not received any education or training (i.e. neither formal nor non-formal) in the four weeks preceding the Labour Force Survey (LFS). The denominator includes the total population aged 15 to 29 (excluding those who did not answer the questions on 'participation in regular (formal) education and training'). (see D2.1 metadata, based on Eurostat).

The NEET indicator has gained a lot of popularity given its presumed potential to reflect a variety of vulnerabilities among the young ones, such as unemployment, early school leaving, labour market discrimination or discouragement (Elder, 2015). Apart from the economic impact, the NEET phenomenon is also a social issue, as being NEET means losing the chance to enhance human capital. (Quintano et al., 2018).

Using NEET to characterize education outcome is debatable (Elder, 2015). However, a number of authors use NEET in relation to education system performance. Flisi et al. (2016) suggest four indicators to measure the educational performance of young adults: early school leaving; NEETs; tertiary education attainment; employment rate among recent graduates. If early school leaving and tertiary education attainment are the target of the Europe 2020 strategy on education and training, the NEET rate is an overarching indicator that identifies employment issues, but also social imbalances or education shortcomings. Moreover, the NEET category mirrors a country's educational system level of compliance with the labour market demands. The increased complexity and globalization of the labour market deepened the need for higher education and for the young adults there is always a compromise between employments, education and work experience (Quintano et al., 2018).

Taking a closer look at the recent dynamics of the indicator, in the period 2010 – 2019, the NEET rate at EU28 level varied between 12.5% and 16%, with a decreasing trend from 2013. In 2019, the minimum level of the period is reached, of only 12.5%. Also, there is considerable heterogeneity among EU countries: In 2018, Norway and Sweden register the lowest levels of the NEET rates (lower than 7%), being in the first quartile of the distribution together with Luxembourg and Germany. On the contrary, Hungary and Romania are over the EU28 average. Italy records the highest level of NEETs in Europe for 2018 (23.4%). The econometric analysis aims at explaining if this heterogeneity in NEETs rate across Europe and over a decade may be related to the inflows of young asylum seekers.

The second set of models is developed using the ratio of early school leavers as the explained (dependent) variable. The Early school leavers ratio measures the share of the population aged 18 to 24 with at most lower secondary education¹⁸ who were not involved in any education or training during the four weeks preceding the survey (D2.1, based on LFS).

Although entry into high quality education is extremely important, the EU policy attention was shifted toward the moment of exiting education. In this context, one of the EU2020 targets was to reduce the early school leaving ratio to 10%, putting the early leavers indicator in the spotlight (Nouwen et al., 2015). Reducing early school leaving to less than 10 percent of the relevant population by 2020 was one of the headline targets in the Europe 2020 strategy and also one of the five benchmarks in the education strategic framework. (European Commission, 2010).

Early school leaving is viewed as a serious economic and social phenomenon, with important consequences both on individuals and on society (Brunello, De Paola, 2014). At individual level, early leavers are exposed to a higher risk of unemployment and are more likely to be employed in less secure jobs, part-time type and with lower earnings. Moreover, they are less likely to participate in lifelong learning, with effects on their skill level and thus opportunities on the labour market. Furthermore, there is a strong relationship between education level and the earning capabilities, as usually the employability is linked to the qualifications held, strongly related to the educational level.

¹⁸ Lower secondary education refers to ISCED (International Standard Classification of Education) 2011 level 0-2 for data from 2014 onwards and to ISCED 1997 level 0-3C short for data up to 2013 - as per Eurostat definition (D2.1).

What is more, a relationship can be established between lower qualifications levels and a poorer health status (European Commission et al., 2014).

At societal and macroeconomic level, a higher early leaving ratio from education means a lack of efficiency and efficacy of the education system, leading to greater occurrence of unemployment, thus lower economic growth and tax revenues. Apart from this, early leaving tends to be transmitted through generations, since under-educated parents do not afford to provide quality education to their children putting them at risk of leaving school early (European Commission et al., 2014).

Over the last decade, MSs paid strong attention to reducing early school leaving. The early leavers ratio decreased at EU28 level, from around 14% in 2010 to just above 10% in 2019. From the Consortium Countries, in 2019 Romania and Italy, although on a declining trend in the period 2010 – 2019, still register some of the highest rates in the EU for the early leaving ratio (15.3% and 13.5%, respectively). Only Malta and Spain report higher rates than Italy or Romania. Norway managed to curb significantly the early leavers ratio from a maximum of 17.4% in 2010 to about 10% in 2019. Likewise, United Kingdom decreased its share of early leavers from around 15% in 2010 to about 11% in 2019. Poland, Luxembourg and Sweden record the lowest values of the early leavers ratio from the group of Consortium Countries, hovering between 5% and 7% throughout the period 2010 – 2019.

Besides the main independent variable, the following covariates are also used in the two sets of the estimated models: Income per capita (logarithm form), the Gini index, at-risk-of-poverty or social exclusion rate, the education level (share of individuals with low and medium level of education respectively), democracy index and the demographic structure (- the share of young individuals in the total population). The selection of the education level and the at-risk-of poverty or social exclusion rates among the covariates is natural, since “socioeconomic disadvantage and a low educational attainment are the common key driving forces for youth inactivity and unemployment across countries” (Quintano et al., 2018, pg. 4). Development variables such as Income and income inequality (measured by the Gini index) were also introduced, since a low income is expected to increase the probability of being NEET (as shown in Eurofound, 2012). Democracy index was used as a proxy for the implementation of employment – protection regulation at country level, that is likely to have an effect on the NEET rate (for a detailed analysis – Eurofound, 2012). The variable is used as a covariate also for the second set of models, having the Early leavers ratio as dependent variable, considering the economic theory stating that labour market conditions play a role in the educational choices (Tumino and Taylor, 2015). Among the covariates for the second set of models we include as well the income, income inequality and poverty rates, since in societies with increased inequality, adolescents are more likely to renounce in investing in their human capital (the term coined as “economic despair” by Kearney and Levine, 2014). Lastly, similar to the previous section, we include in both sets of models a demographic structure measure (the weight of young population in the total population), considering the natural correlation between the share of young population and the NEET or Early leavers ratio levels.

2.4.2. Results and discussion

The results show that no statistically significant effect could be established between the proportion of young asylum seekers and the education system of the host country, measured by the NEET rate or by the early leavers ratio. As reported by the estimates in Tables 4 and 5, the coefficients associated with the share of young asylum seekers in total young population are not statistically significant in none of the model specifications.

Although generally the NEET rates of young non-EU28 born is higher than that of young nationals (D2.2), the overall effect of the magnitude of young asylum seekers on the NEET rate at country level is not statistically significant. At the same time, although immigrant students “are largely over-represented among the early leavers from education and training in many European countries”

(European Commission et al., 2014, p. 38), at macroeconomic level no significant relationship could be confirmed between the share of young asylum seekers and the early leavers ratio.

A possible explanation for this could be that young migrants in vulnerable conditions are less involved in education systems, at least right after their arrivals when they are generally involved in induction programmes. In many EU countries the first contact with education system is indirect, through language courses provided outside the formal education system. In its report of 2013, the European Commission employs four thematic areas to analyse support measures for newly arrived migrant children and youth: linguistic support, academic support, parental involvement/outreach and cooperation, and intercultural education and friendly learning environment (European Commission, 2013, p. 34-36). Academic support often goes hand in hand with linguistic support. The European Commission report (2013) aligns academic support as a separate category ‘in order not to miss the importance of initiatives other than language oriented’ (EC, 2013, p. 35), for instance reading and writing programmes and measures to combat early school leaving. Also, elements of induction programmes can include specifics such as assessment of the appropriate level of schooling and special academic help. In this context, the effects of young migrants upon national education system/indicators may appear significant at EU average level. In some countries, more exposed to youth immigration, such effects may be captured at macro or local level. Moreover, the effects of immigration on the receiving country’s education system depend greatly on the characteristic of the immigrant population (for instance: their income, their attitude towards education), as “immigrant population is rarely a monolithic entity” (Tanaka et al., 2018, pg. 142). The cited article argues that the immigrant population is composed of multiple sub groups that vary in what concerns their country of origin, skills, potential for assimilation. Their education also varies greatly and they need specific measures and interventions, besides the access to education system. Therefore, education itself may not be sufficient for creating effects upon indicators such as NEETS or early school leaving, unless accompanied by other integrated measures (EC, 2013). Due to macro-data limitations, we did not control for the education level of young asylum seekers upon arrival and for their needs for educations; their involvement in education system in the host country may be underestimated by macro data modelling.

Some other studies have shown that since the group of migrants is small, the overall impact of migrants on education (measured by the NEET rates) is not important, thus supporting our main conclusion. For instance, a study in UK has proven that in 2007 the probability for a male migrant to be NEET was with 6.6 percentage points lower than an identical UK born young; this difference fell to less than 1 percentage point in 2015, while for women, the migration variable was not significant in 2007 (Holmes et al., 2019).

