SIRIUS

Skills and Integration of Migrants, Refugees and Asylum Applicants in European Labour Markets

Labour Market Barriers and Enablers

Comparative report on the position of post-2014 migrants, refugees and asylum seekers in the labour market

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Athena Belegri-Roboli, Panayotis G.Michaelides, Konstantinos N. Konstantakis, Maria Markaki, Theocharis Marinos – National Technical University of Athens

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Any enquiries regarding this publication should be sent to us at: stelioss@central.ntua.gr

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Executive Summary

The main aim of this report is to conduct a comparative statistical analysis of the SIRIUS database (Deliverable 1.1.) - in order to determine: i) the position of post-2014 migrants, refugees and asylum seekers (MRAs) in the labour market of their host country and ii) the main features of the host countries' labour markets focusing on the sectoral structure and the relevant skills and occupations. In this context, the particular goals of the report are the investigation of: (a) the MRAs flows for the SIRIUS countries and the MRAs' integration opportunities into the corresponding labour markets; (b) the SIRIUS countries labour markets' sectoral and occupational specialisation, and (c) the labour market determinants.

To this end, the MRAs position and the labour market's analysis is conducted at the country level, followed by a comparative report. Probabilistic Panel Data models have been employed to econometrically investigate how the flows of MRAs affect their employment opportunities in the labour market. Furthermore, Dynamic Panel Data analysis has been undertaken to investigate the determinants of labour market dynamics for each economy.

The analyses of labour markets and economic infrastructure in the selected eight countries in the SIRIUS project highlight the relevance of three main factors that should be considered when developing strategies for the labour market integration of migrants, refugees, and asylum seekers. Firstly, there is the unevenness of types of economies and labour markets among European countries, secondly they host MRAs with different educational attainments and capacities, and, thirdly the asymmetric effect of the 2008 global financial crisis and its consequences for each of the eight countries that are the focus of our research.

Concerning the first aspect, SIRIUS countries reflect the diversity of economic traditions and labour market structures typical of Europe: while all European economies converge towards the tertiarisation of their economies, they do so at different paces. In other words, some countries are clearly more in tune with the 'knowledge and innovation based' economy-society preconized by the EU post-Lisbon strategy and its revisions inspiring the "Industry 4.0" society, while others remain in a transitionary phase in which they display elements of tertiarisation, whilst retaining strong connotations of earlier economic models.

In fact, the analyses we have undertaken in the SIRIUS project reveals that the total employment in the tertiary sector (G-U) equates to 71.7% in the EU28. The corresponding figure in the Czech Republic (58.6%) is significantly lower than the EU28, closer to the EU28 average in Italy, Greece and Finland (69.6%, 72.8% and 74.2%, respectively) and higher than the EU28 average in Switzerland, Denmark and the United Kingdom (74.2%, 76.1% and 80.5%, respectively). Moreover, our analysis shows that R&D investments have a positive effect on sectoral labour in the economies of Czech Republic, Finland and UK, in the sense that R&D activities create employment opportunities in the labour market (Dawid et al., 2017). But sectoral labour in Italy decreases as R&D increases, a fact that could be attributed to the replacement of labour by innovative schemes such as patents, new production plans and machinery, etc.

Such a different 'degree' of tertiarisation and potential for innovation mean that our countries demand, and perhaps attract, foreign workers with different educational attainments and skills, our second main finding. In fact, when we consider the level of education of migrants, refugees and asylum seekers across the SIRIUS countries we see that those with higher levels of education tend to be concentrated in the most tertiarized economies. For example, while in the UK eight out of ten migrants have reached a post-secondary education or tertiary education level, in Italy the figure is

only five in ten. Given the role that education has proved to play for our countries' economic and employment growth (we show in this report that education is the stronger predictor of economic development) such a higher educated MRA workforce potential contributes for our European most-advanced economies to remain such. While countries that lag behind should consider how to develop a more education-based economy, how to enhance the level of education for their nationals, and how to attract further educated MRAs.

Our results show also that the educational attainment is the strongest predictor of employment for migrants, refugees, and asylum seekers across all economies. Therefore, even in poorly tertiarised countries the more a migrant, refugee or asylum seeker is educated, the prospects of him or her being employed increase. This, therefore, suggests that a higher level of education provides MRAs with competences and skills that allow them to integrate into any type of economic context: having been educated at an advanced level facilitates their learning of a new language, eases their capacity to read and interpret the social and economic environment, as well as to use IT instruments to gain information about jobs, but also to join useful networks, etc.

The diversification of European economies in terms of their degree of post-modernization or tertiarisation is reflected also by the gender gap that characterizes most of the SIRIUS countries. Apart from a few exceptions (namely Denmark and Finland) the labour markets of the SIRIUS countries remain dominated by the male breadwinner model: this means that MRA women face a far more challenging environment than men when searching for an occupation (gender inequality in terms of access to the labour market is stronger in Greece, Italy and the Czech Republic, therefore in these countries integration policies should be further targeted to MRA women). Another important fact here is that as regards the labour characteristics of foreign nationals, females aged 20-29 and with educational attainment levels 0-2 clearly lag behind, both in terms of activity and employment rates, males aged 35-39 and with educational attainment levels 5-8.

However, such a gender gap is mitigated by higher levels of education, hence, MRA women should be supported by policies that on one hand facilitate educational attainment recognition, and on the other hand, promote more opportunities in higher education for women in the national education systems of the SIRIUS countries.

Concerning the third main factor that was captured by our analyses, that is the effect of the economic and financial crisis on European economies and societies, we provide evidence corroborating earlier findings about the uneven impact of the crisis across Europe. Our analyses confirm that the crisis has left a damaging legacy in some of the countries, namely in Greece and Italy that still struggle against double-digit unemployment rates, while other countries have almost been left untouched, namely Switzerland and the Czech Republic, or, even if hit by the crisis, other countries, such as Finland and the UK, have managed to reduce their unemployment rates to pre-crisis levels.

Hence, when considering employment opportunities for MRAs, such a heterogeneous context must be kept in consideration. Moreover, we should also recognise that those economies that have managed to overcome the crisis or to remain sheltered against it are those that emerge from our analysis as the more tertiarised and knowledge-based among our pool of countries (although each of them having been specialising on particular sectors of the economy as we illustrate in the report).

Furthermore, our analyses provides evidence that MRAs already represent an important share of the European labour market and economic production: among the countries analysed, Switzerland stands out for the level of openness of its economy

to migrants and refugees given that they represent one in four of its workforce, followed by Italy, the United Kingdom and Greece where around one in every ten of their workforce are an MRA. An interesting point to note is that across all of the SIRIUS countries, the share of foreign national employees in the country's labour markets equals or exceeds the countries' overall share of foreign national in each country. This finding suggests that MRAs are very active components of their host country's economies rather than being passive recipients of benefits or support.

Public discourses often link labour migration with a lowering in production and labour costs. Our analysis unveils that the sectoral labour cost does not play any significant role in the sectoral labour dynamics for the majority of the SIRIUS economies, with the exception of Greece and Finland. This in turn implies that for most economies employment does not critically depend on labour cost but on other factors like labour quality and labour productivity. The positive effect of labour cost on labour in Greece validates the fact that Greece is an economy with excess supply in labour, whereas the negative effect of labour cost on the Finish labour implies that the Finish economy is characterized by excess labour demand.

Of course, due to the high diversity of the labour markets and the economic structure of the SIRIUS countries, different sectors and occupation are expected to effectively absorb the MRAs. In this context, our next report on the labour market integration of MRAs (due at month 14) will present a more fine-grained sectorial-occupational analysis with models analysing the employability of MRAs (also differentiating between migrants and refugees) across the SIRIUS countries and sectors, including an analysis of the issue of the quality of work versus the cost of work as being a relevant factor.

Introduction

One in seven people today are on the move – over one billion of the world's population, with the majority of international migrants searching for better economic and social opportunities[1]. "Variety of reasons lie behind migration. People may migrate in order to improve their economic situation, or to escape civil strife, persecution, and environmental disasters. Traditionally, the reasons encouraging an individual to migrate were categorized as "push" or "pull" factors. Globalization has introduced a third set of motivations called "network" factors, which include free flow of information, improved global communication and faster and lower cost transportation. While network factors are not a direct cause of migration, they do facilitate it" (Migration and Globalization, 2016, p. 2)[2].

The stock of international migrants between 1980 and 2010 increased faster than the global population, which rose of 57% (from 4.4 billion to 6.9 billion) over these three decades. The migrant stock included 16 million refugees, making refugees less than 7% of international migrants (Manolo & Philip, 2015, p.1). Specifically, the past

[1]International Migration Trends (IMO): GLOBAL MIGRATION TRENDS, 2015 (FACTSHEET), http://publications.iom.int/system/files/global_migration_trends_2015_factsheet.pdf.

[2] http://www.globalization101.org

seventeen years, the number of international migrants worldwide has continued to grow, reaching 258 million in 2017, up from 73 million in 2000[3]. The United Nations (UN) projections reported that the number of international migrants from 232 million in 2013 could almost double to over 400 million by 2050.

The population of international migrants tends to comprise larger proportions of working-age persons compared to the overall population, positive net migration can contribute to slowing the long-term trend towards population ageing (UN, International Migration Report 2017, p.19). According ILO (2017, p.4), in 2013, 207 million international migrants were of working age (15 years and over). Of these, 150.3 million were working or economically active population (72.7% of the estimated working age migrant population).

Between 1990 and 2017, the developed regions gained 64 million international migrants, which accounted for 60% of the 105 million added worldwide, whereas the developing regions added 41 million, or 40 % (International Migration Report 2017, pp. 1-8). Since then, the migrants' population represents a significant share of the host country's labour force (ILO, 2017, pp. 3-7). According to Pilati et al. (2015, p. 4) the migration flows are just one of the main factors contributing to population and workforce diversity. "Half of the world's migrants are in the labour force of the country to which they moved. Therefore the 60 million migrant workers in industrial countries (UN classification) account for an average of 10 % of the 600 million workers in those countries" (Manolo & Philip, 2016, pp. 2-3)[4]. According to ILO (2017, p. 5) almost half (48.5%) of migrant workers are concentrated in two broad regions: Northern America, and Northern, Southern and Western Europe. Together, these represent 52.9 % of all female migrant workers and 45.1% of all male migrant workers.

In the EU as a whole, the annual net migration inflows are projected to decrease from about 1.5 million people in 2016, to 914,600 by 2060 and 804,700 people by 2070 (an annual inflow of 0.2% of the EU population), as net migration flows are assumed to become gradually lower over the very long-term. There are however differences between Member States[5]. Despite these long-term projections, Europe, in recent years, faces a major migratory and refugee crisis. The Arab Spring, the wars in the Middle East and the poverty in Africa, have forced millions of people to flee as refugees and migration. In the period after 2014, approximately 1.3 million

[3] UN, International Migration Report (2017, p. 4).

[4] Analytically: Manolo, A. and M., Philip, "Guide on measuring migration policy impacts in ASEAN", International Labour Organization (2016, pp. 1-3).

[5] The 2018 Ageing Report: Understating Assumptions and Projection Methodologies, European Commission (2018, p. 3).

people[6], with a decreasing trend after 2016, from Africa and the Middle East moved to Europe under high risk conditions and uncertainty[7].

Pilati et al. (2015, p.1) indicated the growing importance of migration as a factor in workforce diversity in the host countries the past two decades. In this period, we have witnessed a dramatic shift in the composition of the workforce as a result of increase the migration flows globally. “Nevertheless, international migration does respond strongly to market signals, either legally, when the policy environment allows, or illegally, when there are artificial barriers to mobility. International migration alters the labour supply and the demographic characteristics of both the sending and the receiving countries. Moreover, it influences economic growth, patterns of trade, income distribution, and the distribution of political power within and between countries” (Chiswick and Hatton, 2003, p. 65).

Given the goal of this report, a fundamental aspect, among others, is to investigate the integration of the migration flows in the structural components and characteristics of each SIRIUS economy in general and the labour market characteristics in the specific.

The structural changes in an economy can be related to interventions in various markets, such as the capital market or the goods market or the labour market, as well as to changes in policy regimes (e.g. from market regulation to market deregulation) [8].

“Economies and labour markets are ever changing, creating and destroying jobs. The more dynamic the economy, the faster the expansion of jobs and incomes, but

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[6] publications.europa.eu/webpub/com/factsheets/migration-crisis/el/

[7] Recently, 65.3 million people worldwide were forcibly displaced by conflict and violence by the end of 2015, of whom 21.3 million were located across international borders (UNHCR and IMO, 2015). Minors represented nearly 20% of first-time asylum applicants in the EU-28 in 2015, and more than 1/3 of forced labour victims worldwide (Eurostat, ILO, IMO, 2015). More than 5,700 migrants died or went missing during migration in 2015, an increase of about 9% compared to 2014 (IOM, 2015).

[8] By definition, economic structure is a term that describes the changing balance of output, trade, incomes and employment drawn from different economic sectors – ranging from primary (farming, fishing, mining, etc.) to secondary (manufacturing and construction industries) to tertiary and quaternary sectors (tourism, banking, software industries). Changes in economic structure are a natural feature of economic life but they bring challenges in terms of reallocating factors of production. For example, a shift in production and jobs in one sector can lead to problems of structural unemployment, https://www.tutor2u.net/economics/blog/as-macro-key-term-economic-structure. See further: Tolbert, Ch., Horan, P., and E. M. Beck (1980), “The Structure of Economic Segmentation: A Dual Economy Approach”, *American Journal of Sociology*, Vol. 85, No. 5, pp. 1095-1116; Jackson R.W., Rogerson P., Plane D., and Huallachain O. B. (1990), “A Causative Matrix Approach to Interpreting Structural Change”, *Economic Systems Research*, 2(3):259-269.

also the more likely for labour shortages to appear if demand for particular skills increases faster than supply, as has occurred in many dynamic Asian economies (Abella, 2013). Many of the skills desired by employers take time and resources for individuals to develop, so there can be a lag between the creation of new jobs and an expansion of the supply in IT, health care, and similar sectors", (Manolo and Philip, 2016, p.10).

In recent years, research in the integration of MRAs into the labour market has focused, firstly, on the statistical overviews and classifications of the respective data (i.e. Zaragosa Index[9]) and, secondly, on the impacts or the key determinants that significantly affect the integration of immigrants in the host country, in general, and in the labour market, in particular.

In this area, numerous studies (see for example Domont and Aujean, 2014; Simon and Steichen, 2014; Nica, 2015; Zimmermann, 2016, 2017; Manolo and Martin, 2016; Junge and Patuzz, 2016; Karlsdóttir et.al., 2017[10]; Konle-Seidl, 2018[11]) have been conducted. These studies aimed to uncover the effects of migration on important determinants of the host countries, such as, demographic imbalances, real or nominal wages, employment/unemployment effects, changes in the structure of demand or supply of labour power. These studies capture the key factors for the integration of migrants into the labour market of the host countries. Additionally, the level of education, the language barrier, skills, gender, age group and the time needed for the successful labour market integration of migrants (Konle-Seidl and Bolits, 2016[12]) were also investigated[13]. The results of these studies indicate that the skills' level, the language barrier, the labour market barriers (i.e. new policies and a reorganization of responsibilities[14]) and, in some cases, wages are the most

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[9] The Zaragoza indicators are not able to capture the increasing immigration of asylum seekers and their statistical impact on labour market participation (Konle-Seidl, 2018, p .10).

[10] https://www.diva-portal.org/smash/get/diva2:1172581/FULLTEXT02.pdf

[11] www.europarl.europa.eu/RegData/etudes/STUD/2018/614200/IPOL_STU(2018)614200_EN.pdf

[12] www.europarl.europa.eu/RegData/etudes/STUD/2016/578956/IPOL_STU(2016)578956_EN.pdf

[13] "Participation in the labour market is seen as the most important factor favouring long-term integration into society. Estimates show that the number of refugees to be integrated into the labour market varies between 1% (Germany, Austria) and 2.2% of the labour force (Sweden). In the past, refugees found it more difficult than labour migrants to enter the local labour market. On EU average one in four found a job in the medium term, 56% after ten years. Refugees needed up to 20 years to catch up with the native-born". http://www.europarl.europa.eu/RegData/etudes/ATAG/2018/614206/IPOL_ATA(2018)614206_EN.pdf .

[14] Analytically: irpp.org/research-studies/breaking-down-barriers-to-labour-market-integration-of-newcomers-in-toronto/

significant determinants for the integration of migrants into the host countries' labour markets.

However, the pure economic question or in other words the research question to be answered in our case is the following: do the SIRIUS countries' labour markets need more workers and what kind of occupations and skills do they require? The investigation of this question depends on the education and the qualification level of MRAs and the social and economic environment of each SIRIUS country. For example in the refugees' case, according to Konle-Seidl and Bolits (2016, p. 9): "Member (EU) States are differently prepared to address the needs of refugees and supporting them adequately. There is not only uneven experience, infrastructure for service provision and financial resources for programmes but also uneven readiness to support refugees across Member States. The full integration of refugees through provision of housing, education, training, access to the labour market and social and health services is a costly strategy. For some Member States a sizeable impact on public spending is estimated even if taking into account demand effects on housing, services and consumer goods. However, a less comprehensive and less costly strategy involves the risk of a long-term integration failure and the political costs of a massive political polarization". The aforementioned factors concern not only the refugees but the immigrants (Gorodzeisky and Semyonov, 2017)[15] and the asylum seekers (Kirkwood et al., 2016)[16] too.