As shown in D2.2, young people born outside the EU28 are over-represented among the early leavers from education and training in most European countries. The common problems for students with migrant background, such as language and cultural barriers can trigger educational disadvantage and create the premise for early leaving. However, these problems can be identified and tackled. Thus, in fact, the socio-economic and family background, as well as the adequate learning support play the critical role in the successful educational outcome, rather than the migrant background (European Commission et al., 2014)

Looking at the results the first set of models (NEET as dependent variable), we identify interesting results. In all estimated models, the Income is a negative and significant predictor for the NEET rate. Indeed, countries with higher levels for the income per capita will have lower shares of people not in education or employment. Another significant factor in all estimated models, but with a positive association is the at-risk-of-poverty or social exclusion rate. An increase of one percentage point in the social exclusion rate at country level will determine an increase of 0.3 percentage points in the NEET rate (Model 7). In what concerns education levels, the share of individuals with low education has a weak significance (at 10% in models 1, 2, 3) and after removing other insignificant control

variables the low education factor becomes insignificant (model 4). However, the share of individuals with medium education level is a significant predictor, negatively associated with the NEET rate. In model 7, a one percentage point increase in the share of individuals with medium education at country level will trigger a 0.11 percentage point decrease in the NEET rate. The demographic structure (weight of young population) is a significant predictor for the NEET rate in all models, with a strong positive impact, thus the higher the share of youth population in a country the higher the chance of a steep NEET rate.

The Gini inequality index or the democracy index are not statistically significant factors in any of the estimated models. Nonetheless, the estimated models have a good explanatory power with a coefficient of determination of about 50%.

Also, the second set of models (Table 5) provide additional interesting conclusions: all estimated models show that the overall population education level (measured as share of individuals with low, medium or high education level) is significantly correlated with the early leavers ratio, as was naturally anticipated. An increase of one percentage point in the share of individuals with low education at country level determines an increase by 0.52 percentage points in the early leavers ratio (model 4). In models 5 and 6, the share of individuals with medium and high education respectively have, as expected, a negative association with the early leavers ratio. In model 4, the Democracy index is negatively associated with the Early leavers ratio, suggesting that countries with a better state of democracy have a lower weight of individuals who drop out of school earlier. Also, the demographic structure of the country is a significant factor for the early leavers ratio in all estimated models. The higher the share of young population in a country, the higher the early leavers ratio.

However, none of the economic development variables (Income, Gini Index, Poverty rate) can be established as statistically significant factors for the early leavers ratio. The impossibility to establish a statistical relationship at macroeconomic level could be explained by the fact that the decision to leave school early is strongly affected by individual factors – like the socio-economic background of students, their epistemological beliefs and grade repetition (Hippe, R. and Jakubowski, 2018). These type of factors cannot be replicated at macroeconomic level. That is why the explanatory power of the estimated models is rather low, as shown by the small R-square levels.

We are aware that there are some aspects of the education system where young asylum seekers could have an impact, even if these may be difficult to quantify, such as:

- School enrolment: young migrants in vulnerable conditions could lead to an increase in enrolment in public schools (considering also the higher fertility and lower average income of immigrants) (Tanaka et al., 2018)
- Spending per student: Coen-Pirani (2011) argues that the immigration wave in California (1970 – 2000) could have been responsible for a 24% reduction in the spending per student in public education.
- Additional demand from migrants on schools for help with language; some schools could find it difficult to adapt to changes occurring from arrival of migrants and could lack the resources of managing a significant number of new students (George et al, 2011).

These remained to be approached in qualitative analysis strand of the MIMY project, which will provide detailed insights on the mechanisms of educational enrolment of young migrants in vulnerable conditions.

Main findings:

- ✚ In this section, we have estimated two sets of panel data regression models for assessing the effect of young asylum seekers on the education system in receiving countries. The first set of models assess the effect of young asylum seekers on the NEETs rate, while the second on the early leavers ratio. To ensure robustness of estimated models, covariates related to economic development, democracy and demographic structure were also included in the models.
- ✚ No statistically significant effect could be established between the proportion of young asylum seekers and the education system of the host country, measured by the NEET rate or by the early leavers ratio.
- ✚ The effects of immigration on the receiving country's education system depend greatly on the characteristic of the immigrant population (their income, their attitude towards education).
- ✚ The involvement of young asylum seekers in the host country's education system may be underestimated by macro data modelling (the needs for education cannot be taken into account with macro-data).
- ✚ The group of migrants is small, thus the overall impact of migrants on education is not significant.

Table 4. Dependent variable: NEET (Fixed effects, robust option)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t
NEET														
Ln Income	-4.126	0.010	-4.116	0.010	-3.527	0.020	-3.744	0.023	-4.466	0.008	-4.446	0.008	-4.130	0.016
Gini	0.157	0.120	0.156	0.121					0.140	0.156	0.140	0.157		
Social Exclusion	0.315	0.000	0.315	0.000	0.331	0.000	0.337	0.000	0.313	0.000	0.314	0.000	0.333	0.000
Low Edu	0.077	0.083	0.075	0.086	0.075	0.085	0.069	0.129						
Medium Edu									-0.106	0.042	-0.105	0.042	-0.111	0.037
Democracy	-0.142	0.098	-0.142	0.097	-0.133	0.114			-0.132	0.130	-0.131	0.129		
Weight young pop	59.739	0.001	59.700	0.001	62.047	0.001	57.909	0.002	58.191	0.002	58.156	0.002	56.536	0.002
Share asylum young	-5.123	0.754							-8.267	0.612				
Share Asylum all			-20.172	0.638							-30.955	0.468		
_cons	37.605	0.017	37.558	0.017	35.037	0.022	27.347	0.106	49.299	0.007	49.107	0.007	39.669	0.035
R-Square within	0.6003		0.6005		0.5917		0.5812		0.6037		0.6041		0.5871	
R-Square between	0.5110		0.5120		0.4993		0.4740		0.5091		0.5102		0.4701	
R-Square overall	0.5136		0.5145		0.5054		0.4851		0.5126		0.5138		0.4822	
F	14.37	0.000	14.62	0.000	15.13	0.000	15.55	0.000	12.01	0.000	12.03	0.000	14.78	0.000
Rho	0.9166		0.9164		0.9073		0.9009		0.9159		0.9157		0.9030	

Table 5. Dependent variable: Early leavers (fixed effects, robust)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coef.	P>t										
Early leavers												
Ln Income	1.575	0.185	-0.157	0.918	1.681	0.362						
Gini	-0.075	0.681	-0.173	0.410	-0.095	0.691						
Poverty	-0.145	0.388	-0.132	0.535	-0.058	0.774						
Low Edu	0.526	0.000					0.522	0.000				
Medium Edu			-0.441	0.007					-0.422	0.011		
High Edu					-0.370	0.087					-0.353	0.096
Democracy	-0.198	0.062	-0.131	0.295	-0.192	0.161	-0.215	0.039				
Weight young	83.804	0.001	77.148	0.008	91.014	0.026	79.136	0.001	77.011	0.007	81.172	0.040
Shareyoungasylum	1.169	0.965	-21.968	0.450	-8.130	0.729						
_cons	-25.179	0.246	34.672	0.084	-1.207	0.963	-12.097	0.378	14.332	0.039	-2.456	0.739
R-Square within	0.5308		0.3727		0.2825		0.5196		0.3287		0.2513	
R-Square between	0.0267		0.0251		0.1212		0.0007		0.0010		0.1005	
R-Square overall	0.0023		0.0027		0.0444		0.0044		0.0026		0.0248	
F	7.99	0.0000	3.27	0.0120	2.28	0.0582	17.80	0.0000	5.62	0.0091	3.18	0.0576
Rho	0.9566		0.9320		0.9213		0.9525		0.9198		0.9081	

2.5. Evaluating the effect of asylum seekers' inflows on social protection expenditures in destination countries

The migration literature has proven the relationship and influence between migration and social protection. The specific influence of forced migration seems to be undertreated, though. Some authors argued that the reasons for migration are essentially rooted in social protection purposes, such as prevention and protection from poverty and social exclusion which might occur in the country of origin (Sabates-Wheeler and Waite, 2003; Schüring et al., 2017). Borjas (1987) first observed that social benefits act as a pull factor for migration, whereas migrants prefer countries that offer generous social benefits. Also, Giulietti et al. (2011) considered that the unemployment benefits might be a stimulant to immigrate for non-EU citizens. In line with these findings, Schüring et al. (2017) proposed a conceptual framework on how migration and social protection interlink, noting that social protection is a key component for micro-level and meso-level factors in migration decision-making: "Social protection influences the income level of a household and thus has the potential to either prevent migration, as it replaces the gains that migration would have brought, or to facilitate migration by increasing income levels which can then be used to finance the migration journey" (pp. 71-72).