Thus, MRAs integration in the labour market depends on the above diversities as well as the structural heterogeneities among the economies and research requires a large number of micro and macro data that are not usually available. As is well known "the major challenge for government agencies is a lack of useful information and analyses of available data" (ILO, 2016[17]). This greatly hinders a more detailed analysis of migration in all its forms[18]. "The lack of solid statistics about the socio-demographic characteristics of recent refugees is one of the main hindrances to

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[15] Gorodzeisky, A. and M. Semyonov (2017), "Labor force participation, unemployment and occupational attainment among immigrants in West European countries", https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5419508/

[16] Kirkwood, S., Goodman, S., McVittie, Ch., and A., McKinlay (2016), "Refugees, Asylum-Seekers and Integration", *The Language of Asylum*, pp. 143-161.

[14]http://publications.iom.int/system/files/pdf/migration_policy_practice_journal_26_29june2016_final.pdf

[18] "The existing EU approach for data collection should be improved. Currently, it is almost exclusively based on the category "foreign born" and does not allow for identifying asylum seekers and refugees as own category. The Zaragoza indicators are not able to capture the increasing immigration of asylum seekers and their statistical impact on labor market participation. The monitoring of EU policy indicators can thus hardly be used to derive recommendations for action or to define best practice measures which makes learning from others through data and empirical evidence in the area of integration policy difficult" http://www.europarl.europa.eu/RegData/etudes/ATAG/2018/614206/IPOL_ATA(2018)614206_EN.pdf

devising adequate policy responses in countries of arrival, including Germany. Having a detailed picture of the target group offers essential indications to policymakers" (Junge and Patuzzi, 2016, pp. 4-5).

To this end, in June 2016, the EU-Commission adopted the "Action Plan" on Integration on Third Country Nationals[19] in order to support Member States in the strategic development and implementation actions of integrating the recent flows of immigrants into various areas of their social and economic life. The Action Plan includes actions across all the policy areas that are crucial for integration in general and labour market in particular.

In this framework, Junge and Patuzzi (2016, p.4) have identified the following steps that will improve the labour market conditions of immigrants, many of them focusing on the present political priority of refugee integration: i) ensuring an early start for integration measures upon arrival, not only for immigrants with a stable residence status but also for asylum-seekers with good prospects of being granted refugee rights; ii) investing in long-term integration paths (coaching and monitoring); iii) ensuring systematic policy learning and training (including non-formal and informal learning) and scaling up good models or practices; iv) collecting empirical evidence, essential to build integration policies that are driven by facts rather than by misconceptions; v) strengthening the intercultural awareness and openness of public employment services, employers and other labour market stakeholders as the high unemployment rate of qualified foreigners throughout Europe hints at barriers to the labour market that go beyond the skill capital of migrants; vi) improving the coordination of actors by distributing, for example, integration policy responsibilities across the responsible portfolios and providing clear institutional leadership[20]. In this context, the mainstay of the WP1 is formed by the analysis of the post 2014 MRAs' integration into the labour markets of the SIRIUS countries.

According to Ruhs and Vargas-Silva[21] (2017) the integration of MRAs critically depends on the skills of MRAs, the skills of already existing workers, and the inherent characteristics of the host economy. Nonetheless, it differs between the short and long run when the economy and labour demand can adjust to the increase in labour supply. Also, Junge and Patuzzi[22] (2016, p.4) suggest that "beyond all the differences observed between (EU) States […], the labour market participation of immigrants [..]

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[19] Eurostat, "Migrant integration statistics introduced", ec.europa.eu/eurostat/statistics-explained/index.php?title=Migrant_integration_statistics_introduced

[20] Analytically: Junge and Patuzzi (2016, pp. 4-5).

[21] Ruhs, M. and C. Vargas-Silva. "The Labour Market Effects of Immmigration". Migration Observatory briefing, University of Oxford, UK, February, 2017, http://www.migrationobservatory.ox.ac.uk/resources/briefings/the-labour-market-effects-of-immigration/

[22] Junge F. and L. Patuzzi, (2016), "Integration at the Crossroads of Employment: Report of the IQ Symposium "Labour Market Integration of Immigrants in Germany and Europe", MIGRATION POLICY PRACTICE, Vol. VI, Number 2, April–May, pp. 3-6.

can be grouped into two main categories […]: 1) barriers related to the skill capital and the individual resources of migrants; and 2) barriers related to the degree of coordination and "openness" of labour market actors, such as low institutional transparency or discriminatory practices".

Theoretically, according to the analysis of previous factors (Ruhs and Vargas-Silva, 2017) our investigation for migrants' integration into SIRIUS countries labour market will focus on:

i) the MRAs data flows of SIRIUS countries (statistical overview), and how these flows affect their opportunity to be integrated in the labour market.

ii) the economic drivers of SIRIUS economies in terms of their structure in general and labour market characteristics in particular; and

iii) comparatively, the labour market determinants among SIRIUS economies, showing which SIRIUS economies exhibit labour demand/labour supply behaviour.

To do so, we proceed at multiple levels. First, we conduct a quantitative analysis of MRA data on a meso-level in order to capture the determinants that directly influence, either positively or negatively, the employment opportunities of MRAs in the host countries (point i). Second, we analyze each SIRIUS country labour market at the state (macro) and sectoral (meso) level, followed by a comparative analysis (point ii). Finally, we perform a comparative analysis for the labour dynamics of each economy in the SIRIUS countries (point iii).

In order to tackle these issues, a number of relevant quantitative and econometric techniques have been employed. In particular, we present a statistical overview on: (a) post-2014 mean and mean annual growth rates of MRA flows including irregularly present MRAs. At the same time, we describe how these flows affected governments' migration policy measures through first-instance decisions on asylum applications, orders to leave, and first residence permits, in comparison with the 2008-2013 period; and (b) the characteristics of the MRAs' stock for the period 2008-2016 on the basis of origin, gender, age-group, educational attainment level, activity rate and unemployment rate. Additionally, using descriptive statistics and index analysis we investigate both the distribution and specialization (Sectoral Index and Krugman's Index) of labour market characteristics for each economy, both individually and comparatively, using sectoral and occupational data. Finally, using panel data and probabilistic panel data models, we investigate how the flows of MRAs affect their employment opportunities in the labour markets of the SIRIUS economies, whereby using panel data and dynamic panel data models we assess the determinants of labour market dynamics for each economy both individually and comparatively.

The report is structured as follows: the first part analyses the MRA flows; the second part examines the labour market characteristics for each economy; and the third part concludes the report.

Part 1: SIRIUS Countries' MRAs Individual and Comparative Analysis

1. SIRIUS countries' MRAs Individual Statistical Overview

The purpose of this chapter is to offer a descriptive report for each of the SIRIUS countries, both individually and comparatively, with regard to: i) the demographic, educational and labour characteristics of their foreign national residents; ii) the aftermath of the 2014 migration crisis on these countries' migration flows; and iii) how these flows both affect and have been affected by the countries' migration policies. The objective is to note the features of the third-country nationals who have already been working in each country (stock) and of those that arrived in 2014 and afterwards (flows). Such features may constitute possible enablers, barriers or potentials to their social and labour integration in their host country.

More precisely, the report is organised as follows: first, for each individual country we analyse: i) the demographic characteristics of the foreign nationals already established in each country (origin, gender, age, educational attainment level, activity rate, participation in the country's labour force and unemployment rate; total by group of origin, gender and age); ii) the 2014-2016 migration inflows, outflows and balance, with special attention to asylum seekers; and iii) the country's response to these inflows (first instance and total decisions on asylum applications, refusals of entry to the country, orders to leave for irregularly present foreign nationals and first residence permits by reason). Secondly, the data analysed above are compared among the SIRIUS countries (Chapter 2), with special attention being paid to women and young adults.

Data and Definitions:

In order to tackle the research questions raised in the introductory section we made use of data that come directly from Eurostat's main website[23]. Hence, our analyses are free of any harmonization issues, since Eurostat's metadata are directly comparable among the various economies.

In what follows, we provide the official definitions, following Eurostat, of some key variables and measures presented in this report:

a) **Activity rate** is the percentage of active population in relation to total population. Active population, includes both employed (employees and self-employed) and unemployed people, but not the economically inactive, such as pre-school children, school children, students and pensioners

[23] A detailed description and definition of the main variables employed in this report could be found in the definitions file provided as supplementary material to the SIRIUS Database (Deliverable 1.1).

b) **Employment/Unemployment rate** is the percentage of employed/unemployed population in relation to the active population.

c) **Immigration** is the action by which a person establishes his or her usual residence in the territory of a Member State for a period that is, or is expected to be, of at least 12 months, having previously been usually resident in another Member State or a third country. In this framework, **immigrant** is the person undertaking immigration. In Italy, the UK, Switzerland and Greece (from 2015 and afterwards), asylum seekers are included in the immigration flows.

d) **Emigration** is the action by which a person, having previously been usually resident in the territory of a Member State, ceases to have his or her usual residence in that Member State for a period that is, or is expected to be, of at least 12 months. **Emigrant** is the person undertaking emigration.

e) **Asylum applicant** refers to a person having submitted an application for international protection or having been included in such application as a family member during the reference period. **First time asylum applicant** for international protection is a person having submitted an application for international protection for the first time in a given country.

f) A **Refugee** is a third-country national who, owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, political opinion or membership of a particular social group, is outside the country of nationality and is unable or, owing to such fear, is unwilling to avail himself or herself of the protection of that country, or a stateless person, who, being outside of the country of former habitual residence for the same reasons as mentioned above, is unable or, owing to such fear, unwilling to return to it, and to whom Article 12 of Directive 2011/95/EU does not apply.

g) **First residence permits** refer to third-country nationals (persons who are not EU citizens) receiving a residence permits or an authorisation to reside for the first time in one of the EU or EFTA Member States[24].

h) **Foreign nationals** refer to people whose nationality is different from the country of residence.

Based on the aforementioned definitions, in this report, both the flows and stock of Migrants, Refugees and Asylum applicants (MRAs) are defined as the sum of immigrants available in Eurostat (migr_imm1ctz) with the first time asylum

[24] The statistics for the United Kingdom use different data sources to those used in other Member States. For that reason, the statistics on residence permits published by Eurostat for the UK may not be fully comparable with the statistics reported by other countries. Statistics for the United Kingdom are not based on records of residence permits issued (as the United Kingdom does not operate a system of residence permits), but instead relate to the numbers of arriving non-EU citizens permitted to enter the country under selected immigration categories. According to the United Kingdom authorities, data are estimated from a combination of information due to be published in the Home Office Statistical Bulletin 'Control of immigration: Statistics, United Kingdom' and unpublished management information.

applicants (migr_asyappctza), when asylum applicants are not already included in the immigration flows, i.e. Czech Republic, Denmark, Finland and Greece.

Finally, in order to have a coherent measure of migration flows, we also included in our analysis irregular migration figures that come directly from Eurostat.

1.1 Czech Republic: Statistical Overview

1.1.1 Demographic characteristics of foreign nationals

The population of the Czech Republic is, on average, 10,509,318, ranging from 10,381,130 residents in 2008 to 10,578,820 in 2017, with an overall mean annual growth rate (MAGR) equal to 2.1%. Over this period, the foreign-national population was, on average, 4.11% of the country's total population. Additionally, this share has increased with a MAGR of 4.15%[25] (Table1.1).

Table1.1: Total and foreign national population (in millions), Czech Republic, 2008-2016

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Population	10.38	10.47	10.51	10.53	10.51	10.52	10.51	10.54	10.55	10.58
Foreign Population	0.35	0.41	0.42	0.42	0.42	0.42	0.43	0.46	0.48	0.51
Share (%)	3.35	3.89	4.04	3.96	4.03	4.02	4.13	4.34	4.51	4.83

Source: Eurostat

As regards to the educational attainment level of foreign nationals, the Czech Republic retains a highly-educated stock of foreign-national residents. In fact, the percentage of foreign nationals that have attained tertiary education (Levels 5-8) exceeds – in every year of the 2008-2016 period – the respective percentage of those with less than primary, primary or lower secondary education (Levels 0-2)[26] .

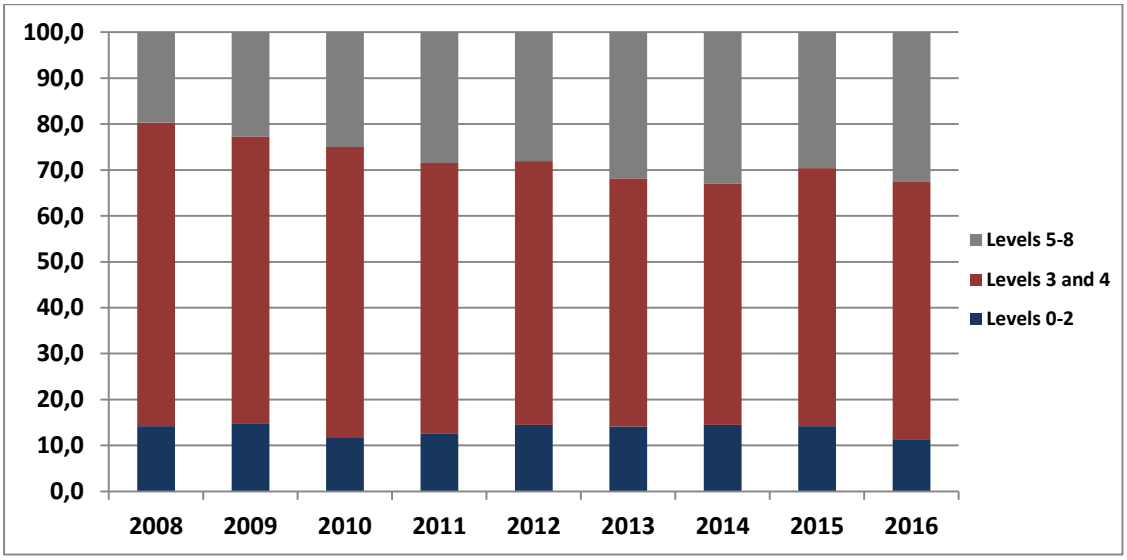
Additionally, the percentage share of foreign nationals with tertiary education (Levels 5-8) increased during this period, with a MAGR of 6.54%. Even so, the share

[25] 57.82% are male, while 9.24% are under 15 years old and 86.78% are aged 15-64. As regards their origins, over the period 1 January 2009-1 January 2017, almost 60% originated from a non-EU member state (EU-28, current composition, after Croatia's accession and before the exit of the UK) and 40% from an EU member state.

[26] These shares refer to the foreign nationals resident in the Czech Republic aged between 15 and 64.

of foreign nationals with less than primary, primary or lower secondary education (Levels 0-2) and upper secondary and post-secondary education (Levels 3 and 4), declined with MAGRs of 2.92% and 2%, respectively.

Figure 1.1: Composition of foreigners by Educational Attainment Level (ISCED 11), Czech Republic, 2008-2016

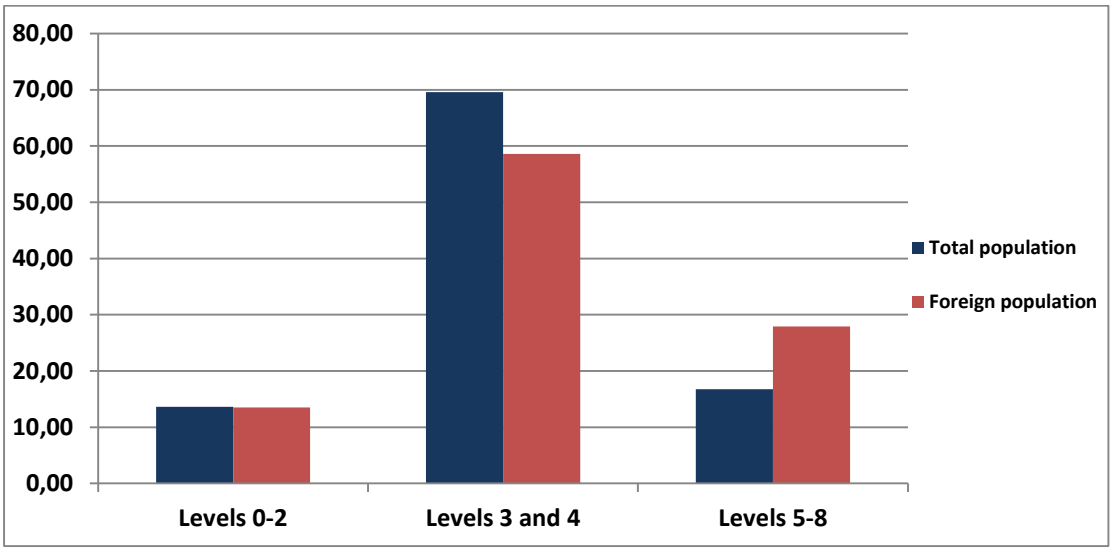


Source: Eurostat

Moreover, by comparing the mean nine-year percentage distribution of foreign nationals with that of the total population it can be inferred that, proportionately, the share of tertiary level education of the foreign nationals exceeds that of the total population[27] (Figure 1.2)

[27] Indeed, 29.65% of the EU foreign nationals have attained tertiary education, 60.35% upper and post-secondary education and only 10% less than primary, primary or lower secondary education, in contrast with 16.74%, 69.61% and 13.64% of the total population, respectively.

Figure 1.2: Total and foreign population distribution (%) by educational attainment level (ISCED 11), Czech Republic, 2008-2016



Source: Eurostat

As a result of the stock of highly-educated foreign nationals in the country, the mean activity rate of the foreign nationals resident in the Czech Republic in the period 2008-2016 is 78.68%, namey 6.84 percentage units (in absolute terms) more than the respective rate of the native population[28]. Moreover, it has a MAGR equal to 0.88%[29]. This rate is even higher for EU foreign nationals. In fact, the 2008-2016 mean activity rate of the EU foreign nationals is 80.78%, increases with a MAGR of 1.27%, during this nine-year period.

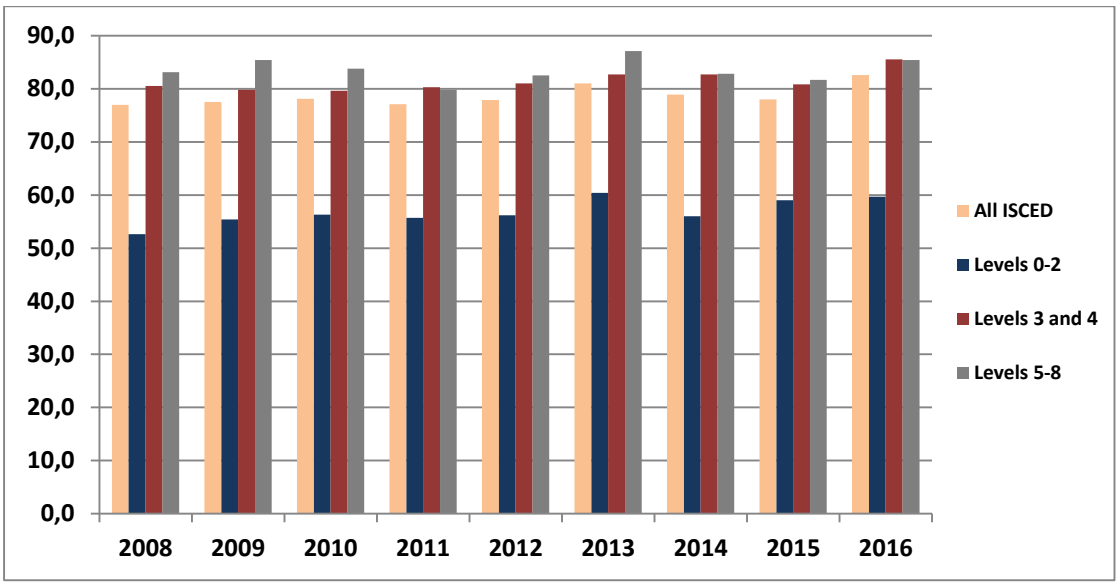
Additionally, the recorded activity rates of foreign nationals with educational attainment levels 3-4 and 5-8, are, on average, over 80% (81.43% and 83.51%, respectively), during this period, both following an increasing trend; namely an MAGR of 0.76% and 0.34% respectively (Figure 1.3)

On the other hand, the percentage share of the active foreign population with educational attainment levels of 0-2 is much lower (56.81%), although it is increasing, with a MAGR of 1.60%.

[28] The activity rate refers to those residents who are aged between 15 and 64.

[29] The respective MAGR for native nationals is 0.92%.

Figure 1.3: Activity rates of foreign nationals (%) by Educational Attainment Level (ISCED 11), Czech Republic, 2008-2016



Source: Eurostat

Foreign-national employees in the Czech Republic formed, on average, 1.7% of the country's total employees in the period 2008-2016. However, this share rapidly increased in period 2011-2015, from 1.48% in 2011 to 2.15% in 2015 (Table 1.2).

Table 1.2: Total and foreign national employment (in millions), Czech Republic, 2008-2016

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Employment	4.93	4.86	4.81	4.80	4.81	4.85	4.88	4.93	5.02
Foreign Employment	0.06	0.07	0.07	0.07	0.07	0.09	0.10	0.11	0.10
Share (%)	1.22	1.48	1.49	1.48	1.56	1.86	2.00	2.15	2.07

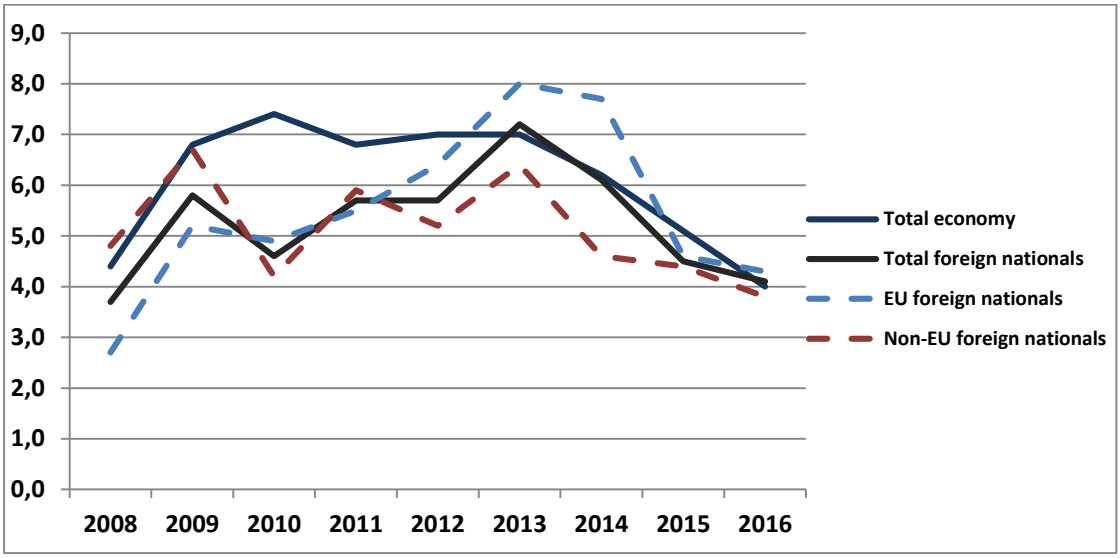
Source: Eurostat

Moreover, foreign nationals – similarly to the total population – also faced low levels of unemployment during the period 2008-2016. Indeed, the unemployment rate for foreign nationals during this period is on average 5.27%, or 0.81 percentage units (in absolute terms) lower than the total population's respective rate[30]. Furthermore, following the total economy's post-2013 decreasing unemployment, a downward

[30] The unemployment rate is for the 15-64 age group.

trend can be observed in the period 2014-2016[31] (Figure 1.4). With regard to unemployment among the foreign nationals, the EU foreign population faced a higher unemployment rate (mean and trend) during the period 2008-2016 (5.48% and 6%, respectively). On the other hand, the post-2013 downward trend in the unemployment rate of EU foreign nationals was 18.7%.

Figure 1.4: Unemployment rate (%) in the total economy and among foreign nationals, Czech Republic, 2008-2016



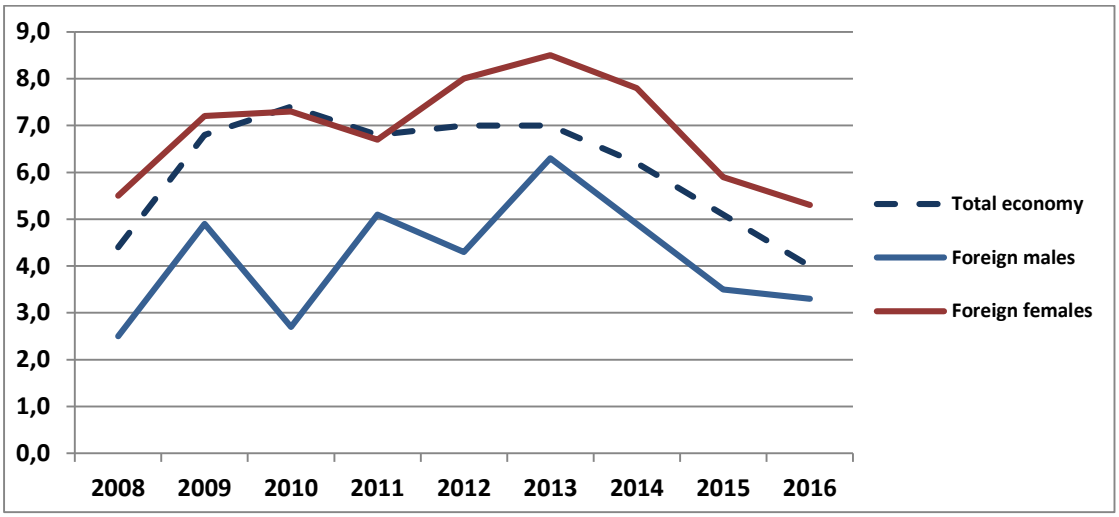
Source: Eurostat

By decomposing the unemployment of foreign nationals according to their gender, it emerges that the female unemployment rate exceeds, on average, the unemployment rates of both males and the total economy. However, it declines during the period 2008-2016. On the other hand, the unemployment rate of foreign males is on average almost two percentage units (in absolute terms) below that of the total economy; this followed, however, a slight increase during the same period[32] (Figure 1.5).

[31] The unemployment rate of foreigners has a positive overall 2008-2016 MAGR (1.29%). However, its post-2013 MAGR is noticeably negative, namely -17.11%. During the last period, the total Czech unemployment rate has also been declining, with almost the same MAGR (17.02%).

[32] The foreign female unemployment rate is, on average, 6.91% in the period 2008-2016, with a negative mean annual growth rate of 0.46%. On the other hand, the foreign male unemployment rate is, on average, 4.17% and growing at a mean annual rate of 3.53%.

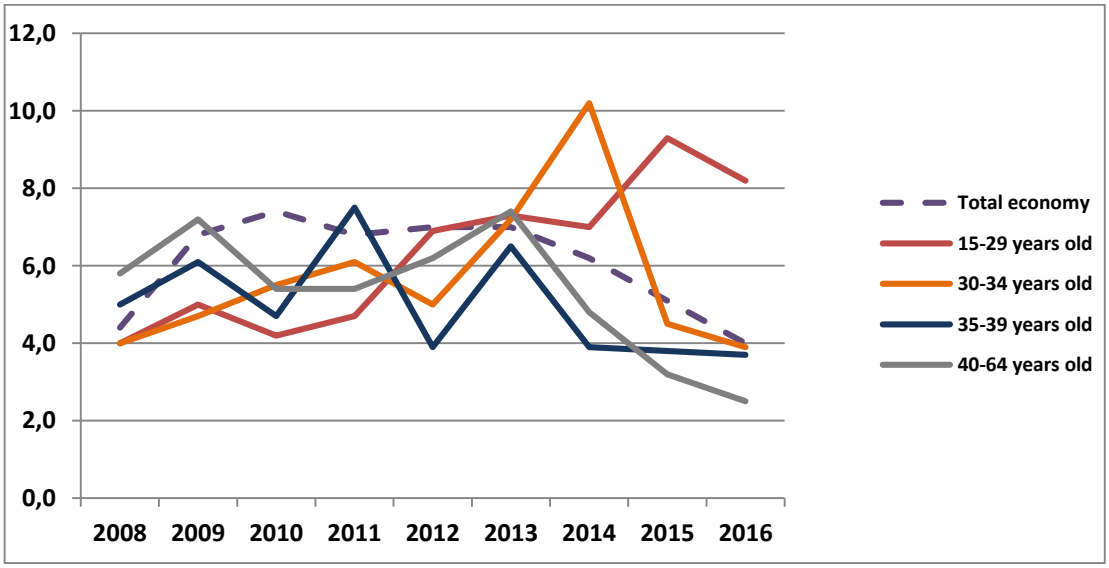
Figure 1.5: Unemployment rate (%) of foreign nationals by gender, Czech Republic, 2008-2016



Source: Eurostat

Finally, as regards the age differentiation of unemployment among foreign nationals, the 15-29 age group has been the most affected in terms of its unemployment rate. Specifically, from 4.70% in 2010, it reached 8.20% in 2016, recording a MAGR of 11.80%. In contrast, the unemployment rates of all other age groups recorded a declining trend during the period 2008-2016. Especially in the age groups 35-39 and 40-64, this trend was more pronounced[33] (Figure 1.6).

Figure 1.6: Unemployment rate (%) of foreign nationals by age group, Czech Republic 2008-2016



Source: Eurostat

[33] The unemployment rates of both age groups have declined by 3.69% and 10.00% of their mean annual rates respectively in the period 2008-2016. Especially in 2010-2016, their mean annual rates of decline were 3.90% and 12.05% respectively.

1.1.2 The Czech Republic and the migration crisis

With regard to the inflows of immigrants that have crossed the country's borders, the documented third-country nationals that immigrated into the Czech Republic during the period 2014-2016 is in total 108,812 persons (Table 1.3). This means, on average, 36,271 people every year, during this three-year period – lower than the respective 2008-2013 mean annual migration inflow[34]. However, more than half of this inflow was recorded in 2016 alone (59,550 persons) (Figure 1.7).

Table 1.3: Migration inflows; total by gender, age group and top 5 countries of origin (in persons), Czech Republic, 2014-2016

Year		2014	2015	2016
Migration Inflow		24,138	25,124	59,550
Gender	**Males**	13,937	14,439	34,055
	Females	10,201	10,685	25,495
Age Group	**< 15 Years old**	3,669	3,832	9,632
	15-64 Years old	19,979	20,766	48,783
	≥ 65 Years old	490	526	1,135
Country of Origin	**Slovakia**	7,155	7,070	13,994
	Ukraine	3,387	3,654	8,588
	Romania	1,270	1,438	3,181
	Vietnam	902	1,275	3,250
	Germany	1,692	1,210	2,247

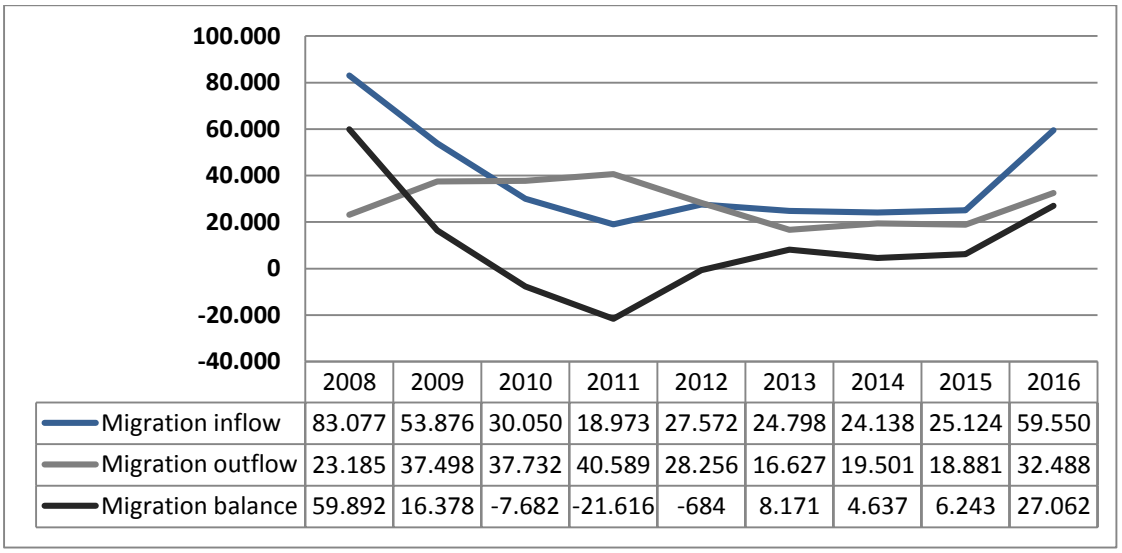
Source: Eurostat

[34] The mean annual migration inflow of the period 2008-2013 is 39,724 persons.

With regard to the profiles of the post-2014 immigrants, 57% are males and 43% females; 16% are under 15 years old; 82% are minors from the age of 15 and adults up to the age of 64, while only 2% are 65 years old or more. As for the (main) countries of origin, none comes from the Middle East or Sub-Saharan countries that constitute the main post-2014 migration origins. Indeed, 25.93% come from Slovakia, 14.36% from Ukraine, 5.41% from Romania, 5% from Vietnam and 4.73% came from Germany (Table 1.3).

At the same time, a decrease in migration outflows was recorded. More precisely, 70,870 third-country nationals left the country during the period 2014-2016; namely, on average, almost 7,025 less people every year[35]. However, post-2014 emigration outflows follow an increasing trend, breaking the downward trend of the period 2008-2013[36]. Overall, the Czech Republic has a migration surplus of 37,942 people in the period 2014-2016[37] (Figure 1.7).