According to Eurostat¹⁹, the 2015 migration crisis doubled the number of asylum applications in 2015 compared to 2014. Also, a FRA report²⁰ on the integration of young refugees in the EU during and after the 2015 migration crisis showed that most asylum seekers were young: over 80% of the persons who arrived between 2015 and 2018 were under 34 years of age (FRA, 2019).

The relationship between migration and social protection has raised interest mainly through the Agenda 2030, related to sustainable development, for which specific goals have been set (Hagen-Zanker et al., 2017). Most of the concerns related to migrants, in general, and asylum seekers, in particular, usually refer to their integration into society (Shuba, 2019). The Covid-19 pandemic, with its labour market shortage effects, has deepened the existing problems on the integration of asylum seekers (UN, 2020; ILO, 2020). According to OECD²¹ (2017), for most countries, the cost of integrating migrants in vulnerable conditions is mostly supported by the sub-central governments. The main incurred expenses concerning the asylum seekers are related to social protection expenses (OECD, 2017).

This part of the report concerns the understudied relationship between the young migrants in vulnerable conditions, such as asylum seekers, and social protection expenditures.

2.5.1. Conception of models and variables' selection

We applied a panel data regression to interpret the impact of the time-varying number asylum applicants on social protection expenditures. We considered social protection expenditures as the explained factor. These expenditures capture, through their dimension and structure, the social benefits paid by national governments to reduce poverty and population vulnerability.

Many factors, including asylum applicants, may influence such expenditures (Bradby et al., 2017; Sabates-Wheeler, 2019).

According to Eurostat²², "expenditures on social protection contain social benefits, which consist of transfers, in cash or in-kind, to households and individuals to relieve them of the burden of a defined set of risks or needs; administration costs, which represent the costs charged to the scheme for its management and administration; other expenditure, which consists of miscellaneous expenditure by social protection schemes (payment of property income and other)".

¹⁹ See: <https://ec.europa.eu/eurostat/web/products-press-releases/-/3-04032016-AP>

²⁰ See: <https://fra.europa.eu/en/publication/2019/integration-young-refugees-eu-good-practices-and-challenges>

²¹ See: <https://www.oecd.org/els/mig/migration-policy-debates-13.pdf>

²² See: <https://ec.europa.eu/eurostat/web/products-datasets/-/tps00099>

The European System of Integrated Social Protection Statistics (ESSPROS)²³ has been developed to create a universal tool for observing the social protection system in the European Union. The social protection expenditures include – according to the ESSPROS classification (ESSPROS Manual, 2008²⁴, ESSPROS Manual, 2016²⁵) - two main categories of expenses: social insurance and social assistance, mainly related to unemployment, pensions, healthcare and poverty protection of the households. In general, ESSPROS does not include the expenditures with education. However, “ESSPROS records some expenditure connected with vocational training under the unemployment function” (ESSPROS Manual, 2016, p 206).

Across the European Union, the social protection systems differ from country to country. The EU's Mutual Information System on Social Protection (MISSOC)²⁶ provides detailed information related to national social protection systems, for all EU28 member states and EFTA²⁷, through guides in three different languages (English, German, and French). As there are specific differences between the social protection systems of European countries (Odink et al., 2016), each country has an explicitly dedicated guide. As a general rule, forcibly displaced persons have the same rights as the nationals, though some countries apply certain restrictions on free movement or labour market. For instance, Odink et al. (2016) analysed the social protection systems in eight member countries, and they observed that the differences usually corresponded to the standards of living in those states.

The most recent available year for social protection expenditures in Eurostat is 2017; for this reason, all the indicators were assessed for the 2010-2017 period. Also, due to the limited availability of the analysis indicators, Croatia was excluded from the panel.

Between 2010 and 2017, the evolution of social protection expenditures has an upward trend (Annex). It can be observed that in 2015 the expenses with social protection visibly increased, remaining, to a certain extent, constant in 2016 and 2017.

A regression model was employed using a set of panel data including numerous variables in terms of their impact on social expenditures, in order to study the relationship between social expenditures and the number of asylum applicants. For comparability reasons, the dependent variable selected was social protection expenditures per capita, while the number of young asylum applicants was again reported as share in total young population.

The selection of the covariates relied on the most recent existing evidence in the literature. Two indicators related to the income were employed: the GINI index, as a measurement of income inequalities, and the mean of an equivalent income, as a measurement of comparable wealth for households within a country. The prior results regarding the link between income and social protection are diverse: Bergh et al. (2017) argued that when income inequality is higher, social expenditures will be high as well, while Halaskova et al. (2020) found a negative and moderate significant relationship between income inequalities and social protection expenditures.

The unemployment rate was considered, as it directly influences the social protection expenditures since it determines the expenditures with unemployment benefits (Ding, 2014; Halaskova et al., 2020). We have also considered three indicators measuring poverty in the various specifications of the estimated models: people at risk of poverty or social exclusion, severe material deprivation and at risk of poverty rate. Numerous studies have analysed the link between poverty and the spending on social protection. Notten and Guio (2016) studied the impact of social expenditures on poverty and social

²³ See: <https://ec.europa.eu/eurostat/web/social-protection>

²⁴ See: The European System of integrated Social Protection Statistics <https://ec.europa.eu/eurostat/ramon/statmanuals/files/KS-RA-07-027-EN.pdf>

²⁵ See: <https://ec.europa.eu/eurostat/documents/3859598/7766647/KS-GQ-16-010-EN-N.pdf/3fe2216e-13b0-4ba1-b84f-a7d5b091235f>

²⁶ <https://ec.europa.eu/social/main.jsp?catId=815&langId=en>

²⁷ *European Free Trade Association*

exclusion in four EU countries: Germany, Greece, Poland and the United Kingdom. Their results showed that social transfers substantially reduce the average number of persons who are materially deprived. Also, Schüring et al. (2017) observed that “social protection is also vital for reducing relative deprivation at the meso-level by increasing basic living standards in fields such as health, housing, education and employment” (p. 73).

Life expectancy was used to observe the health status burden on social expenditures. Few studies (Linden and Ray, 2017; Reynolds and Avendano, 2018) focus on the relationship between life expectancy and social expenditures. Van den Heuvel and Olariu (2017) argued that social expenditures might determine an increase in life expectancy.

2.5.2. Results and discussions

Seven different panel data regression models with fixed effects were estimated to observe the asylum applicants' effect on social protection expenditures per capita. All estimated regression models are statistically significant with a p-value associated with the F test equal to 0.000.

An overview of the seven regression models (Table 6) shows that the effects of the concerning variables on social protection expenditures per capita are remarkably stable across the various specifications of the model and do not change over models.

Our primary focus is on the effect of the number of young asylum seekers per 100 young inhabitants. The results (Model 1-4 in Table 6) show that the number of asylum applicants positively influences social protection expenditures per capita: a 1% increase in asylum seekers would generate an increase of 1.3% in social protection expenditures per capita. If the total number of asylum seekers per 100 inhabitants increases (Models 5-7 in Table 6) by 1%, the social protection expenditures per capita will increase by 3.7%. The coefficient is statistically significant and stable across all the specifications of the models, indicating the existence of a small effect. Compared to the variable young asylum in young population per 100 inhabitants, the impact of all age groups is higher than for young people. This result can be confirmed by the fact that asylum seekers are most often faced with social exclusion and the risk of poverty (Stanciole and Huber, 2009), and social protection spending covers a wide range of social benefits, including unemployment, social exclusion and poverty. Moreover, Kancs and Lecca (2017) observed that the high number of forcibly displaced persons has a burden upon the social and fiscal system in EU member states in the short-run. Also, in line with these results, Fenwick (2019, p. 369) observed that the foreign-born population leads to increased social spending: “social welfare spending is positively and significantly associated with foreign-born and when social welfare spending (...)”. The 2015 migration crisis has raised interest in the analysis of the situation of asylum seekers in Europe. Ballegooij and Navarra (2018) mentioned an economic impact of 49 billion Euros annually, which partly effects on each member state at different levels.

As for the rest of the covariates in the models, most of these are statistically significant, confirming an adequate variable selection. The social protection expenditures per capita are positively associated with the unemployment rate, confirming that increasing unemployment generates an increase in social protection expenditures per capita. Similar findings were observed by Giulletti et al. (2011) and Halaskova and Benar (2020). Also, an increase by 5.7% in social protection expenditures per capita was associated with one year increase in life expectancy, in line with Reynolds and Avendano (2018) and Van den Heuvel and Olariu (2017), whose results showed that if the life expectancy increases, this also generates an increase in social protection expenditures. In the case of medium education level, we find a negative and low significant association. Between social expenditures and severe material deprivation, there is a negative association, in line with Caminada and Goudswaard (2012), Caminada et al. (2012) and Miežienė and Krutulienė (2019), who found that social expenditures and poverty are highly and negatively related.