Figure 1.7: Immigration, emigration and migration balance (in persons) of third-country nationals, Czech Republic, 2008-2016



	2008	2009	2010	2011	2012	2013	2014	2015	2016
Migration inflow	83.077	53.876	30.050	18.973	27.572	24.798	24.138	25.124	59.550
Migration outflow	23.185	37.498	37.732	40.589	28.256	16.627	19.501	18.881	32.488
Migration balance	59.892	16.378	-7.682	-21.616	-684	8.171	4.637	6.243	27.062

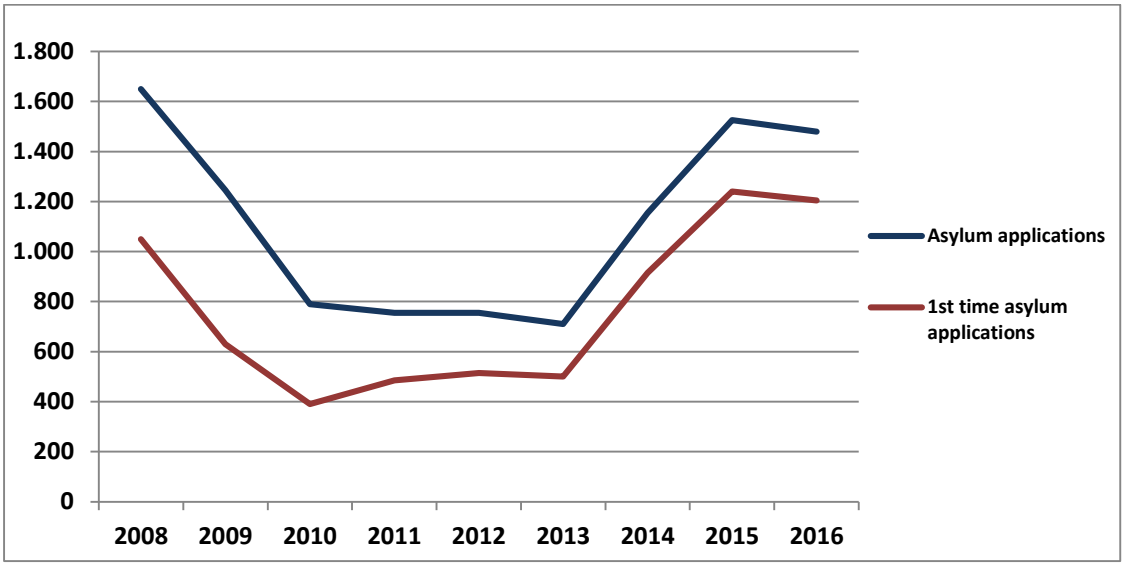
Source: Eurostat

Furthermore, first-time and total asylum applications indicate an increasing number of third-country nationals looking for protection to the country's migration authorities, in the period 2014-2016[38]. More precisely, 4,160 third-country nationals

[35] The mean annual emigration flow of the period 2008-2013 is 30,648. This number decreased to 23,623 during the period 2014-2016.
[36] The post-2013 emigration flows follow a MAGR of 25.02%: in 2016 alone, 32,488 third-country nationals left the Czech Republic. In contrast, the 2008-2013 emigration flows had a negative MAGR of 6.43%.
[37] The post-2013 migration surplus follows an upward trend (MAGR of 49%), while the pre-2014 respective surplus showed a downward trend (MAGR of -32.86%).
[38] Annual data from the National Statistical Authorities do not always include asylum applicants in immigration flows (Czech Statistical Office, for example). Hence, taking only immigration flows into account can be misleading when describing the overall influx of third-country nationals.

applied for asylum in 2014-2016. Additionally, 3,360 of these applications were made for the first time[39] or, on average, there were 1,120 applications every year, during this three-year period; almost double compared to the 2008-2013 period. Moreover, this follows an increasing trend, interrupting the pre-2014 trend for a decline in first-time asylum applications'[40].

Figure 1.8: Total and first-time asylum applications (in persons), Czech Republic, 2008-2016



Source: Eurostat

As regards the identity of the first-time asylum seekers, 63% are males and 37% females, while 20.83% are minors less than 15 years old, 77.08% are minors and adults aged 15-64, and only 2.08% are aged 65 or over. Furthermore, almost 40% originate from Ukraine, 8.92% from Syria, 7.29% from Cuba, 5.8% from Iraq and 4.76% from Vietnam (Table 1.4).

[39] This indicates that the 80.77% of the applicants have recently entered the country.

[40] Post-2013 first time asylum applications increase at a MAGR of 34.07%. In contrast, the mean annual decrease rate of the pre-2014 first-time asylum applications is 13.79%.

Table 1.4: First-time asylum applicants by gender and age group, Czech Republic, 2014-2016

Year		2014	2015	2016
First-time asylum applicants		915	1,240	1,205
Gender	**Males**	585	795	730
	Females	335	440	480
Age Group	**< 18 Years old**	210	250	240
	18-64 Years old	685	970	935
	≥ 65 Years old	20	20	30
Country of Origin	**Ukraine**	420	565	355
	Syria	105	130	65
	Cuba	40	125	80
	Iraq	20	35	140
	Vietnam	50	55	55

Source: Eurostat

1.1.3 Migration management in the Czech Republic

Together with the rise in the number of asylum applications, an increase in the number of post-2013 first instance decisions have also been recorded: 3,650 total first instance decisions on asylum application were registered in the period 2014-2016, or, on average, 1,217 decisions every year, during this three-year period. This is 52.56% more than the respective pre-2014 respective decisions. Moreover, an

increase in positive first-instance decisions has also been recorded: 1,270 positive first-instance decisions were taken in 2014-2016. This means, on average, 423 first-instance positive decisions every year (averagely 34% of total applications). This is 90.5% more than the positive first-instance decisions for 2008-2013. At the same time, there has been an increase in the rejected first-instance asylum applications. Specifically, 221 more applications have been rejected on average every year, in the period 2014-2016, compared to the 2008-2013 period. However, the post-2013 ratio of positive to total first-instance decisions increased from 0.28 (2008-2013) to 0.35 (2014-2016)[41].

As regards the reasons for the granting of asylum, 76% of the first-instance positive decisions involve the granting of subsidiary protection status, 21.26% of Geneva Convention status and only 2.74% are for humanitarian reasons (Table 1.5). As for the country of origin of those granted asylum, 370 (29%) come from Ukraine, 300 (24%) from Syria, 175 (14%) from Iraq, 130 (10%) from Cuba and 45 (4%) from Belarus.

Table 1.5: First-instance decisions on asylum applications by reason, Czech Republic, 2014-2016

Year	2014	2015	2016
First-instance decisions	1,005	1,340	1,305
Total positive decisions	375	460	435
Geneva Convention status	75	55	140
Humanitarian status	15	15	5
Subsidiary protection status	285	390	290
Temporary protection status	0	0	0
Rejected	630	885	870

Source: Eurostat

Contrary to first-instance decisions, there has been a decrease in total final and positive decisions in terms of average annual registrations. More precisely, a total number of 1,385 final decisions were registered over the period 2014-2016. This means, on average, 462 final decisions every year during this three-year period; almost 196 decisions fewer than the respective mean annual final decisions of the

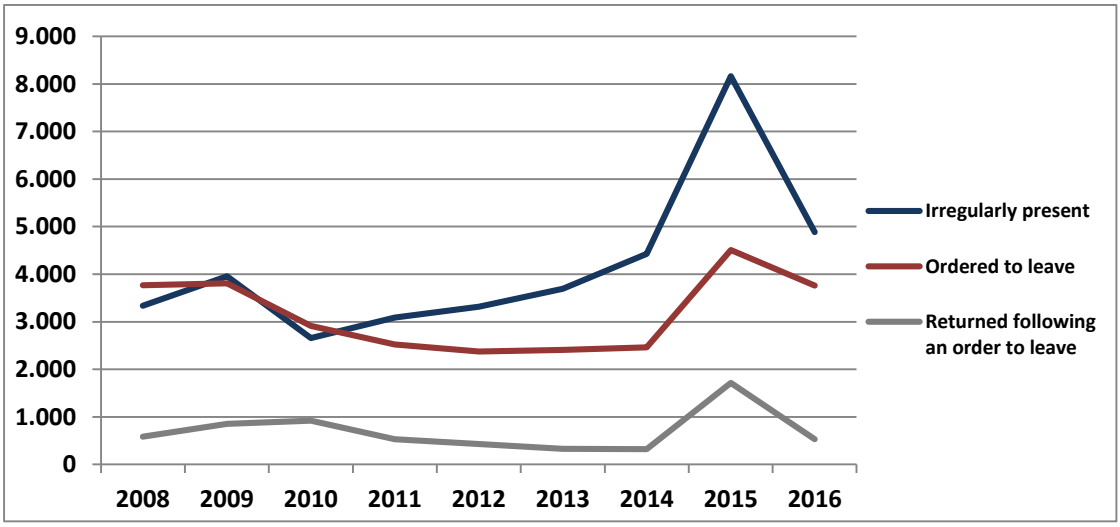
[41] However, this ratio is expected to decrease, considering that the post-2013 number of rejected applications increases with almost a twofold MAGR over the respective positive first-instance decisions rate (15.14% over 8%).

period 2008-2013. Additionally, only 2.90% were positive (40 positive final decisions, in total), almost 80% less than the 2008-2013 respective percentage ratio[42].

At the same time, 1,160 non-EU citizens were refused entry to the country: 155 from Russia (13.36%), 130 from Iraq (11.21%), 110 from Azerbaijan (9.50%), 80 from Armenia (6.90%), 65 from Turkey (5.60%) and the rest (53.45%) from another country[43].

Moreover, there has been an increase (annual mean and trends), of third-country nationals over the period 2014-2016 that: i) have been found to be irregularly present: ii) have been ordered to leave; and iii) returned following an order to leave (Figure 1. 9). More precisely, 17,480 non-EU citizens were found to be irregularly present by police and prosecution authorities in the Czech Republic over the period 2014-2016[44]. This means, on average, almost 2,487 more people every year, compared with the pre-2014 period. Furthermore, this number increases with a MAGR of 9.75% - 3.7% higher than the 2008-2013 rate.

Figure 1. 9: Third-country nationals found to be irregularly present, ordered to leave and who returned following an order to leave (in persons), Czech Republic, 2008-2016



Source: Eurostat

[42] Twenty final decisions involved the granting of subsidiary protection status, 15 of humanitarian status and only 5 of Geneva Convention status. As regards the origin of the people to whom asylum was finally granted, 10 came from Ukraine and 5 from Belarus, Russia, Kyrgyzstan and Afghanistan respectively.

[43] The number of denials of entry into the country in this period is higher both according to annual mean and trend than its pre-2014 respective number. Indeed, during the period 2014-2016, entry was refused to almost 387 third-country nationals, on average, every year. This number increases with a mean annual rate of 5.6%. In contrast, the 2008-2013 mean annual number of refusals of entry was almost 304, starting with 255 in 2008, and following a mean annual growth rate of 3.98%.

[44] Almost half of them (47.4%) were adults aged 18-24.

With regard to third-country nationals that left the country and then returned to it following an order to leave, both instances record a nine-year high in 2015 (4,510 and 1,715, respectively). Again, both numbers follow a post-2013 upward trend[45], contrarily to pre-2014 declining trends[46].

Finally, there has also been a significant increase in the mean annual number of first residence permits. Specifically, 61,444 first residence permits were given to third-country nationals, on average, every year, during the period 2014-2016 (184,332, in total), compared to 38,698 mean annual first-residence permits (232,187, in total) in the period 2008-2013. As for the reasons, 56,520 permits were granted for family reasons (30.66%), 36,787 for educational reasons (19.96%), 54,111 for remunerated activities reasons (29.35%), and 36,914 for other reasons (20.03%)[47].

1.2 Denmark: Statistical Overview

1.2.1 Demographic characteristics of foreign nationals

Denmark's population is on average 5,599,602, starting from 5,475,751 residents on 1 January 2008 and following an overall percentage MAGR of 0.21%. Over this period, the foreign-national population constituted, on average, 6.76% of the country's total population. This share increases with a MAGR of 4.97%, during the examined period[48] (Table 1.6).

[45] MAGRs of 16.06% and 17.11%, respectively.

[46] MAGRs of -8.60% and -10.82%, respectively.

[47] Compared to the number of 2008-2013 residence permits, the largest (percentage) increase was recorded for those granted for other reasons (141%). Educational and family reasons follow (136.58% and 74.48%, respectively), while the smallest increase is recorded in permits granted for remunerated activities (2.42%). With regard to other reasons, the 5.75% refers to refugee status and subsidiary protection, 0.85% to humanitarian reasons, while 5.64% is for residence only.

[48] The majority (50.28%) are females; 13.97% less than 15 years old and 80.56% aged between 15-64.With regard to the origin of the foreign nationals, over the period 1 January 2009-1 January 2017 almost six out of ten (58.48%) originated from a non-EU country, and four out of ten (41.52%) from an EU member-state.

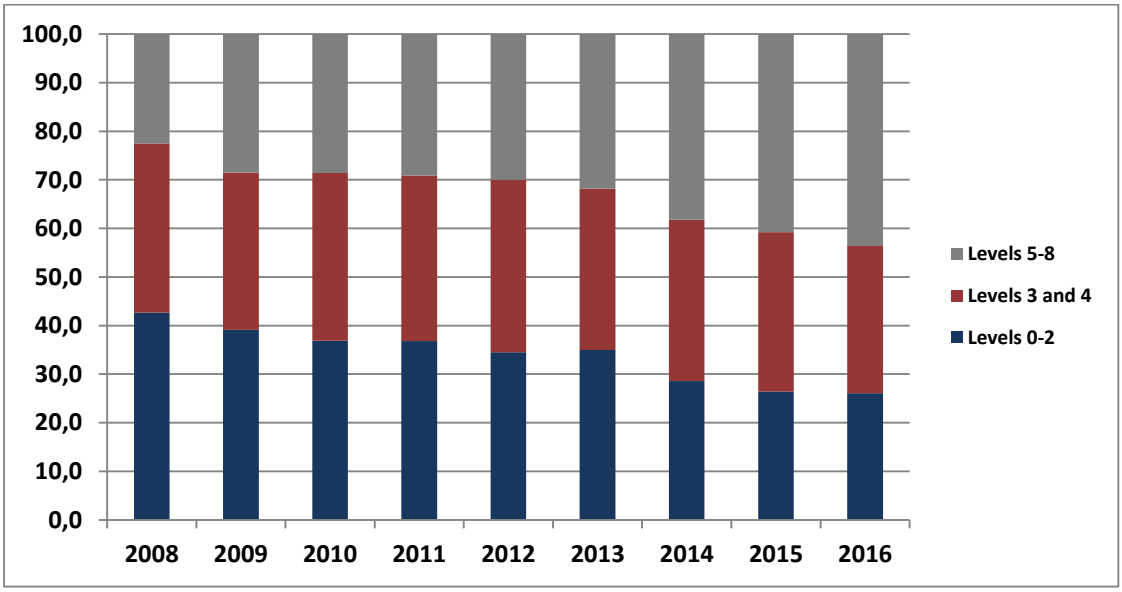
Table 1.6: Total and foreign national population on 1 January (in millions), Denmark, 2008-2017

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Population	5.48	5.51	5.53	5.56	5.58	5.60	5.63	5.66	5.71	5.75
Foreign Population	0.30	0.32	0.33	0.35	0.36	0.37	0.40	0.42	0.46	0.48
Share (%)	5.45	5.81	5.96	6.22	6.43	6.69	7.06	7.47	8.12	8.44

Source: Eurostat

With regard to the educational attainment level of the foreign nationals resident in Denmark, there is a uniform distribution – among the foreign nationals – over all educational levels during the period 2008-2016. Indeed, on average, 34% has educational attainment levels 0-2, 33.42% has levels 3 and 4, and 32.58% has levels 5-8 (Figure 1.10)[49].

Figure 1.10: Composition of foreigners by Educational Attainment Level (ISCED 11), Denmark, 2008-2016



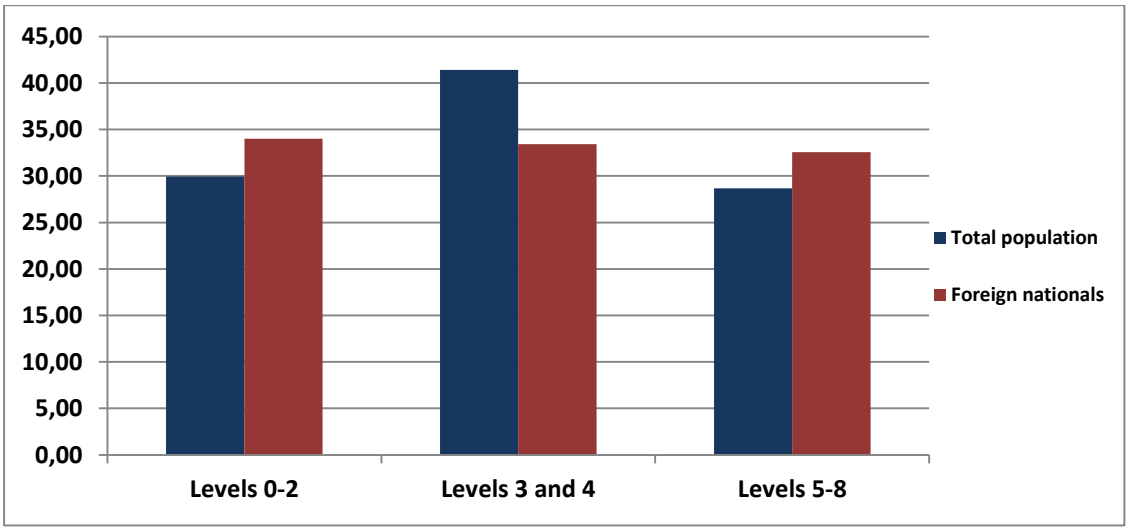
Source: Eurostat

[49] There has been an upward trend in foreign nationals that have attained tertiary education, mainly at the expense of those of upper and post-secondary educational level during the examined period. This fact is mainly due to the high educational level of EU foreign nationals, who, on average, at 46.5% have attained tertiary education, 37.1% upper or post-secondary education, and only 16.4% less than primary, primary or lower secondary education, during this period.

Comparing the total population's mean nine-year percentage distribution – with regard to its educational attainment level – with the foreign nationals' respective one, it can be inferred that the total population, is slightly more concentrated in levels 3 and 4, and less concentrated on levels 5-8 (Figure 1.11).

As for the activity rate of foreign nationals, this is on average slightly less than the respective rate for the native-born (72.98% over 79.73%) over the period 2008-2016. However, it increases with a MAGR of 1.18%, during this period, contrarily to the natives' declining MAGR of 0.16%[50].

Figure 1.11: Total and foreign population distribution (%) by educational attainment level (ISCED 11), Denmark, 2008-2016



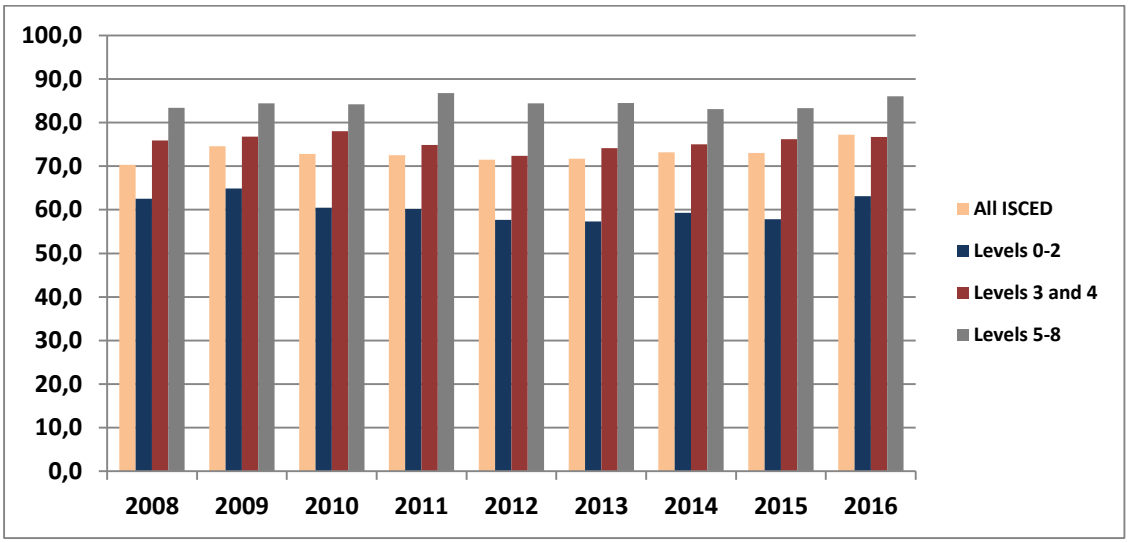
Source: Eurostat

Naturally, individuals with tertiary education have the highest activity rates among the foreign nationals (84.46%), those with upper and post-secondary follow (75.56%), while those with less than primary, primary or lower secondary education have the lowest (60.37%). Again, the activity rate of foreign nationals with educational attainment levels 5-8 is the highest, that of levels 3 and 4 comes next, while the lowest upward trend recorded is for foreign nationals with educational level 0-2[51] (Figure 1.12).

[50] The percentage activity rate of the EU foreign nationals is 83.86% during the examined period. On the other hand, the percentage activity rate non-EU foreign nationals is 66.40%, while both increase with MAGRs of 0.16% and 1.19%, respectively.

[51] The MAGRs for employment activity for individuals with educational attainment levels 0-2, 3 and 4 and 5-8 are 0.38%, 0.13% and 0.12% respectively.

Figure 1.12: Activity rates of foreigners (%) by Educational Attainment Level (ISCED 11), Denmark, 2008-2016



Source: Eurostat

Foreign-national employees constitute, on average, 6.67% of Denmark's total employees in the period 2008-2016. This share has increased since 2008, from 4.79% to 8.72% in 2016[52] ().

Table 1.7).

Table 1.7: Total and foreign national employment (in millions), Denmark, 2008-2016

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Employment	2.81	2.72	2.65	2.64	2.62	2.62	2.64	2.68	2.75
Foreign-born Employment	0.13	0.14	0.14	0.16	0.17	0.19	0.21	0.22	0.24
Share (%)	4.79	5.25	5.40	5.97	6.57	7.20	7.82	8.35	8.72

Source: Eurostat

Moreover, the percentage unemployment rate for foreign nationals in this period is, on average, 13.39%, or 6.81 percentage units (in absolute terms) higher than the respective rate for the total economy. Furthermore, following the upward unemployment trend in the total economy, it grows at a MAGR of 5.35% during the examined period[53] (Figure 1.13). With regard to unemployment among the foreign

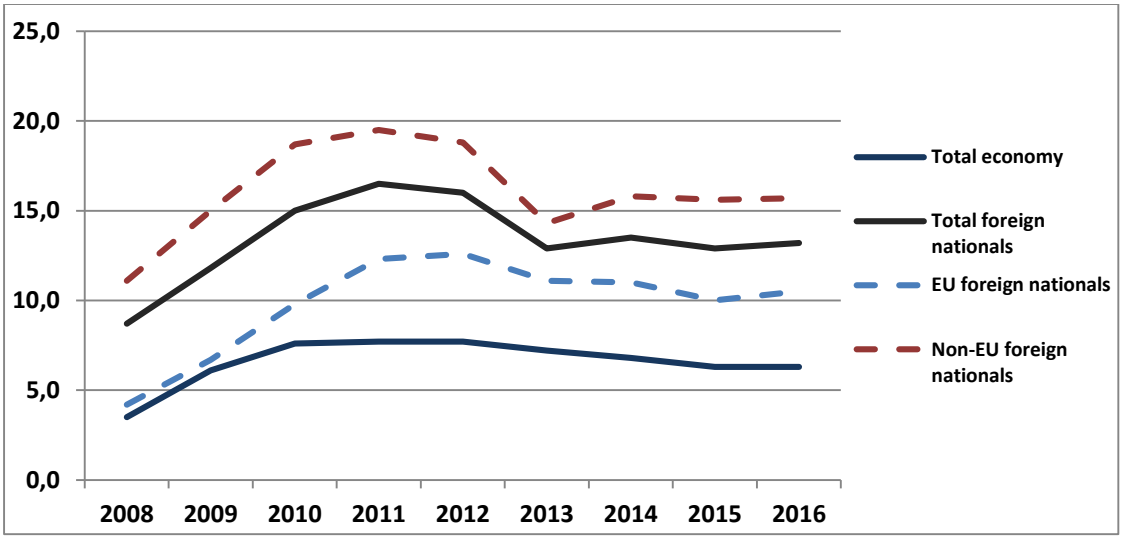
[52] With a MAGR equal to 6.87%.

[53] The foreign nationals' "high" unemployment rate (compared to the total economy's respective rate) was mainly created in the period 2008-2011.

nationals, non-EU foreign nationals face higher unemployment rates than the EU ones, although this rate increases at a smaller pace[54].

Additionally, females face higher unemployment rates (mean and trend) among the foreign nationals during the examined period (Figure1.15). More precisely, between 2008-2016 the mean unemployment rate of foreign-national females is 14.13%, or 1.46 and 7.56 percentage units more (in absolute terms) than the respective rates for foreign-national males and the total economy. Moreover, it increases with a 7.45% MAGR, or 4.3 percentage units higher and 0.18 percentage units lower than the respective rates foreign males and the total economy.

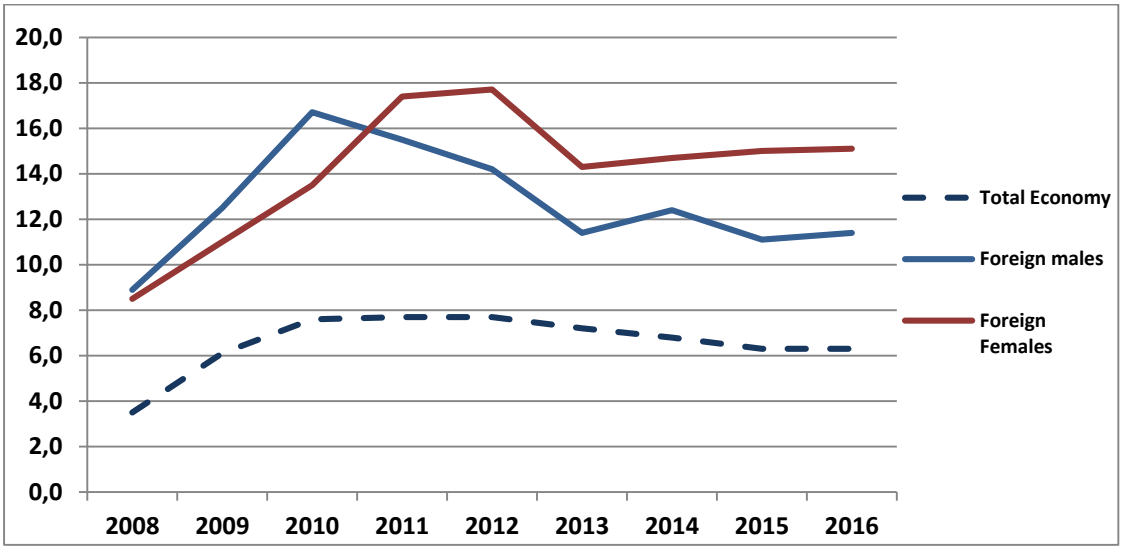
Figure 1.13: Unemployment rate for the total economy and among foreign nationals (%), Denmark, 2008-2016



Source: Eurostat

[54] The unemployment rate of non-EU foreign nationals is on average 16.06% in the period 2008-2016, increasing with a mean annual growth rate of 4.43% during this period. On the other hand, EU foreign nationals face a smaller unemployment rate (9.8%) which nevertheless increases with a mean annual growth rate of 12.13%.

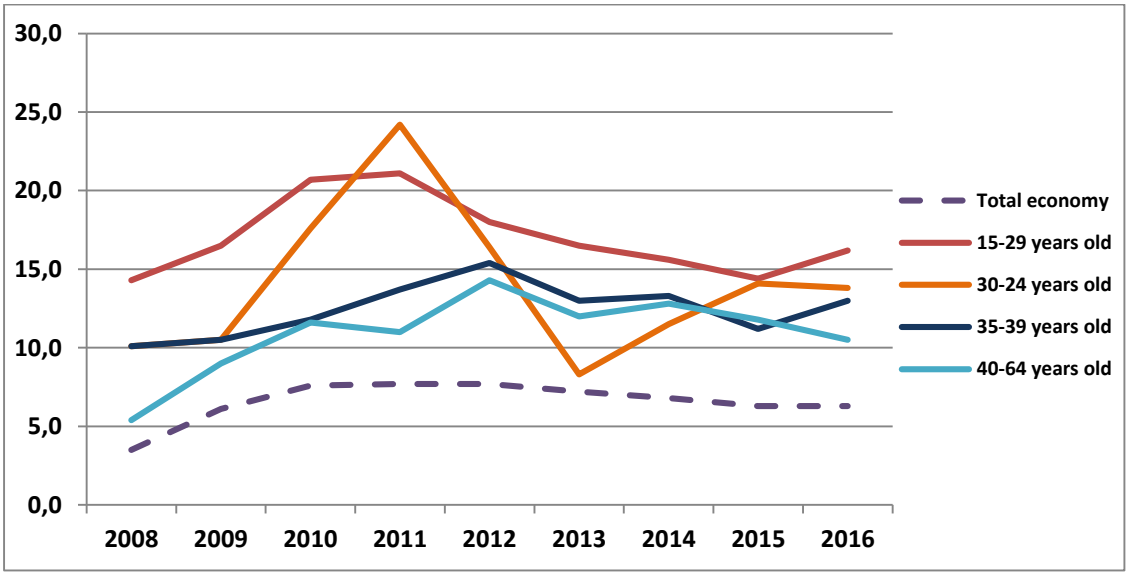
Figure 1.14: Foreign-national unemployment rate by gender (%), Denmark, 2008-2016



Source: Eurostat

Finally, with regard to age differentiation among the foreign nationals, those aged 15-29 face, on average, the highest unemployment rate (17.03%) in the period 2008-2016. This is followed by the 30-34 age group (14.06%), and then the 35-39 age group (12.44%), while the last is the 40-64 age group (10.93%), (Figure1.15).

Figure1.15: Foreign-national unemployment rate by age group (%), Denmark, 2008-2016



Source: Eurostat

1.2.2 Denmark and the migration crisis

During the recent migration crisis and since 2014, Denmark saw its number of asylum seekers – mainly Syrians – rapidly increase. The main reason for this is its location between two of the most popular European final destinations for refugees and asylum seekers, namely Germany and Sweden[55]. Since then, the Danish government has introduced a series of policy changes, in order to control migration inflows and to improve refugee integration. Some of these changes allow for the easier return of rejected asylum seekers and facilitate refugee housing. On the other hand, Denmark became the last Nordic country to tighten entry access on its border with Germany, in January 2016. Finally, asylum seekers dropped from about 1,200 per week in November 2015 to 640 in the first week of January 2016 (Kvist, 2016).

Specifically, a total of 162,375 third-country nationals were recorded as migrating to Denmark in the period 2014-2016 (Table 1.8: Migration inflows; total by gender, age group and top 5 countries of origin (in persons), Denmark, 2014-2016). This means an average of 54,125 people each year during this three-year period, or 50.74% higher than the respective mean annual migration inflow of the period 2008-2013. In addition to this, the post-2013 immigration flows increased with a MAGR of 9.74% - 3.95% higher than the pre-2014 respective MAGR.

Arrivals were mainly composed of males (54%), minors aged over 15 and adults up to the age of 64 (85%). With regard to the main countries of origin, 15.75% came from Syria, 7.82% from Romania and 7.30% from Poland, while 3.77% came from Germany and another 3% from India.

[55] https://www.theatlantic.com/international/archive/2016/01/denmark-refugees-immigration-law/431520/.

Table 1.8: Migration inflows; total by gender, age group and top 5 countries of origin (in persons), Denmark, 2014-2016

Year		2014	2015	2016
Migration Inflow		49,039	58,695	54,641
Gender	**Males**	26,742	32,335	28,971
	Females	22,297	26,360	25,670
Age Group	**< 15 Years old**	6,051	9,239	8,408
	15-64 Years old	42,645	49,109	45,902
	≥ 65 Years old	343	347	331
Country of Origin	**Syria**	5,351	11,403	8,827
	Romania	4,200	4,306	4,185
	Poland	3,990	4,085	3,777
	Germany	1,966	2,039	2,114
	India	1,371	1,615	1,897

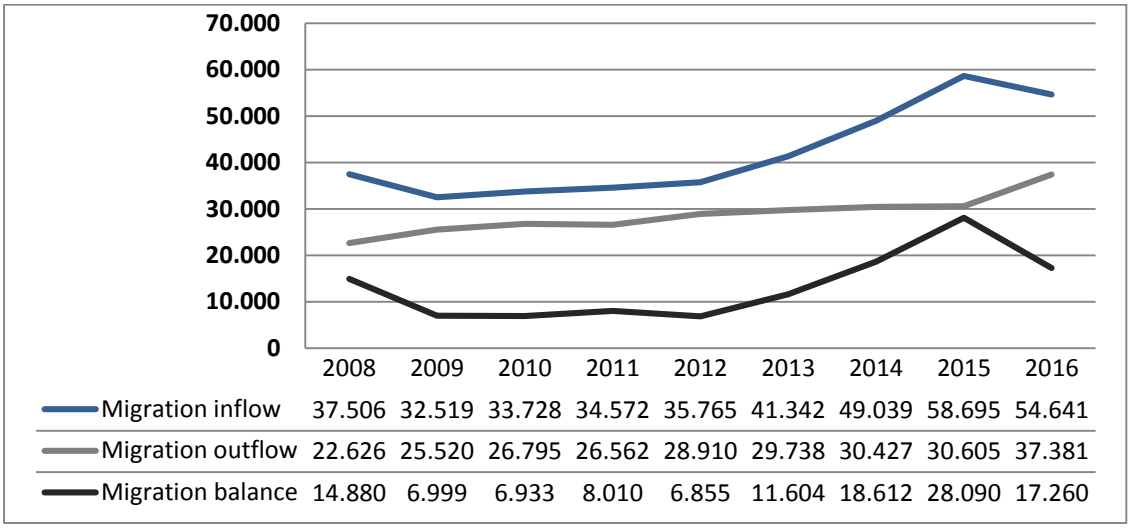
Sourse: Eurostat

At the same time, 98,413 third-country nationals left Denmark over the same period. This means, on average, almost 32,804 emigrants every year during this three-year period, a 22.9% increase compared with the 2008-2013 mean annual

migration outflow. Again, similarly to the migration inflows, post-2013 outflows follow an upward trend, 41% higher than the pre-2014 outflow trend[56].