In conclusion, the share of young asylum applicants has a positive significant effect on total expenditure for social protection (per capita). The effect is rather modest, as proved by a coefficient of 0.013. To confirm the results, similar, separate models were conducted considering the total number of asylum applicants per 100 inhabitants. The effect is still positive and statistically significant, and slightly larger (0.037), showing an increased pressure as the variable increased.

2.5.3. Research limitations

The macro-economic modelling conducted has several limitations, which are briefly described in the following lines:

- Macroeconomic statistical data is scarce and limited to measure the real impact of young migrants on the education systems and labor market, as they are aggregated at country level;
- In our models, we have used as a measure of youth migration the share of young asylum seekers in the total young population, for methodological and comparability reasons. The variable has its limits, as it may not encompass all the dimensions of the young immigrant population. The variable is less represented for countries that are not typical destinations for migration (generally Central and East European countries);
- No distinction is made in the estimated models between first and second generations of migrants (not possible considering the statistical indicators used); however, studies (Flisi, 2016) suggest that there is a difference in the educational assimilation of first and second generation migrants;
- The NEETs rate has an increased heterogeneity and studies suggest disaggregating demographic data (Elder, 2015). However, due to the statistical limits of the indicators used, this was not possible in our analysis;
- We did not have information on the detailed level of the social protection expenditures per capita by their target, so as to identify the specific share allotted to vulnerable young migrants. Even so, the results are in line with the existing evidence, showing a small impact of young asylum applicants on social protection expenditures.

The main results of this section are the following:

- ✚ There is no common system of social protection spending in the European Union.
- ✚ Most of the European states do not account for specific social protection expenditures related to the asylum seekers.
- ✚ Social protection expenditures (per capita) are influenced positively and relatively modest by the share of the overall number of asylum seekers.
- ✚ Similarly to the general group of asylum seekers, the share of young asylum seekers also has a positive but slightly lower impact on social protection expenditures (per capita).

Table 6. Robust estimations of the coefficients in regression models

	model 1		model 2		model 3		model 4		model 5		model 6		Model 7	
InSocialProtectionPerCapita	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t
Gini	-0.009	0.134	-0.009	0.137	-0.008	0.130	-0.007	0.139	-0.009	0.136	-0.009	0.139	-0.006	0.144
Unemployment	0.006	0.045	0.006	0.040	0.006	0.036	0.006	0.041	0.006	0.045	0.006	0.041	0.006	0.042
Ln_Income	0.251	0.123	0.251	0.120	0.253	0.118	0.260	0.111	0.250	0.125	0.250	0.121	0.258	0.113
Lowedu	-0.001	0.490	-0.001	0.484					-0.001	0.583	-0.001	0.579		
Mediumedu	-0.004	0.094	-0.004	0.095	-0.003	0.084	-0.003	0.085	-0.004	0.113	-0.004	0.114	-0.003	0.088
Socialexclusion	0.001	0.926							0.001	0.934				
SMD	-0.009	0.173	-0.009	0.025	-0.009	0.025	-0.009	0.024	-0.009	0.176	-0.009	0.025	-0.009	0.024
Poverty	0.005	0.416	0.006	0.316	0.004	0.440			0.005	0.406	0.006	0.311		
Life expectancy	0.052	0.001	0.052	0.001	0.056	0.001	0.057	0.001	0.052	0.001	0.052	0.001	0.057	0.001
Democracy	-0.003	0.442	-0.003	0.448					-0.003	0.442	-0.003	0.449		
Young asylum applicants	0.001	0.072	0.001	0.074	0.001	0.049	0.001	0.041						
Asylum applicants (Total)									0.004	0.037	0.004	0.038	0.004	0.017
_cons	2.765	0.018	2.777	0.020	2.175	0.004	2.020	0.005	2.751	0.018	2.761	0.021	2.057	0.004
R-Square within	0.735		0.735		0.732		0.730		0.736	0.736			0.731	
R-Square between	0.780		0.780		0.802		0.807		0.782	0.782			0.808	
R-Square overall	0.777		0.777		0.79.89		0.805		0.779	0.778			0.806	
F test	37.100	0.000	40.330	0.000	28.580	0.000	28.570	0.000	38.130	0.000	40.790	0.000	28.990	0.000
Rho	0.984		0.984		0.982		0.981		0.984	0.984			0.981	

3. Micro-data analysis of the unemployment propensity of the young TCNs: a counterfactual approach

Monica Roman, Smaranda Cimpoeru, Ioana Manafi and Elena Prada

The purpose of the analysis presented in Chapter 3 is to identify the effect of being an immigrant from a third country on the economic status of young migrants. It has the main purpose to complement the previous analysis and to provide more insights on the results in the previous chapter (Section 2.2); it was not foreseen in the initial plan or activities of D2.3, however we take the advantage of using the micro-database compiled in Task 2.2²⁸ to test the effect of migration on unemployment. Also, many of the relevant existing results in economic migration literature rely on micro-data analysis, as such data capture the individual characteristics of migrant and better explain the propensity for work.

We need to specify that unfortunately there is no perfect match between the data available at macro and micro level, regarding various young immigrants' groups. The macro data captures various vulnerable groups, such as asylum seekers, unaccompanied minors, stateless persons (D2.1), as such data originates from administrative sources. On the other hand, micro data is not generally tailored for collecting information on immigrants; migration status is derived from observing other characteristics such as "country of birth". Therefore, in this section we make use of such data for understanding the behaviour of individuals born in countries outside the EU, henceforth Third Countries Nationals. This approach is detailed in Chapters 3 and 4 of the D2.2. We are aware that asylum seekers are a more specific group compared to TCNs and the two approaches, resulted from macro and micro analysis, should be read as complementary. The added value of this section, as in the case of the rest of the report, relies in providing new insights on the economic behaviour of a specific group of young migrants (TCNs), which also completes the macro-data analysis.

3.1. Data and method

We use the European Social Survey data and pool data from all the nine survey rounds that were conducted every second year between 2002 and 2018. The dataset includes 20 countries, and the vast majority of them took part in all 9 survey rounds²⁹. For the purpose of this analysis and in line with MIMY project criteria in defining youth, we selected those respondents, aged between 15 and 30 years at the time of the survey.

Altogether the sample includes 61.160 respondents aged under 30 out of which 3.268 are TCN immigrants and the rest (57.892) are native or European mobile youth.

For analysing the effect of being a migrant on the labour market integration of youth we use a counterfactual approach which implies a comparison of the treated group (migrants from TCs) with the control group (European natives). The measured effects are related to unemployment status: the probability of being unemployed and actively or inactively seeking for work.

²⁸ The compiled database was prepared by Bencze Sagvari from the CEU, under the task T2.2.

²⁹ Austria (6), Belgium (9), Switzerland (9), Czechia (8), Germany (9), Denmark (7), Estonia (8), Spain (9), Finland (9), France (9), UK (9), Hungary (9), Ireland (9), Lithuania (5), Netherlands (9), Norway (9), Poland (9), Portugal (9), Sweden (9) and Slovenia (9). The number of survey rounds in the integrated dataset are in parentheses.

For a comparison as good as possible, the two groups should be as similar as possible in their observable characteristics. In this quasi-experimental approach, we do not have the possibility of a priori selecting similar individuals and, therefore, we follow the standard methodology and employ matching techniques, such as Propensity Score Matching (PSM).

PSM was first proposed by Rosenbaum and Rubin (1983) for the use of impact assessment and has the advantage of reducing the bias in the treatment effects estimation based on observational datasets. Recently, it has become increasingly popular in programme impact evaluation (Heinrich, Mueser, Troske, Jeon & Kahvecioglu, 2013), but also in social and economic research, including migration studies. For instance, Graham and Nikolova (2014) use this method for assessing the impact of being a migrant on the subjective well-being, while Roman and Popescu (2014) use the method for assessing the effect of training on migrants' income.

The method implies two stages. In the first stage, each individual's probability to be a migrant is estimated. These probabilities are the scores used in the second stage for matching the treated and non-treated individuals through various techniques. Finally, the impact of being a migrant is measured by comparing the performance of two groups after matching³⁰.

3.2. Results

The matching scores used in the PSM are the result of a probit model that firstly considers the following demographics: age, gender, residential area, marital status, living with children, and religion. We are aware that education impacts upon the decision to migrate as well as upon the labour market status. However, we decide to include it in the matching model, as it is also a relevant indicator for individuals' human capital. As the sample consists of young individuals, we consider that parents may still have influence on the economic status of the migrants, so we have also included the fathers' education as an observable counting for parental background. Also, countries where the interview took place were included as dummies, as they count for specific labour market characteristics.