Overall, Denmark had a migration surplus of 63,962 immigrants over the period 2014-2016, or a mean annual surplus of 21,232 third-country nationals each year, 2.31 times higher than the 2008-2013 mean annual surplus (Figure 1.16).

Figure 1.16: Immigration, emigration and migration balance (in persons) of third-country nationals, Denmark, 2008-2016



	2008	2009	2010	2011	2012	2013	2014	2015	2016
Migration inflow	37.506	32.519	33.728	34.572	35.765	41.342	49.039	58.695	54.641
Migration outflow	22.626	25.520	26.795	26.562	28.910	29.738	30.427	30.605	37.381
Migration balance	14.880	6.999	6.933	8.010	6.855	11.604	18.612	28.090	17.260

Sourse: Eurostat

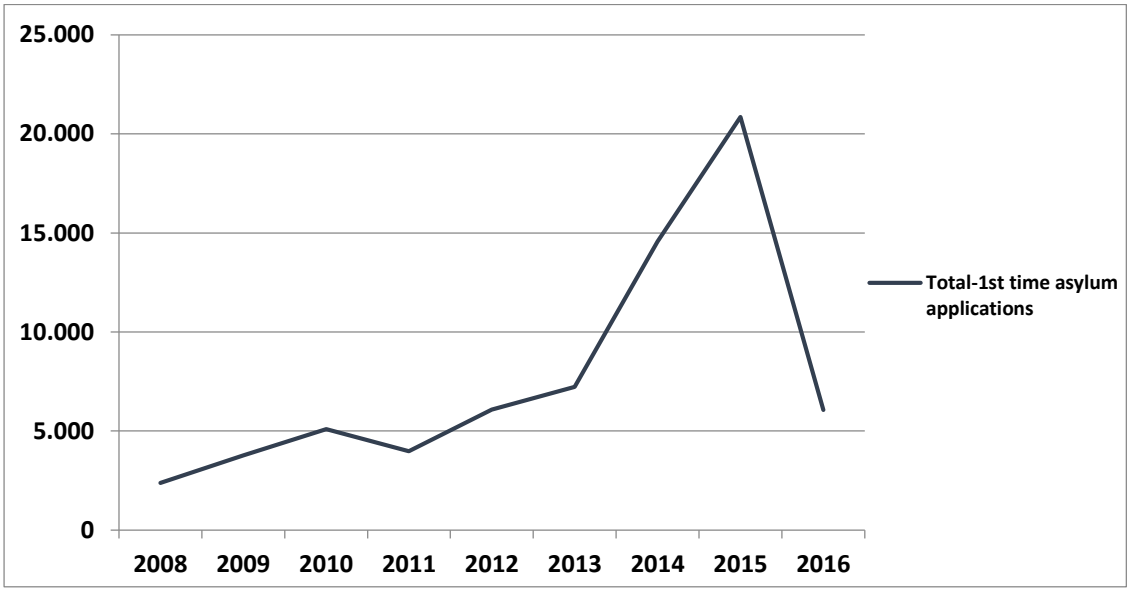
Moreover, as has already been mentioned, there was a noticeable increase in the number of third-country nationals seeking asylum in Denmark over the period 2014-2016 (Figure 1.17). More precisely, the number of asylum seekers increased from 7,230 in 2013 to 14,715 in 2014 and 20,970 in 2015[57] (MAGR of 70.31% over this period). Again, the government's efforts to control immigration restored asylum applications in 2016 to almost 2012 levels.

With regard to the composition of first time asylum seekers in this period, 72.17% were males, 28.20% minors under the age of 18, while 71.18% were adults aged 18-64 and only 0.61% were aged 65 or more. Moreover, 40.68% originated from Syria, 10.10% from Eritrea, 8.67% from Afghanistan, 7.96% from Iran and 4.90% from Iraq (Table 1.9).

[56] On the other hand, the upward trend of migration outflows is smaller than that of inflows.

[57] There is an almost complete identification between the number of first-time asylum applicants and the total number of asylum applicants. The increase in this period is therefore strictly attributed to post-2013 inflows of third-country nationals.

Figure 1.17: Total and first-time asylum applications (in persons), Denmark, 2008-2016



Sourse: Eurostat

Table 1.9: First-time asylum applicants, total, by gender and age group, Denmark, 2014-2016

Year		2014	2015	2016
First-time asylum applicants		14,715	20,970	6,195
Gender	Males	11,025	14,715	4,205
	Females	3,545	6,140	1,865
Age Group	< 18 Years old	3,005	6,300	2,395
	18-64 Years old	11,480	14,420	3,630
	≥ 65 Years old	80	130	45
Country of Origin	Syria	7,200	8,580	1,255
	Eritrea	2,275	1,705	250

	Afghanistan	305	2,215	1,110
	Iran	275	2,745	315
	Iraq	145	1,470	435

Sourse: Eurostat

1.2.3 Migration management in Denmark

Part of the Danish government's post-2014 migration policy was to manage the policy of granting asylum to the increased number of 2014-2016 asylum seekers. Hence, the rise in the number of asylum applications, accompanied with a respective increase in the number of this period's first-instance decisions: 30,775 total first-instance decisions on asylum applications were registered or, on average, 10,258 decisions every year during this three-year period. This was 2.86 times more than the respective pre-2014 mean annual number[58].

Naturally, an increase in first-instance positive decisions has also been recorded: 22,525 positive first-instance decisions were recorded over the period 2014-2016. This means, on average, more than 7,508 first-instance positive decisions every year: 418.41% higher than the 2008-2013 first-instance positive decisions. Hence, the ratio of positive to total first-instance decisions increased from 0.40 in the period 2008-2013 to 0.73 in the period 2014-2016[59].

As regards the reasons for granting asylum, 69.46% of the first instance positive decisions involved the granting of Geneva Convention status, 29.63% subsidiary protection status, while the remaining 0.91% were for humanitarian reasons (Table 1.10). As for the country of origin of those granted asylum, the vast majority came from Syria (14,940) and Eritrea (3,620).

[58] In the two-year period of 2015-2016 alone, there were 1,160 more first-instance decisions than in the six-year period 2008-2013.

[59] On the other hand, there has been a decrease in the (percentage) ratio of positive to total final decisions over the period 2014-2016. More precisely, 4,555 final decisions were recorded in total during this period and only 18.77% (855) were positive. In contrast, there were 1,960 positive decisions in the period 2008-2013 out of 7,400 total final decisions (26.49%). With regard to 2014-2016, positive final decisions, 575 (62.25%) involved the granting of Geneva Convention status and 275 (37.75%) of subsidiary protection status. As for the origins of those finally granted asylum, 210 (24.56%) were from Iran, 180 (21.05%) from Afghanistan, 95 (11.11%) from Russia, 75 (8.77%) from Syria and 45 (5.26%) from Somalia.

Table 1.10: First-instance decisions on asylum applications by reason, Denmark, 2014-2016

Year	2014	2015	2016
Total First-instance decisions	8,090	12,255	10,430
Total positive decisions	5,480	9,920	7,125
Geneva Convention status	3,765	7,605	4,275
Humanitarian status	90	70	50
Subsidiary protection status	1,625	2,245	2,805
Temporary protection status	0	0	0
Rejected	2,610	2,335	3,305

Source: Eurostat

At the same time, entry was denied to 330 third-country nationals, mainly from Albania (9.10%), Russia (7.58%), Afghanistan (6.06%), Iraq (6.06%) and Ukraine (4.55%)[60].

Moreover, there has been a significant increase, both in annual mean and trend, in the number of third-country nationals that have been found to be irregularly present in Denmark over the last period: during the two-year period of 2015-2016 alone, the total number of the third-country citizens irregularly present in Denmark was 3,555, 215 more than the overall 2008-2016 respective number[61,62] (Figure 1.18).

On the other hand, there has been a slight increase in the mean annual number of orders issued for foreign nationals to leave: 9,880 orders were issued in 2014-2016 – approximately 435 more orders each year than in the pre-2014 period[63]. Similarly, there was an increase of third-country nationals who returned following an order to leave. However, this number is in total 4,340 persons fewer than the number

[60] The post-2013 number of denials entry to the country has had a declining trend (MAGR of -5%), breaking the upward trend of the period 2008-2013 (mean annual growth rate of 14.87%).

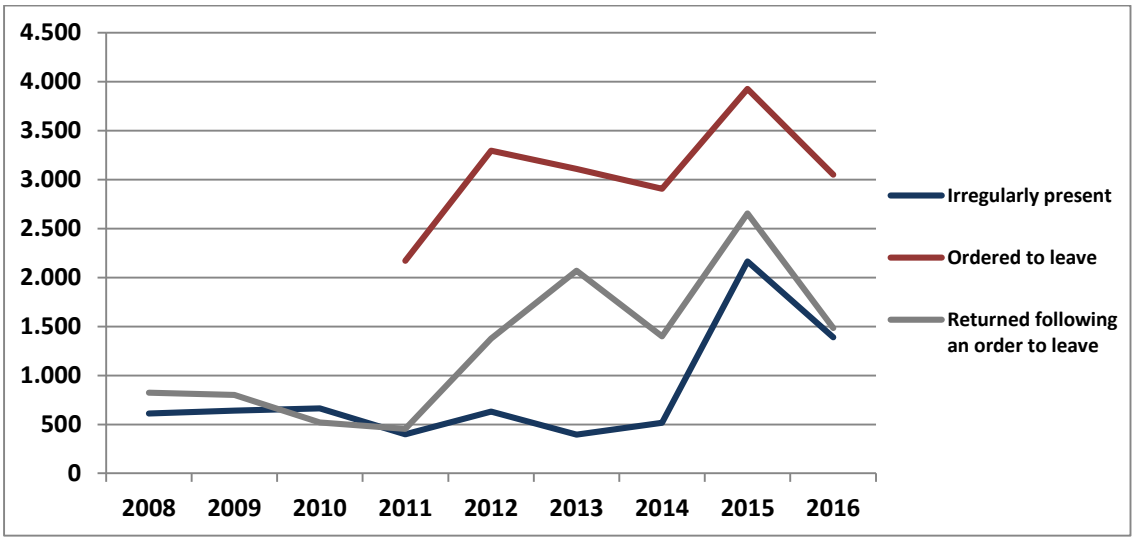
[61] Almost 65% of those irregularly present in this period were adults (18-24 years old).

[62] It has not been clarified if this increase implies a real rise in the number of foreign-nationals irregularly present in Denmark or whether it is due to the intensification of controls by the country's police authorities.

[63] Due to the lack of data for the whole 2008-2013 period, the pre-2014 mean annual number of orders to leave has been estimated for the period 2011-2013.

of orders to leave that were issued in this period. Additionally, it follows a post-2013 steeper downward trend, than the trend of orders issued to leave[64].

Figure 1.18: Third-country nationals found to be irregularly present, ordered to leave and who returned following an order to leave (in persons), Denmark, 2008-2016



Source: Eurostat

Finally, a significant increase has been recorded in the mean annual number of first residence permits issued: almost 41,160 first residence permits were granted to third-country nationals, on average, every year (123,479, in total), during the period 2014-2016; 47.46% higher than the mean annual issued first residence permits of the period 2008-2013[65].

As regards the reasons involved, 39,183 permits were issued for family reasons (31.73%), 27,830 for educational reasons (22.54%), 30,868 for remunerated activities' reasons (25.00%), and 25,598 for other reasons (20.73%)[66,67].

[64] The post-2013 MAGRs of the numbers of third-country national issued with an order to leave and those who returned following an order to leave are -6.47% and -10.48%, respectively.

[65] The total first residence permits of the period 2008-2013 are 167,471. This means on average 27,912 permits every year for this period.

[66] Compared to the 2008-2013 first residence permits issued, the greatest (percentage) relative increase was recorded for those granted a permit for other reasons (213.60%). Family and educational reasons follow with 103.16% and 7.32% respectively, while the lowest increase is recorded for those issued for remunerated activities (1.70%). As regards other reasons, 94.65% involves the granting of refugee status and subsidiary protection.

[67] A significant decrease was recorded for all reasons. However, the greatest decrease was for remunerated activities (85.9%). As for other reasons, 7.2% refers to refugee status and subsidiary protection, 4.5% to humanitarian reasons, and 8.6% to unaccompanied minors.

1.3 Greece: Statistical Overview

1.3.1 Demographic characteristics of foreign nationals

Greece's population is on average 10,973,801[68], starting from 11,094,745 and following a mean annual decrease rate of 0.3%. During this period, foreign nationals constitute, on average, almost the 8% of Greece's population[69] (Table 1.11). However, this percentage is declining with a MAGR of -1.3%[70].

Table 1.11: Greece's total and foreigners' population, on January the 1st ,(in millions), Greece, 2008-2017

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Population	11.09	11.12	11.12	11.09	11.00	10.93	10.86	10.78	10.77
Foreigners' Population	0.93	0.93	0.93	0.92	0.89	0.85	0.82	0.80	0.81
Share (%)	8.36	8.38	8.40	8.31	8.06	7.82	7.57	7.40	7.52

Source: Eurostat

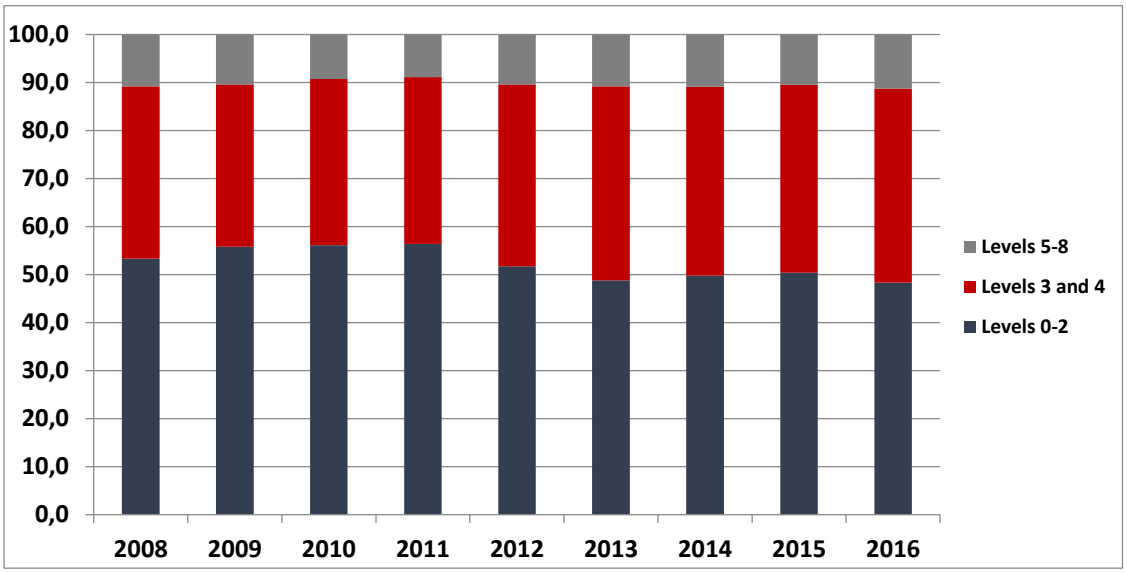
In terms of the educational attainment level of foreign nationals, on average 52.3% have less than primary, primary or lower secondary education (Levels 0-2), 37.3% have upper secondary and post-secondary education (Levels 3-4), while only 10.4% have tertiary education (Levels 5-8), in the period 2008-2016 (Figure 1.19).

[68] No data is available for 1 January 2008.

[69] The majority are females (50.74%), aged between 15 and 64 (78.27%). As for their origin, the period 1 January 2009-1 January 2017 – when data are available – almost 4 out of 5 (19.25%) come from non-EU member-states and only 1 out of 5 comes from an EU member-state.

[70] This decrease is sharper in the period 2012-2015 (1 January 2012-1 January 2016), when the mean annual rate of decline is 2.8%.