Table A7 in the Annex presents the descriptive statistics, separately for the TCNs and natives. The TCNs are one year older than nationals (23 years vs. 22), live in rural area in smaller shares (17% vs. 34%), live with a partner in larger shares (32% vs. 25%) and also have children in larger shares (22% vs. 14%). Also, a quarter of the TCNs are Muslims, compared to only 1% of the natives. The education level in the two groups is remarkably similar (12 schooling years are reported in both cases), while TCNs' parents have lower education in a larger share: 22% compared to 8%. The country distribution of the young migrants confirms the preferred destinations identified in Section 2.1 of the report: Germany (11%), Great Britain (8%), Norway (7%), Sweden (9%), as well as Spain (9%).

Post matching, we compare the two samples, with similar young TCNs and nationals,³¹ and the results (Table 7³²) show that the average unemployment rate is not different in the two groups. The difference

³⁰ The basic idea of the method consists in building up two groups of individuals that are similar in observable characteristics, but with the difference that some are TCNs, while the rest are European residents. Once the propensity scores are determined, a matching algorithm is required in order to properly connect the treatment units with the non-treatment units according to their scores. There are several matching algorithms, of which the most widely used are the Nearest-Neighbour Matching (NN), the Radius Matching and the Kernel Matching. In this work, we have used NN in two versions: one-to-one neighbour matching and one-to-three neighbours matching.

³¹ The result of the Probit models are provided in the Annex, showing that the model has a good explanatory power, it is statistically significant overall and also most of the covariates are statistically significant.

³² The differences between the treated and control groups regarding the average treatment on the treated (ATT) are significantly lower compared to the unmatched differences, confirming the efficiency of the matching procedure and not significant.

between the young TCNs and the rest of the young population is not statistically significant for the case of the individuals aged 15-29.

The result was tested for people unemployed and actively looking for work (Unempl_a) and for those unemployed but not actively looking for work (Unempl_i). Therefore, we cannot claim that an effect of being a migrant from a third country exists on the unemployment status for young individuals, even if there is a minor difference in the probability of being unemployed between the two groups. For this particular age group, being unemployed is not affected by the country of origin, as both young nationals and migrants from TCs face difficulties in entering the labour market.

The unemployment rate may be affected by other individual and macroeconomic factors; however, being a migrant seems not to play a significant role for this particular age group.

Table 7. Results from counterfactual analysis

Effect Variable	Sample	TCNs	Nationals	Difference	Standard error	T-stat
Unempl_a	Unmatched	8.51%	6.02%	2.49%	0.005053	4.92
	Matched N(1)	8.47%	7.81%	0.66%	0.007696	0.86
	Matched N(3)	8.47%	8.00%	0.48%	0.007127	0.67
Unempl_i	Unmatched	3.20%	2.33%	0.87%	0.003204	2.72
	Matched N(1)	3.22%	2.37%	0.85%	0.004778	1.79
	Matched N(3)	3.22%	2.53%	0.69%	0.00445	1.54

The important conclusion of this counter-factual analysis is similar to the factual one and indirectly confirms the results presented in the Section 2.2 of this report. As there is no difference in unemployment probability between natives and young TCNs, it is expected that the youth unemployment rate is not influenced by the share of the asylum seekers.

This may support the development of policy measures targeting the problematic issue of youth unemployment in European countries. It would be crucial to understand the mechanisms that mobilize young migrants to work, especially in the context of being in vulnerable conditions (Chapter 4, D2.2). Targeted policies for reducing youth unemployment are needed and they seem to be effective (ILO, 2020); our conclusion suggests a development of integrated policies for both young natives and migrants for effectively tackling youth unemployment in Europe.

Main findings:

- ✚ The difference in the probability of being unemployed between the young TCNs and the rest of the young population is not statistically significant for the case of the young individuals.
- ✚ We cannot claim that being a migrant from a third country has an effect on the unemployment status for young individuals.
- ✚ Our results suggests a need for developing integrated policies for both young natives and migrants for effectively tackling the problem of youth unemployment in Europe.

4. Concluding remarks

Monica Roman and Vera Messing

The aim of this report was to explore what potential impact asylum seeking youth presence and size may have on major economic and societal subsystems, such as the labour market, the education and the social welfare of receiving countries. The purpose was to enable the consortium, as well as policymakers, academia or the general stakeholders to better understand the complexities of such possible impact. The analysis presented in this report used macro-econometric and statistical instruments with the aim of presenting a macro perspective on the potential effect of asylum-seeking youth at the EU and national level. The results from macro econometric analysis are complemented by a micro econometric analysis on the effects on unemployment status of being a migrant from a third country, as microdata on asylum seekers are not available at EU level.

The first section of Chapter 2 used the well-known migration model developed by Van Hear et al. (2012) and offered a categorization of European countries by employing cluster analysis along the most important macro-economic and societal factors (acting as predisposing, precipitating, mediating factors). The result of the analysis grouped European countries into four clusters: (1) economically well performing countries including northern continental, Nordic countries and the UK, which offer the most attractive conditions for immigrants and asylum seeking youth in Europe; (2) countries with medium economic wealth, social inequalities and business freedom, which are seen as emerging destination countries. This category includes countries of the former Communist Bloc (Poland, the Baltic countries, Czechia, Slovenia), as well as Mediterranean countries such as Italy, Portugal and Spain; (3) economically and/or politically less attractive countries such as Bulgaria, Greece, Croatia, Hungary, Romania and Slovakia; (4) Ireland, which is an outlier. Qualitative factors such as legal and policy measures were not included, which may explain why the group of ‘emerging destination countries’ includes traditionally large recipients of asylum seekers and TCN immigrants (such as Italy, Spain, the Baltic countries), as well as North-Eastern European countries, where the presence of asylum seeking youth is minor and only a recent phenomenon. In the second part of Chapter 2, the impact of the presence and size of asylum-seeking youth on domestic macro-systems of the host country was studied: the economy, the labour market (2.3), education (2.4) and social welfare systems (2.5). The analysis applied macro-level modelling via panel data regression. Our results support this conclusion: *no impact of asylum-seeking youth on youth unemployment and education system performance was identified.*

When considering the social protection expenditures, the macro modelling results confirm a positive and statistical significant association between the share of asylum seekers and the level of social protection expenditures. The effect is rather small: an increase of 1% of the share of young asylum seekers in total young population will lead to an increase of 1.3% in the social protection expenditures per capita. The result confirms the financial efforts made by member states for supporting the integration and social protection of asylum seekers through active policies.

We cannot claim that a considerable number of asylum-seeking youth would leave local systems of education or the labour market unaffected, but only that on a macro- societal – level with available macro-level indicators, such impact is not detected. We are aware that the methodological approach our analysis takes has got several limitations (mentioned in the Introduction and presented in Section 2.5.3), as statistical macro-data are oversimplifying the reality and do not capture all the potential dimensions and factors related to the asylum seekers. On the other hand, the strengths of the statistical analysis rely on identifying systematic effects, on using standardized methods, validated through various complementary tests, and also on using the same measures, comparable across time and spatial dimensions, for assessing the effects. We make use of all of these advantages in the current report. Moreover, some of our conclusions were supported by the results of a micro-data analysis included in Chapter 3.

This third part of the analysis differed from the first two in that it used individual-level time series data offered by the European Social Survey on young people born outside the EU. The analysis applied a quasi-experimental analytical approach (Propensity Score Matching) and investigated how similar TCN youth and non-immigrant performed on the labour market. The most important conclusion of this analysis was that there are no significant differences between the two groups in the probability of being unemployed, conforming that in the case of the young individuals, being a migrant from outside the EU has no impact on the unemployment status.

Our results lead to several *highlights* that could be useful for stakeholders and policymakers, namely:

- The lack of effect of the share of asylum seekers on labour market and education systems suggests that fearing a pressure on economies and societies that might arise due to refugees (as reported in the public discourse) is not backed up by scientific Evidence. The public media discourse should be adjusted so as to rely on evidence rather than on prejudices and stereotypes;
- The social protection expenditures are slightly affected by the share of asylum seekers in young population, reflecting the efforts made for implementing the social protection and integration policies, mostly in the European countries receiving high numbers of migrants. Such integration policies needs to be further sustained, as the inflow of refugees may respond to labour force shortages in many countries.
- The economic integration through labour market participation is crucial, for both TCNs and young natives. The two groups of young individuals, natives and TCNs, have similar propensity to being unemployed, even if they have different sorts of vulnerabilities, and, additionally, TCNs are vulnerable on multiple dimensions compared to natives (D2.2). This leads us to suggest a development of integrated active labour market policies for tackling the issue of youth unemployment in European countries.

In order to find the impact of asylum-seeking youth on local societies, the research will be further developed by considering smaller geographical units (local areas), where asylum-seeking youth actually reside and where they benefit from local services in larger numbers. This is conducted in WP5 and WP6 of the MIMY project and could lead to complementary, detailed and focused results.

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6. Statistical appendix

6.1. Indicators used in the macro-economic analysis

The explanatory variables used in the statistical analysis in Chapter 2 are presented in the following table.

Table 1. Description of the indicators used in the macro-economic analysis

Indicator	Abbrev.	Description
GDP per capita	GDP	Gross domestic product (GDP) is a measure for the economic activity. It is defined as the value of all goods and services produced less the value of any goods or services used in their creation.
Gini coefficient	Gini	Gini coefficient represents the measurement of income inequalities within a nation and is based on levels of disposable income of a household. The disposable household income includes various income sources (such as income from salaries, investments and properties, transfer between households and social transfers) received by all household members plus the income received at the household level. The Gini coefficient value has a range between 0 and 100, where 0 shows that there is perfect equality, and 100 shows the perfect inequality.
Inflation rate	HICPs	Harmonised Indices of Consumer Prices (HICPs) are designed for international comparisons of consumer price inflation.
Healthy life years	Heal_years	The indicator represents the number of years a person is expected to live healthy conditions.
Corruption index	Corruption	The indicator is a composite index based on a combination of surveys and assessments of corruption from 13 different sources and scores and ranks countries based on how corrupt a country's public sector is perceived to be, with a score of 0 representing a very high level of corruption and a score of 100 representing a very clean country.
Business freedom	Buss freedom	Business freedom is an overall indicator of the efficiency of government regulation of business. The quantitative score is derived from an array of measurements of the difficulty of starting, operating, and closing a business.
Youth unemployment rate	Youth unempl	The youth unemployment ratio is the percentage of unemployed young people (i.e. people aged 15-24) in the total active population of this age group.
Unemployment rate	Unemployment	The unemployment rate represents the ratio between the unemployed and the labour force.
Mean equivalised net income	Ln_income	Mean equivalised net income represents the total income of households available for spending and saving. This indicator is expressed as PPS and computed for nationals' age 18 - 64 years.

Indicator	Abbrev.	Description
		The log transformation was applied to normalize the mean equivalised net income.
Low and medium education level for populations aged 15-24.	Lowedu and Mediu <u>edu</u>	Low and medium education level for populations aged 15-24 these variables are calculated as the ratio between the persons with a specific education level and the country's total population.
People at risk of poverty or social exclusion	social exclusion	People at risk of poverty or social exclusion (share of total population) includes all persons who at one time have been affected by one of the following conditions: <ul style="list-style-type: none"> - Their equivalised disposable income is below 60% of the national median equivalised disposable income; - They experienced at least four out of nine of the following items related to material deprivation: they cannot pay their rent; cannot keep their home adequately warm; cannot cope with unexpected expenses; cannot eat fish, meat, or protein equivalent every second day; cannot afford a week to go on holiday away from home, cannot afford a car, cannot afford a washing machine, cannot afford a colour TV, cannot afford a telephone; - People aged 0-59 live in households where working-age adults aged 18 to 59 work at much lower working capacity than their potential.
Severe material deprivation	SMD	Severe material deprivation is defined as the share of people who have the enforced lack to afford at least four of the severe material deprivation items mentioned above for the indicator people at risk of poverty.
At risk of poverty rate	Poverty	At risk of poverty rate is defined as the share of people who work, and their given income is below 60% of national median equivalised disposable income.
Life expectancy at birth	Lifeexpecta <u>ncy</u>	Life expectancy at birth reflects the mortality pattern and hypothetical measures how long, on average, a new-born is supposed to live, given the unchanged mortality rate.
Democracy Index	Democracy	The Democracy Index is an index computed based on five large categories: electoral process and pluralism; civil liberties; the functioning of government; political participation; and political culture. These categories together contain 60 indicators based on which scores each country is classified into one of the following four types of regime: full democracy; flawed democracy; hybrid regime; and authoritarian regime.

Source: D2.1, based on Eurostat Metadata

A more detailed description of the metadata for the above listed indicators may be found in D2.1, while D2.2 depicts the trends for the most relevant variables in a comprehensive manner.

The research methods employed were cluster analysis, performed in a first stage of the analysis for descriptive purpose, and panel data regression modelling, as the main research method. Both are briefly introduced below.

6.2. Cluster analysis

A cluster analysis of the EU-29 Countries and Norway into four distinct clusters using the factors that are influencing migration process. The main aim of this analysis has been to provide a systemic mapping and classification of the considered countries with respect to the predisposing, proximate, precipitating, and mediating factors for the host countries (Van Hear, Bakewell and Long, 2012). Therefore, we assess the attractiveness of each cluster for immigrants from third countries.

The cluster analysis is a data classification methodology used to divide objects (in our case EU-29 countries plus Norway) into several groups, called clusters, by using a set of clustering variables. Cluster analysis is one of the highest-level descriptive model of grouping countries (Gunderson, Pinto, and Williams 2008). The purpose of cluster analysis is to segregate groups such that objects included in the same group are more similar to those in the same group (therefore are homogenous) than to those in other groups, even if objects (countries in our case) assigned to a group do not necessarily have all the same attributes. Clusters are created using variables that are either active or illustrative input variables. The active variables are often (but not always) numeric variables, while the illustrative variables are used for understanding the characteristics on which the clusters are based and, hence, for their interpretation'. (Mihailović, D., 2019, p.2). In the literature there are developed several techniques for clustering, such as hierarchical methods and non-hierarchical methods, including K-means clustering, density based, grid based, and others (Gulagiz, Sahin, 2017). In our analysis we employed non-hierarchical methods, namely K-means clustering, as these partitioning techniques is more flexible and permits objects to change group membership through the cluster formation process. This method consists of four steps: determination of centers, assigning points to clusters which are outside of the centers according to distance between centers and points, calculation of new centers and repeating the previous steps until obtaining final clusters. With K-means partitioning method we try to minimize the sum of the within-cluster variances. The limit of this method is that the number of the clusters should be chosen at the beginning of the analysis and therefore the starting partition affects the results. Therefore, we have tested different number of clusters, selecting the results with the best (minimum) variances inside the clusters. The results of cluster analysis provide a descriptive perspective of the European countries, contributing to a better understanding of the attractiveness of various groups of countries

6.3. Panel data regression

Panel data regressions were employed as the main quantitative method, used for explaining the effects of the number of asylum seekers. As the available data has the structure of a panel, with countries as individual units, using this method was the natural choice.

Panel data has various benefits when it comes to data series analysis. The most important benefit comes from observing the changes in the entities behaviour over time. Greene (2002) describes the classical panel data model as the following linear equation:

$$y_{j,t} = \alpha_{0j} + \sum_{i=1}^k x_{ij,t} \cdot \beta_{i,j} + \vartheta_{j,t} \quad (1)$$

Where:

y_{jt} represents the dependent variable for country j (with $j = 1, \dots, N$) and year t (with $t = 1, \dots, T$);

x_{ijt} represents the independent variable i (with $i = 1, \dots, k$) for country j and year t (with $t = 1, \dots, T$);

α_0 represents the intercept which is common for all j countries;

ϑ_{jt} represents the error term which is comprised of α_j $\vartheta_{j,t} = \alpha_j + \varepsilon_{jt}$; the error term is independently and identically distributed with mean zero and continuous variation.

The interpretation is straightforward: for a unit change in the contextual factor, the estimated coefficient shows the percentage point change in dependent variable. Four different kinds of model specifications are employed to test the robustness of results.

- Pooled Ordinary Least Squares (OLS): This model uses the variation in dependent variable across countries and across time and applies standard linear regression techniques to detect associations between the contextual factors and the dependent variable. Panel robust standard errors are calculated in order to account for repeated yearly observations of countries. However, results from pooled OLS might be biased because countries differ in various unobserved aspects that induce a spurious correlation between observed contextual factors and dependent variable. Hence, panel data methods that try to avoid this kind of bias were also applied.
- Random effects model: This panel data model assumes that unobserved country characteristics that induce such biases can be summarised in a time-constant country effect that follows a normal distribution. However, the random effects model rests on the strong assumption that the unobserved country characteristics are uncorrelated with the specific observed contextual factors that are analysed.
- Fixed effects model: This panel data model removes unobserved time-constant country characteristics by analysing variations across time in the contextual factors and the dependent variable within each country separately. However, results may still be biased if unobserved country characteristics change over time.

To decide the most appropriate model, we applied the standard Hausman test for fixed versus random effects test. This report include a number of fixed-effects models with robust standard errors, to control for homoscedasticity (Hoechle, 2008). An important aspect when analyzing migration, and vulnerable migration, in particular, is the endogeneity of this phenomenon. Endogeneity may emerge due to reversed causality between the model's factors and the dependent variables (Giulietti et al., 2011; Winter et al., 2018). Most authors suggest the estimation of dynamic or system generalized method of moments to control the endogeneity that may occur within the observed variables (Teixeira & Queirós, 2016). The dependent variable's lag may also address the endogeneity problem (Barros et al., 2020). Since our data set contained a short time series, we could not use the mentioned approached. The System generalized method of moments (Dynamic GMM), known as Arellano–Bover/Blundell–Bond linear dynamic panel-data estimation, was therefore applied to control the endogeneity that may occur within the explanatory variables (Napolitano & Bonasia, 2010; Ullah, Akhtar and Zaefarian, 2018; Ahmad and Khan, 2019). This estimation is designed for datasets with small number of time observations (StataCorp, 2015; Roodman, 2009).