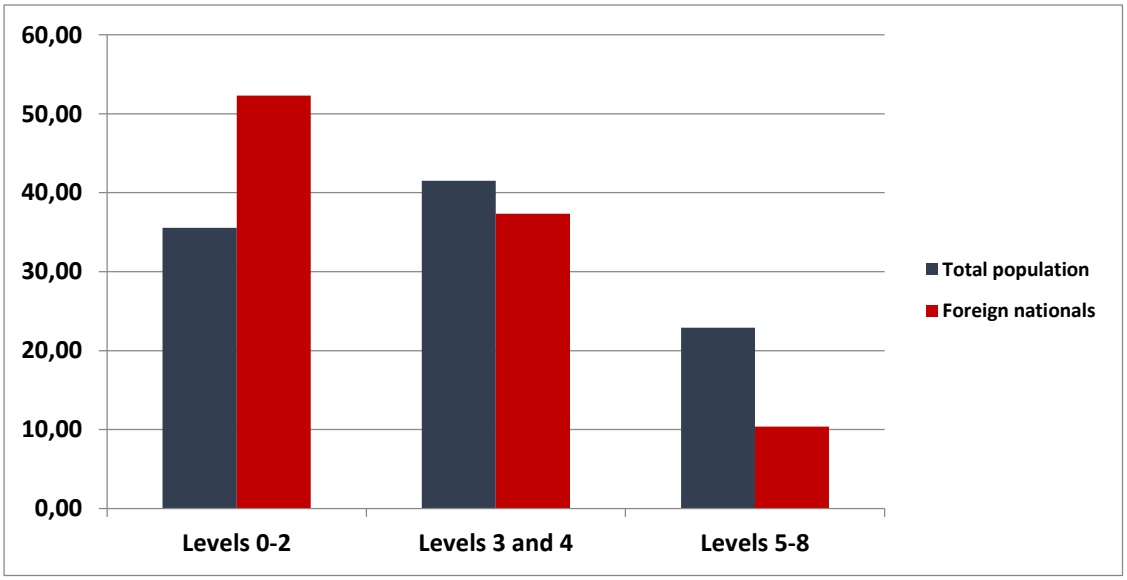
Figure 1.19: Composition of foreign nationals by Educational Attainment Level (ISCED 11), Greece, 2008-2016



Source: Eurostat

Additionally, foreign nationals have far lower levels of tertiary as well as upper secondary, post-secondary educational attainment compared to Greece's total population (Figure 1.20). However, these percentages differ between foreign nationals that come from EU member-states and those that do not. Analytically, 17.6% of EU foreigners have attained tertiary education, in contrast to 8.7% of non-EU foreigners, and 49% of EU nationals have upper and post-secondary education, compared to 34.6% of non-EU foreigners. Finally, only 33.4% EU nationals have less than primary, primary or lower secondary education, while the respective share for non-EU foreigners is 56.7%.

Figure 1.20: Total and foreign population's distribution (%) by educational attainment level (ISCED 11), Greece, 2008-2016

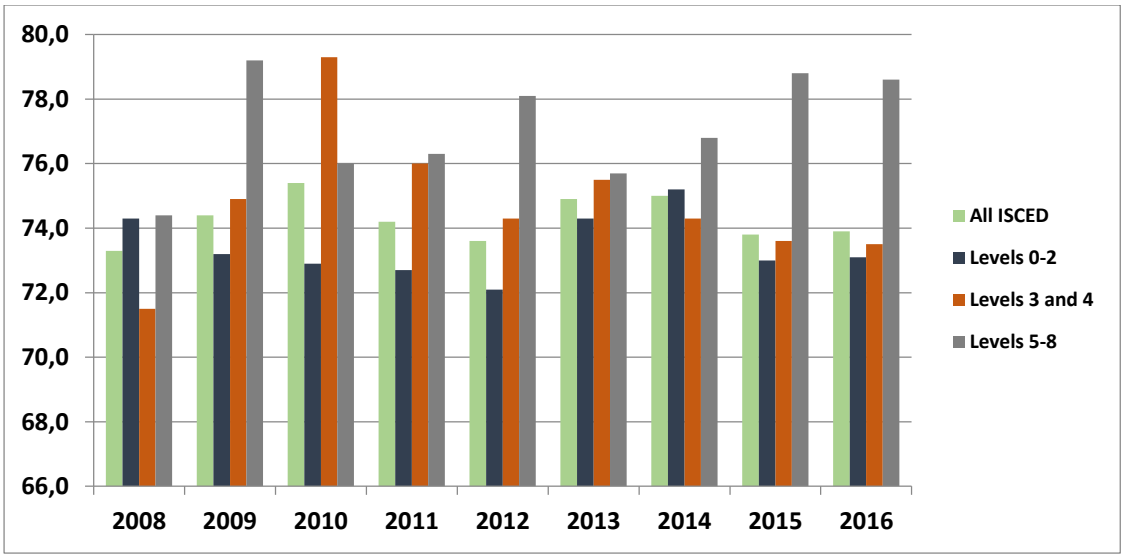


Source: Eurostat

The share of the active population among Greece's foreign-national residents is, on average, 74.28% in the period 2008-2016; in other words, 10% (or 7.4 percentage units, in absolute terms) higher than the respective share for the native-born. Moreover, the average activity rate for non-EU foreigners is 0.8% (0.6 units, in absolute terms) higher than the total foreigner activity rate during the same period.

With regard to the activity rates of foreigners according to their educational attainment level, the activity rate of those with educational attainment level 0-2 is on average 73.4% in the examined period; in other words, an overall decrease of 1.2 units in absolute terms (or a mean annual decrease of 0.20%). In contrast, the percentage share of the foreign-born active population with educational attainment levels 3 and 4 is, on average, 74.77%, recording an overall increase of 2 units, in absolute terms (or a mean annual increase of 0.35%) during this period. Finally, the highest mean activity percentage rate is recorded for foreigners with tertiary education (77.1%). Furthermore, this share increases by 4.2 percentage units (or a mean annual increase of 0.69%) over the same period (Figure 1.21).

Figure 1.21: Foreigners' activity rates (%) by Educational Attainment Level (ISCED 11), Greece, 2008-2016



Source: Eurostat

Foreign nationals form about 8% of the country's total employees. More precisely, the average annual number of foreign nationals working in Greece during the period 2008-2016 is 316,000 people (Table 1.12). This number started at 375,800 in 2008 and reached its highest value in 2009, with 433,500 foreign workers. However, as the crisis in Greece continued, the number of foreign-national workers declined at an average annual rate of 8.9%, to reach the figure of 225,700 workers in 2016, its lowest value over this period. This decline also means a decreasing share of foreign national participation in Greece's labour force: from 9.7% in 2009 to 6.3% in 2016, or a 6.1% average annual decrease.

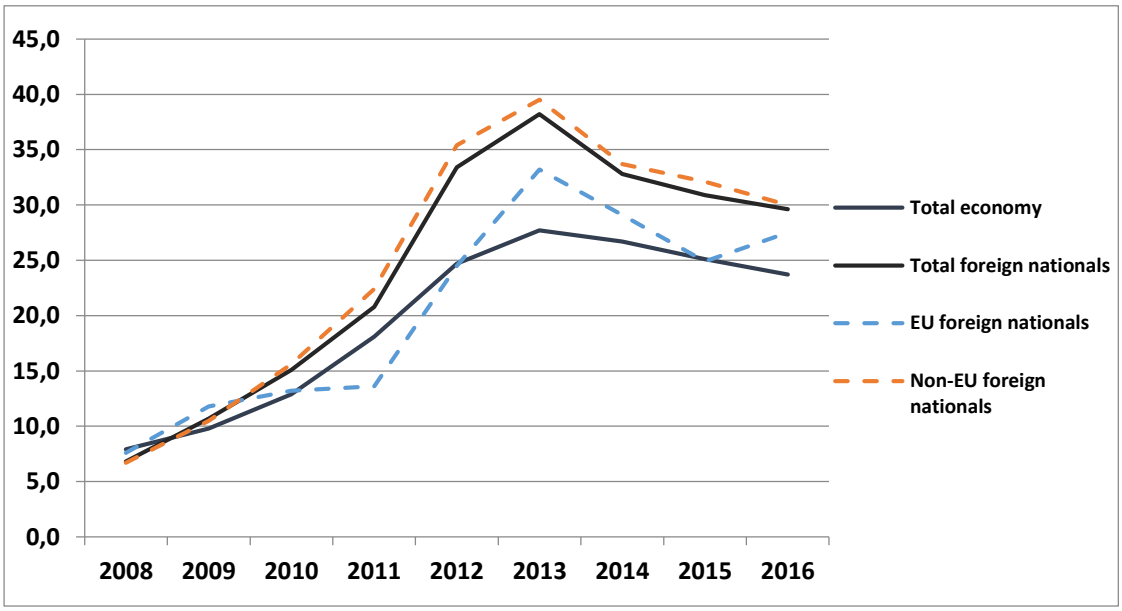
Table 1.12: Total and foreign nationals' employment (in millions), Greece, 2008-2016

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Employment	4.52	4.47	4,31	3,98	3,64	3,46	3,48	3,55	3,61
Foreigners' Employment	0.38	0.43	0.41	0.36	0.28	0.25	0.27	0.24	0.23
Share (%)	8.31	9.70	9.57	8.93	7.78	7.25	7.69	6.79	6.25

Source: Eurostat

As regards the unemployment rate of foreign nationals, this is on average 24.26% during the period 2008-2016, namely 23.61% higher than the respective rate for the total economy. Starting at 6.8% in 2008, this rate rapidly increased at a 41.2% MAGR, reaching 38.2% in 2013. However, it declines in the period 2013-2016, although at a lower MAGR (8.2%)[71] (Figure 1.22).

Figure 1.22: Total economy's and foreign nationals' unemployment rate (%), Greece, 2008-2016

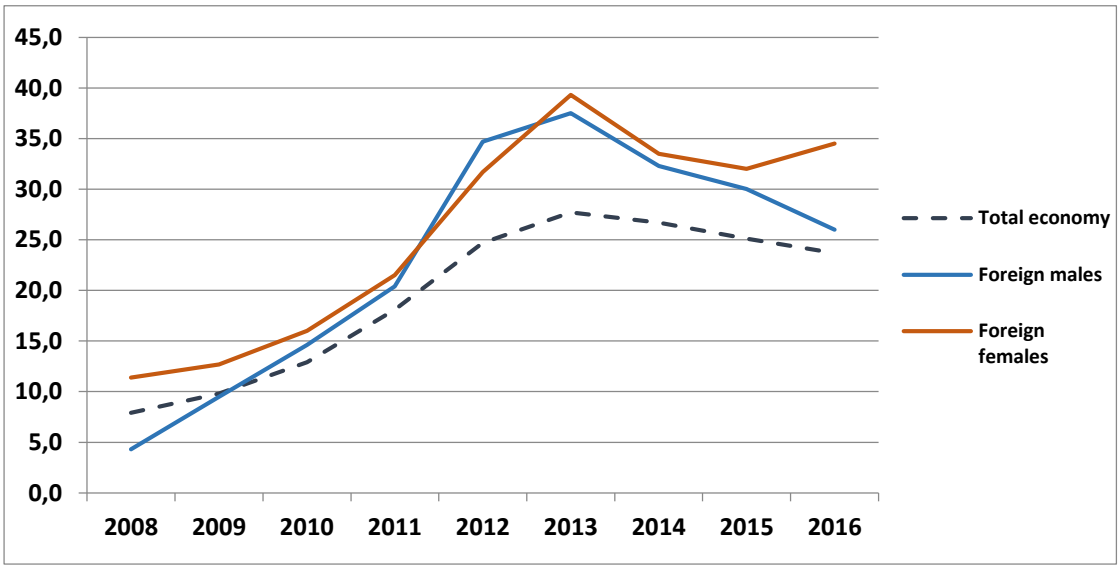


Source: Eurostat

[71] As regards the unemployment rate of non-EU foreign citizens, its mean annual rate of increase is slightly higher than the total foreigner respective rate, namely 42.6% for the period 2008-2013. On the other hand, the unemployment rate of non-EU foreigners decreases with a higher MAGR than the total foreigner rate, namely 8.8% in the period 2013-2016.

Decomposing the unemployment rate of foreign citizens according to their gender suggests that – with the exception of 2012 – women consistently face higher unemployment rates than men in the period 2008-2016 (Figure 1.23). While men's unemployment rate ranges from 4.3% (2008) to 37.5% (2013), with an average of 23.26%, women's respective rate is consistently over 10%, ranging from 11.4% in 2008 to 39.3% in 2013, with an average of 25.84% during the same period. On the other hand, the male unemployment rate increases more sharply than the female one in the period 2008-2013 (MAGR of 54.2% versus 28.1%), while it also decreases with a higher MAGR (11.5% over 4.3%) in the period 2014-2016.

Figure 1.23: Unemployment rate by gender (%), Greece, 2008-2016

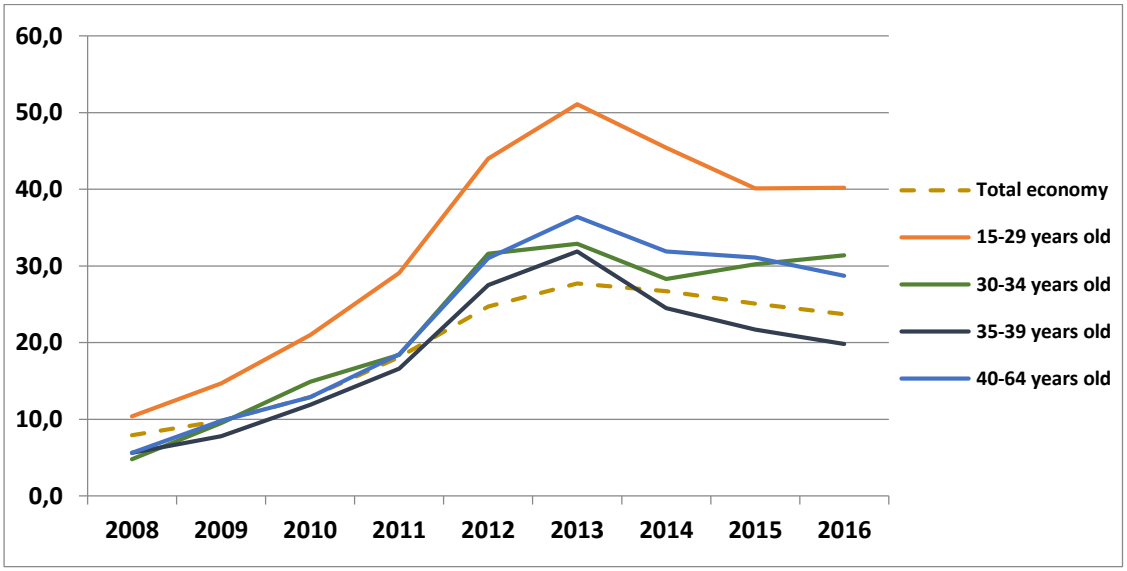


Source: Eurostat

As for the age groups that face the highest levels of unemployment, foreign citizens aged 15-29 have the highest rates (32.9% mean unemployment rate) during the period 2008-2013. The age groups 40-64 and 30-34 come next (22.9% and 22.4% respectively), while the 35-39 age group is that with the smallest unemployment rate (namely 18.6% in the period 2008-2016)[72] (Figure 1.24).

[72] The unemployment rates of all age groups fluctuate following the same pattern during this period: a sharp increase in 2008-2013, with a more moderate decrease in 2013-2016. The 30-34 age group has to deal with a steeper increase (47% mean annual increase), while the 15-29 age group has the most modest rise in unemployment (37.5%). In contrast, the 35-39 age group faced the most rapid increase (14.7% mean annual increase) and, finally, the 30-34 age group the least noticeable one (1.5%).

Figure 1.24: Unemployment rate by age group (%), Greece, 2008-2016



Source: Eurostat

1.3.2 Greece and the migration crisis

Because of its geographical position and its proximity to Turkey and the Middle East countries, Greece has been significantly affected by the overall migration crisis in the period 2014-2016. By being the only member-state of the EU in the Balkans to offer a relatively unguarded sea passage to European territory, it became a major receptor of Syrian war refugees and asylum seekers, who saw in Greece an intermediate transit station to Italy and the other central European countries. This phenomenon manifested in the early months of 2014, reaching a peak in 2015[73]. This is captured by the migration flows over this period and, as will be shown below, it reformed the country's migration policy.

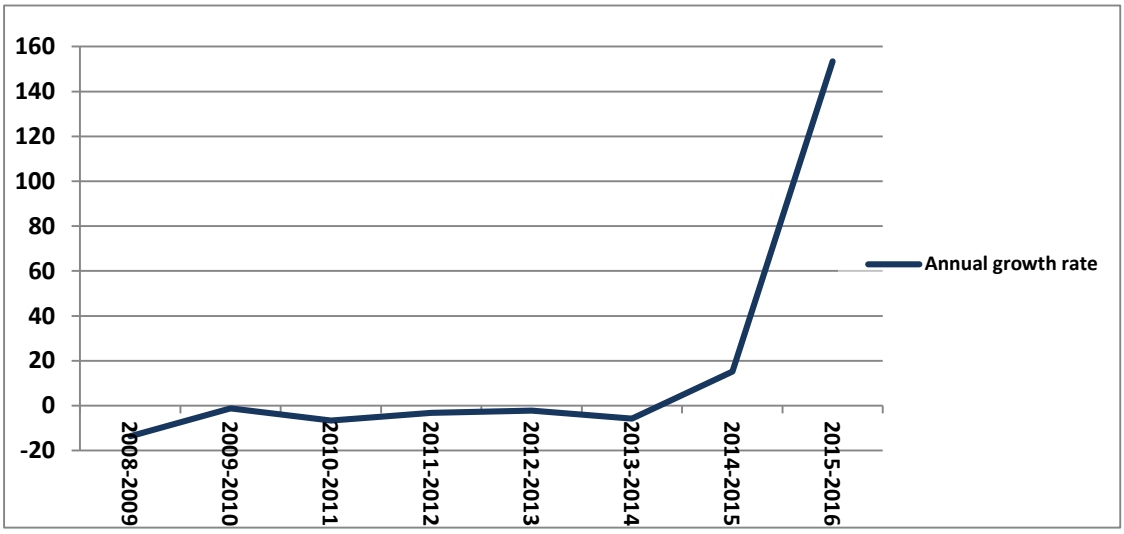
More precisely, the total number of third-country nationals that immigrated to Greece in the period 2014-2016, is 149,416 people (Table 1.13). This means, on average, 49,872 people annually; 1.5 times more than its respective average of 2008-2013. Moreover, the MAGR for the migration inflow in the period 2014-2016, is 40.12%, while its respective MAGR in the period 2008-2013 is -5.5% (Figure 1.25).