7. Annexes

Country	Asylum 18-34 years, 2010	Share young asylum in young population, 2010	Asylum 18-34 years, 2016	Share young asylum in young population , 2016	Asylum 18-34 years, 2019	Share young asylum in young population , 2019
Belgium	12660	0.62%	8390.0	0.39%	13470	0.63%
Bulgaria	620	0.04%	10865.0	0.81%	1195	0.10%
Czechia	345	0.01%	650.0	0.03%	815	0.04%
Denmark	2690	0.27%	2695.0	0.25%	1130	0.10%
Germany	22740	0.16%	350875.0	2.32%	56800	0.37%
Estonia	20	0.01%	80.0	0.03%	35	0.01%
Ireland	1030	0.09%	1115.0	0.12%	2380	0.26%
Greece	7950	0.34%	21910.0	1.18%	38545	2.23%
Spain	1665	0.02%	8220.0	0.10%	59140	0.78%
France	28495	0.24%	48055.0	0.41%	69565	0.60%
Italy	6450	0.06%	98875.0	1.01%	26770	0.28%
Cyprus	1905	0.96%	1695.0	0.83%	9230	4.37%
Latvia	35	0.01%	165.0	0.04%	90	0.03%
Lithuania	270	0.04%	145.0	0.03%	190	0.04%
Luxembourg	405	0.40%	1095.0	0.90%	1035	0.78%
Hungary	1340	0.06%	17200.0	0.93%	155	0.01%
Malta	240	0.27%	1070.0	1.06%	3190	2.71%
Netherlands	6725	0.22%	10605.0	0.34%	13420	0.41%
Austria	5110	0.32%	18815.0	1.08%	4420	0.25%
Poland	2450	0.03%	3920.0	0.05%	1345	0.02%
Portugal	95	0.00%	800.0	0.05%	1080	0.06%
Romania	605	0.01%	1010.0	0.03%	1650	0.05%
Slovenia	125	0.03%	700.0	0.19%	2575	0.73%
Slovakia	370	0.03%	75.0	0.01%	150	0.01%
Finland	1765	0.18%	2785.0	0.27%	2250	0.22%
Sweden	14735	0.84%	11075.0	0.57%	10095	0.50%
United Kingdom	12695	0.10%	19815.0	0.15%	21590	0.16%
Norway	5380	0.58%	1615.0	0.15%	1050	0.10%

Table A.
The level and share of the

young asylum seekers, 2010, 2016 and 2019.

Table A1. Cluster analysis. Correlation matrix for the factors, 2015

	GDP per capita in PPS	Gini	Inflation Rate	Corruption Index	In at Work poverty rate	Youth unemploy rate	Severe material deprivation	Healthy life years at birth	Business Freedom
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GDP per capita in PPS	1								
Gini	-0,42	1							
Inflation Rate	0,42	-0,48	1						
Corruption Index	0,70	-0,49	0,52	1					
In at Work poverty rate	-0,20	0,69	-0,34	-0,42	1				
Youth unemployment rate	-0,12	0,18	-0,36	-0,12	0,15	1			
Severe material deprivation	-0,59	0,64	-0,55	-0,79	0,41	0,03	1		
Healthy life years at birth	0,35	-0,22	0,37	0,26	-0,12	0,02	-0,17	1	
Business Freedom	0,29	-0,15	0,28	0,71	-0,23	-0,07	-0,45	0,03	1

Table A2. Cluster analysis. Correlation matrix for the factors, 2018.

	GDP per capita in PPS	Gini	Inflation Rate	Corruption Index	In at Work poverty rate	Youth unemployment rate	Severe material deprivation	Healthy life years at birth	Business Freedom
GDP per capita in PPS	1								
Gini	-0,15	1							
Inflation Rate	-0,19	0,17	1						
Corruption Index	0,67	-0,31	-0,13	1					
In at Work poverty rate	-0,03	0,68	0,27	-0,29	1				
Youth unemployment rate	0,009	0,06	-0,43	0,10	0,13	1			
Severe material deprivation	-0,57	0,61	0,20	-0,75	0,41	-0,03	1		
Healthy life years at birth	-0,18	0,07	-0,02	0,04	0,03	0,15	0,04	1	
Business Freedom	0,35	-0,21	-0,21	0,82	-0,33	0,15	-0,47	0,19	1

Table A3. Youth unemployment rate (%) and Total unemployment rate (%) for Consortium Countries and EU28 level, 2018.

Country	Youth unemployment rate (%)	Total unemployment rate (%)
Germany	6.2	3.4

Norway	9.7	3.8
Hungary	10.2	3.7
United Kingdom	11.3	4
Poland	11.7	3.9
Luxembourg	14.2	5.6
EU28	15.2	6.8
Romania	16.2	4.2
Sweden	17.4	6.4
Italy	32.2	10.6

Figure A1 – Unemployment and youth unemployment rates at EU28 level, for the period 2010 – 2019.

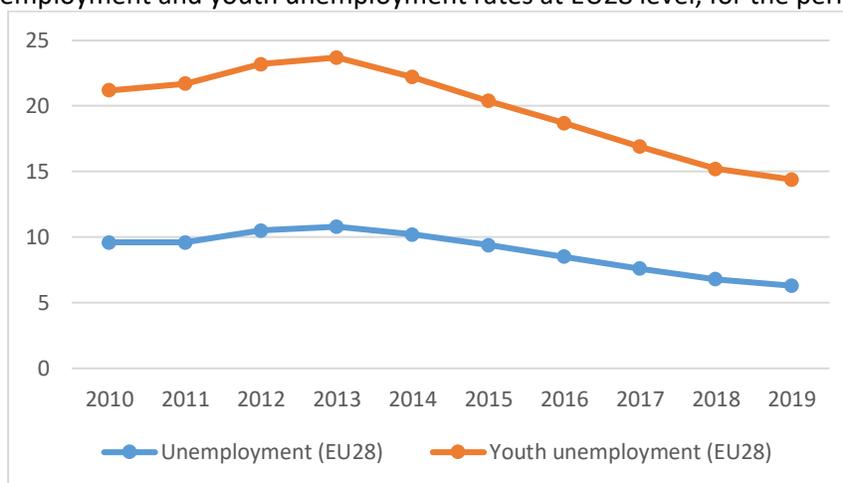


Figure A2 – Youth unemployment rate (%) in 2018 for Hungary, Italy, Norway, Poland, UK

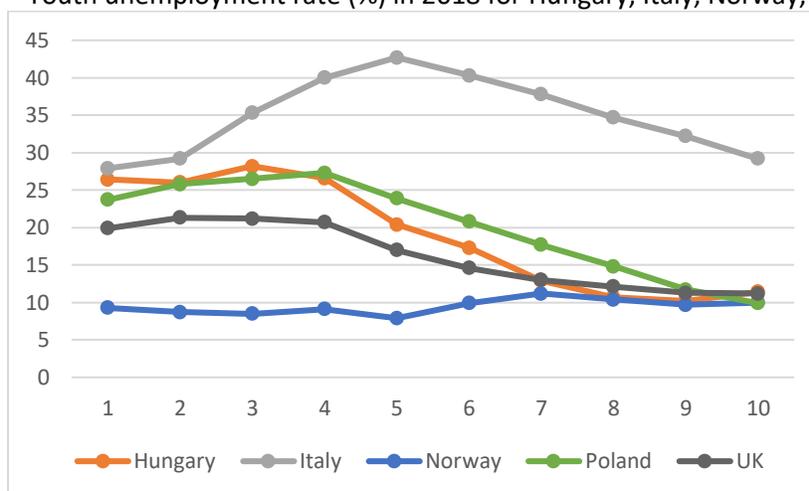


Table A4 – NEET rate in 2018 for Consortium Countries and EU28 level

Country	NEET rate (2018) - %
Norway	6.5
Sweden	6.9
Luxembourg	7.5

Germany	7.9
United Kingdom	11.7
Poland	12.1
EU28	12.9
Hungary	12.9
Romania	17
Italy	23.4

Table A5. Early leavers ratio in Europe and in Consortium Countries and EU28 level

Country	Early leavers ratio (%) – 2018
Poland	4.8
Luxembourg	6.3
Sweden	7.5
Norway	9.9
Germany	10.3
EU28	10.5
United Kingdom	10.7
Hungary	12.5
Italy	14.5
Romania	16.4

Figure A3– Early leaving ratio evolution in 2010 – 2019, at EU28 level, Italy, Romania and Norway

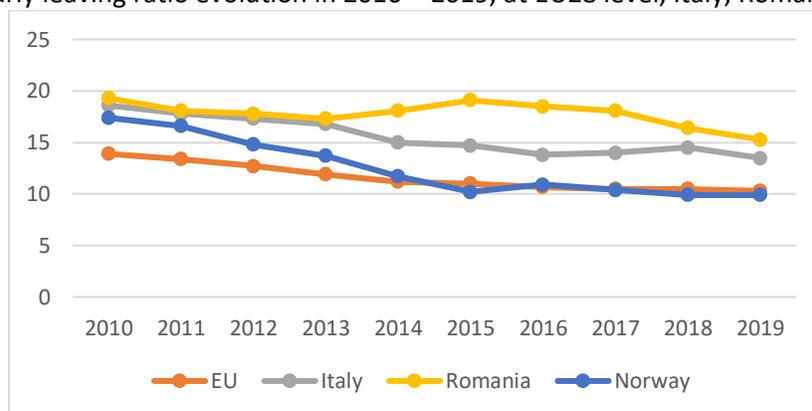


Figure A4. Social protection expenditures in Europe

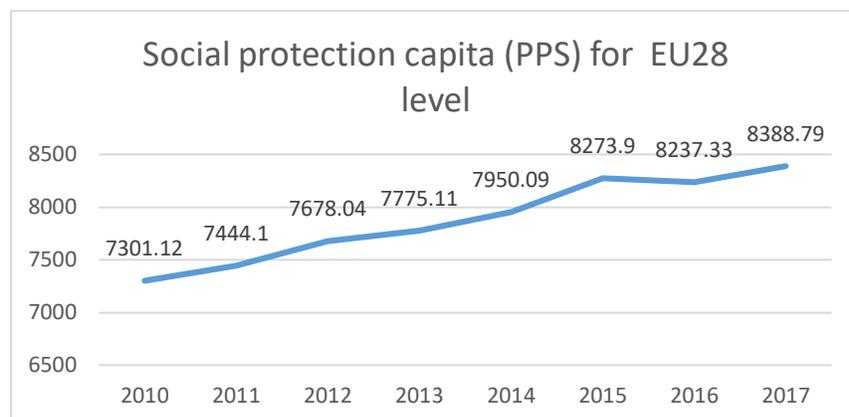


Table A6. Social protection expenditures per capita in 2018 for Consortium Countries and EU28 level

Country	Social protection per capita (PPS - 2018)
Germany	11262.73
Italy	8207.27
Luxembourg	14900.74
Hungary	3964.56
Poland	4661.55
Romania	2869.32
Sweden	10219.38
United Kingdom	7991.71
Norway	12105.31
EU 28	8388.79

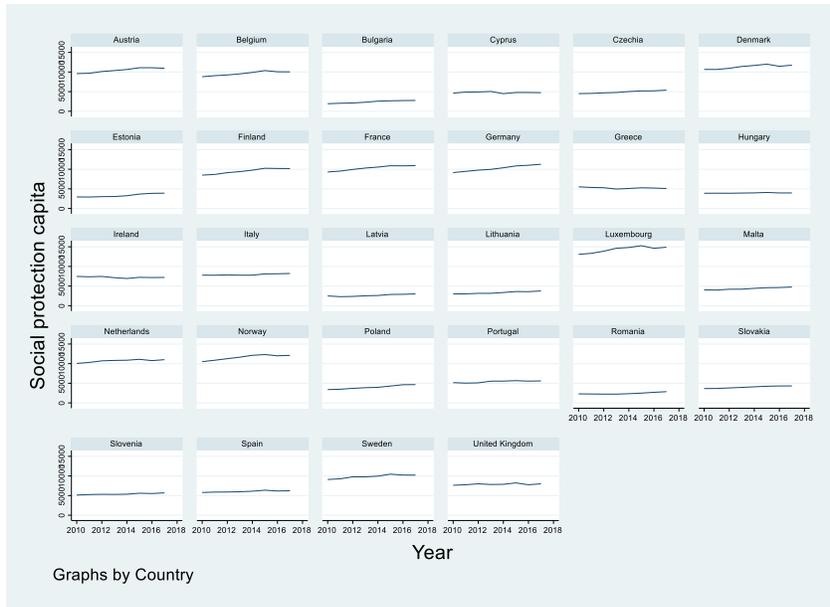
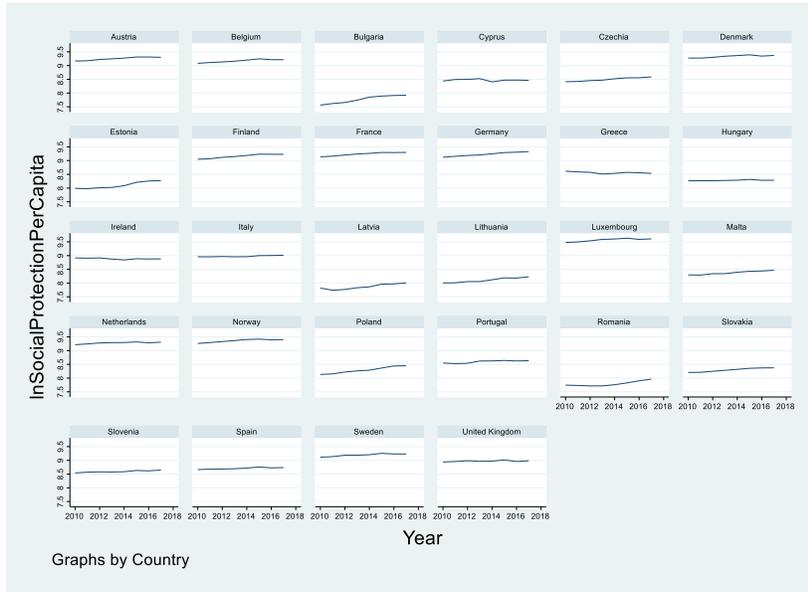


Figure A4. Social protection expenditures by country

Table A7. Descriptive statistics for counterfactual analysis

Variable	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
	CONTROL GROUP					TREATED GROUP				
age	57,892	22.31288	4.222377	14	29	3,268	23.31212	4.066242	15	29
gnder	57,878	1.504423	0.499985	1	2	3,268	1.5153	0.499842	1	2
rural	57,794	0.346801	0.475956	0	1	3,258	0.178944	0.383364	0	1
child	52,501	0.142988	0.350064	0	1	2,873	0.222068	0.415709	0	1
partner	52,379	0.25241	0.4344	0	1	2,868	0.328103	0.469605	0	1
muslim	57,892	0.016704	0.128159	0	1	3,268	0.25765	0.437407	0	1
edu years	57,441	12.84387	3.046004	0	27	3,215	12.56921	3.678862	0	26
par_edu_low	47,035	0.089508	0.285478	0	1	2,407	0.225177	0.417785	0	1
BE	57,892	0.059058	0.235736	0	1	3,268	0.064566	0.245795	0	1
CH	57,892	0.043564	0.204124	0	1	3,268	0.089963	0.286173	0	1
CZ	57,892	0.054394	0.226796	0	1	3,268	0.00765	0.087142	0	1
DE	57,892	0.077092	0.266739	0	1	3,268	0.113831	0.317655	0	1
DK	57,892	0.032941	0.178483	0	1	3,268	0.028764	0.167168	0	1
EE	57,892	0.051993	0.222016	0	1	3,268	0.028152	0.165432	0	1
ES	57,892	0.053462	0.224954	0	1	3,268	0.092411	0.28965	0	1
FI	57,892	0.059611	0.236767	0	1	3,268	0.037944	0.191089	0	1
FR	57,892	0.044376	0.20593	0	1	3,268	0.05049	0.218987	0	1
GB	57,892	0.048176	0.21414	0	1	3,268	0.086903	0.281736	0	1
HU	57,892	0.048228	0.214249	0	1	3,268	0.004284	0.065322	0	1
IE	57,892	0.058782	0.235218	0	1	3,268	0.063342	0.243613	0	1
LT	57,892	0.02819	0.165518	0	1	3,268	0.001836	0.042816	0	1
NL	57,892	0.041146	0.198629	0	1	3,268	0.046818	0.211128	0	1
NO	57,892	0.049351	0.216601	0	1	3,268	0.069461	0.254276	0	1
PL	57,892	0.071167	0.257106	0	1	3,268	0.002142	0.046239	0	1
PT	57,892	0.040437	0.196984	0	1	3,268	0.060588	0.238609	0	1
SE	57,892	0.050335	0.218637	0	1	3,268	0.090881	0.287484	0	1
SI	57,892	0.045257	0.207868	0	1	3,268	0.024786	0.155496	0	1

Table A8. Descriptive statistics for effect variables

	CONTROL GROUP					TREATED GROUP				
Variable	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
uempli	57,892	0.024822	0.155584	0	1	3,268	0.033048	0.178789	0	1
uempla	57,892	0.061304	0.239889	0	1	3,268	0.087209	0.282185	0	1