As for the 2014-2016 composition of immigrants, 59% are male and 41% female; additionally, 22% are under the age of 15, 75% are between 15-64, and only 3% are aged 65 or above [74].

[73] Around 1.1 million third-country nationals arrived in Greece during the period 2014-2016, almost 850,000 in 2015 alone (UNHCR 2018a, b).

[74] No data is available for the countries of origin of the immigration inflows.

Figure 1.25: Migration inflow's annual growth rate (%), Greece, 2008-2016



Source: Eurostat

Table 1.13: Migration inflows, total, by gender and age group, 2014-2016

Year		2014	2015	2016
Migration Inflow		29,510	33,986	86,120
Gender	**Males**	13,742	15,315	32,809
	Females	122,887	133,916	147,348
Age Group	**< 15 Years old**	4,816	5,800	22,712
	15-64 Years old	23,610	27,033	61,894
	≥ 65 Years old	1,084	1,153	1,514

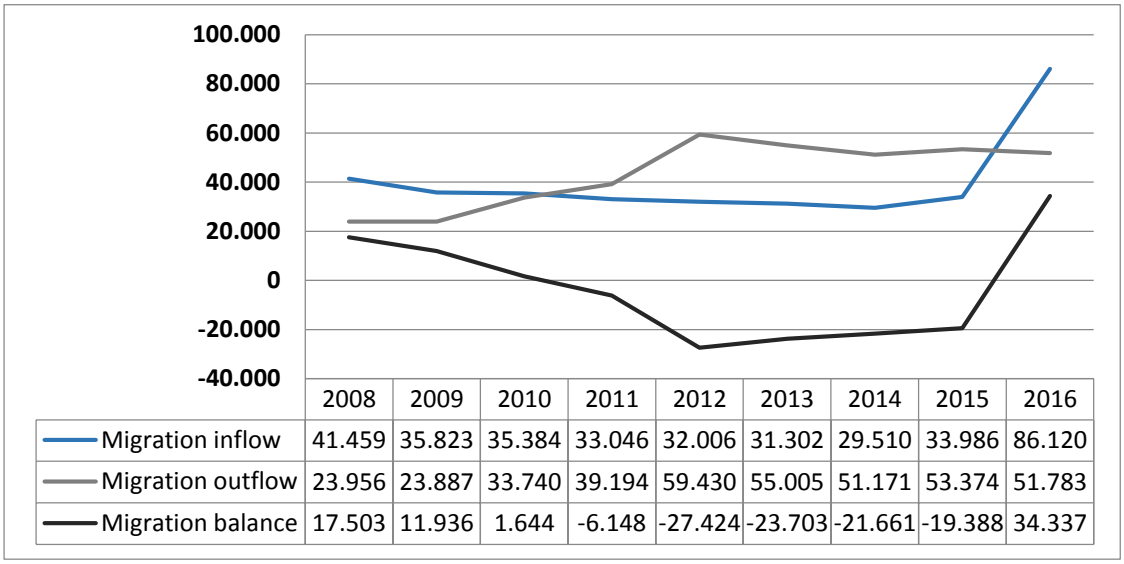
Source: Eurostat

On the other hand, during the economic crisis in Greece, there was also an increasing number of migration outflows: 156,328 persons emigrated from Greece (52,109, on average, each year) in the period 2014-2016. This means, on average, 12,907 more people annually than the period 2008-2013. However, emigration flows retain a slightly negative trend (-1.99% MAGR) in the period 2014-2016, in contrast to the upward trend (18.1% MAGR) of the period 2008-2013.

Hence, Greece has a migration deficit of 6,712 persons for the period 2014-2016, namely 2,237 persons each year, and 48.75% (2,128 persons in absolute

terms) lower than the 2008-2013 respective deficit. However, Greece's migration balance became positive in 2016 and is expected to increase further, taking into consideration the respective trends of the migrant inflow and outflow (Figure 1.26: Third-country nationals' immigration, emigration and migration balance (in persons), Greece, 2008-2016).

Figure 1.26: Third-country nationals' immigration, emigration and migration balance (in persons), Greece, 2008-2016



	2008	2009	2010	2011	2012	2013	2014	2015	2016
Migration inflow	41.459	35.823	35.384	33.046	32.006	31.302	29.510	33.986	86.120
Migration outflow	23.956	23.887	33.740	39.194	59.430	55.005	51.171	53.374	51.783
Migration balance	17.503	11.936	1.644	-6.148	-27.424	-23.703	-21.661	-19.388	34.337

Source: Eurostat

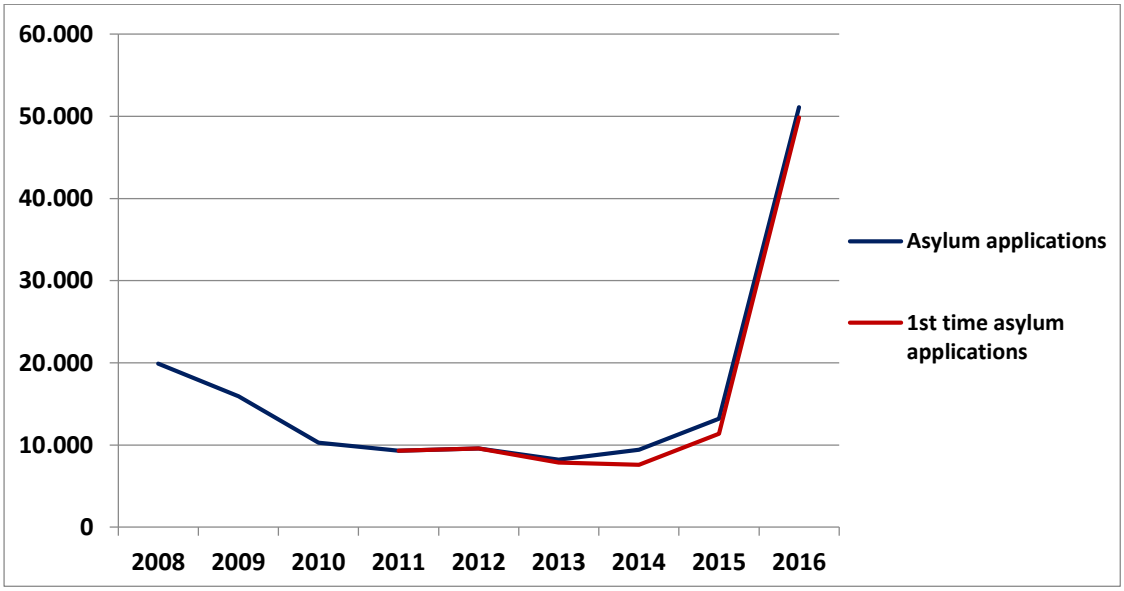
Together with the migrant inflow, there has also been an increase in total and first-time asylum applications in the 2014-2016 period. Specifically, total and first-time asylum applications in this period are 73,750 and 68,835 respectively. This means that, on average, 24,583 immigrants applied for asylum each year, 22,945 of them for the first time, namely 2 and 2.5 times more than the mean annual total and first-time asylum applications for the period 2008-2013 (Figure 1.27).

Again, the MAGRs of both total and first-time asylum applications are positive in this period (83.85% and 85.13%, respectively), contrary to the previous period, where both total and first-time asylum applications declined, with mean annual rates of 16.18% and 8.12% respectively[75].

As regards the 2014-2016 first-time asylum applicants, 66% are male and 44% female, while 33.9% are under the age of 18, 65.5% are 18-64, and 0.6% are 65 or above. As for their country of citizenship, 44.6% come from Syria, 10.7% from Afghanistan, 10.2% from Pakistan, 8% from Iraq, and 4% from Albania (Table 1.14).

[75] Due to a lack of data, the MAGR for first-time asylum applicants is only for the period 2011-2013.

Figure 1.27: Total and first-time asylum applications, Greece, 2008-2016



Source: Eurostat

Table 1.14: First-time asylum applicants, total, by gender and age group, 2014-2016

Year		2014	2015	2016
First-time asylum applicants		7,590	11,370	49,875
Gender	**Males**	5,950	8,240	30,995
	Females	1,640	3,130	18,880
Age Group	**< 18 Years old**	1,300	2,420	19,635
	18-64 Years old	4,760	6,485	21,145
	≥ 65 Years old	1,510	2,385	8,780
Country of Origin	**Syria**	730	3,325	26,630
	Afghanistan	1,550	1,545	4,295

	Pakistan	1,125	1,505	4,420
	Iraq	130	575	4,770
	Albania	555	915	1,300

Source: Eurostat

1.3.3 Migration management in Greece

Following this period's increasing number of asylum seekers, there has also been a rise in the total number of decisions granted to asylum applications. More precisely, the total first-instance positive decisions in 2014-2016 came to a total of 8,715, or on average 2,905 annual positive decisions; almost 16 times greater than the respective 2008-2013 average.

At the same time, there has been a fall in the mean annual applications that have been rejected: on average, 8,562 applications were rejected each year (25,685 in total) in the period 2014-2016, while the mean annual rejected applications for 2008-2013 came to a total of 13,205. This means that the ratio of positive to rejected first-instance decisions in the period 2014-2016 increased by a multiplier of 3.63, compared to the respective ratio for the period 2007-2013. Focusing on positive first-instance decisions, 7,405 (85%) granted Geneva Convention status, 1,190 (13.65%) subsidiary protection, and 125 (1.35%) were issued for humanitarian reasons (Table 1.15).

Table 1.15: First instance decisions on asylum applications by reason, 2014-2016

Year	2014	2015	2016
First-instance decisions	**13,310**	**9,640**	**11,455**
Total positive decisions	**1,970**	**4,030**	**2,715**
Geneva Convention status	1,270	3,665	2,470
Humanitarian status	115	10	0
Subsidiary protection status	590	355	245
Temporary protection status	0	0	0

Rejected	**11,335**	**5,610**	**8,740**

Source: Eurostat

Regarding their composition, 68% are male and 32% female. Moreover, 25.7% are minors, under the age of 18, while 73.6% are adults up to the age of 64, and only 0.7% are aged 65 or above. As for the main countries of citizenship, the majority come from Syria and Afghanistan. Indeed, among the first-instance asylums granted, 5,045 (57.89%) come from Syria, 1,060 (12.16%) from Afghanistan, 335 (3.84%) from Iran, 305 (3.50%) from Iraq and 255 (2.93%) from Eritrea.

Meanwhile, there has been an increase in total final decisions. In fact, the total positive decisions for 2014-2016 were 9,555. This means on average 2,389 positive decisions per year, 6.26 times more than the mean annual positive decisions of the period 2008-2013. However, in contrast with first-instance decisions, there has also been a rise in the number that are rejected in this period. More specifically, the mean annual number of rejected decisions almost quadrupled, compared with the mean annual decisions of the previous period (2008-2013). However, again, the ratio of the positive to rejected final decisions increased from 0.31 to 0.52[76].

At the same time, an increasing number of non-EU citizens[77] have been refused entry at the external borders. Specifically, during the overall three-year period, 31,500 persons were refused entry to Greece, 18,145 in 2016 alone. Of these 24,170 were from Albania (76.73%), 1,950 from Turkey (6.19%), 1,285 from the Former Yugoslav Republic of Macedonia (FYRoM) (4.1%), 655 from Syria (2.1%) and 475 from Georgia (1.5%).

Moreover, 1,189,960 third-country nationals were found to be irregularly present in Greece over this period. In 2015 alone, this figure reached 911,470 persons. In general, the mean annual number of the irregularly present, over the three-year period, is 396,653, approximately 4.5 times greater than its 2008-2013 respective value.

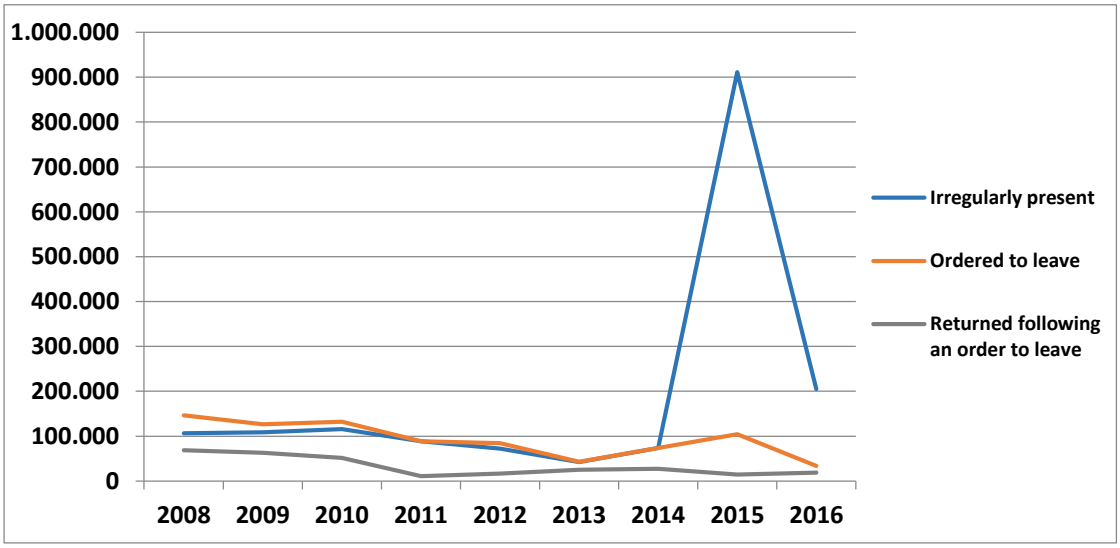
Similarly, with the exception of 2015, there was a significant increase in the number of third-country nationals ordered to leave. Indeed, the mean annual orders issued are almost 70,679, or 31.79% less than the respective orders for 2008-2013. Additionally, they decline with a mean annual rate of 7.83% in the period under

[76] In terms of the reasons for positive decisions, 2,930 (30.65%) granted Geneva Convention status, 5,815 (60.85%) were for humanitarian reasons, and 810 (8.5%) granted a subsidiary protection status. The successful applicants were mainly male adults aged up to 65 (81.5% and 93.8% respectively), with 1,545 from Pakistan (16.17%), 1,455 from Bangladesh (15.22%), 1,275 from Georgia (13.34%), 1,015 from Afghanistan (10.62%) and 740 from Syria (7.74%).

[77] The mean annual number of refusals in the period 2014-2016 is 72.82% higher than the respective 2008-2013 figure. Additionally, it follows an upward trend, being 34.73% higher than its 2008-2013 trend.

examination. Again, there is also a decrease in the number of foreign nationals who returned to Greece following an order to leave. Specifically, the total number of third-country nationals that returned in the period 2014-2016 is 60,500, namely 20,167 persons per year, while the respective number in the period 2008-2016 was 39,317 persons (Figure 1.28).

Figure 1.28: Third country nationals found to be irregularly present, ordered to leave and returned following an order to leave (in persons), Greece, 2008-2016



Source: Eurostat

Finally, there has been an increasing annual number of first residence permits. Indeed, 103,987 permits (on average, 34,662 annual permits) were conceded to third-country nationals, during the period 2014-2016, compared to 175,000 permits (on average, 29,167 annual permits) of the period 2008-2013. 55,420 (53.30%) of these permits issued for family reasons, 2,608 (2.51%) for educational reasons, 5,434 (5.23%) for remunerated activities reasons, and 40,525 (38.97%) for other reasons.

Compared to the first residence permits issued between 2008-2013, the only relative increase has been recorded to those granted for other reasons (87.94%). On the other hand, the largest decrease has been recorded to those granted for remunerated activities (89.03%). Educational and family reasons follow with 65.11% and 42.54% decreases, respectively. With regard to other reasons, 12.76% involves humanitarian reasons.

1.4 Italy: Statistical Overview

1.4.1 Demographic characteristics of foreign nationals

Italy's population, in the period 1 January 2008-1 January 2017, ranges from 59,000,586 (1 January 2008) to 60,795,612 (1 January 2017), following an overall MAGR of 0.18%. In this period, the percentage of the foreign nationals in the country's population is on average 7.7%, with a MAGR of 4.5%[78] (Table 1.16).

Table 1.16: Italy's total and foreign nationals' population, on 1st of January (in billions), Italy, 2008-2017

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Population	59.62	59.00	59.19	59.36	59.39	59.69	60.78	60.80	60.67	60.59
Foreigners' Population	3.43	3.40	3.65	3.88	4.05	4.39	4.92	5.01	5.03	5.05
Share (%)	5.76	5.77	6.16	6.53	6.82	7.35	8.10	8.25	8.29	8.33

Source: Eurostat

As for the distribution foreign nationals according to educational attainment level, the data show that no significant differentiations were recorded for the period 2008-2016 (Figure 1.29). In fact, on average, almost half the foreign nationals (50.2%) have attained less than primary, primary or lower secondary education (Levels 0-2), 39.7% upper secondary and post-secondary education (Levels 3 and 4), and only 10.1 % a tertiary education (Levels 5-8)[79].

Comparing the foreign nationals' mean nine-year percentage distribution with that of the total population, we can infer that, just like in Greece, few foreign nationals in Italy have attained tertiary and upper secondary, post-secondary educational levels[80] (Figure 1.30).

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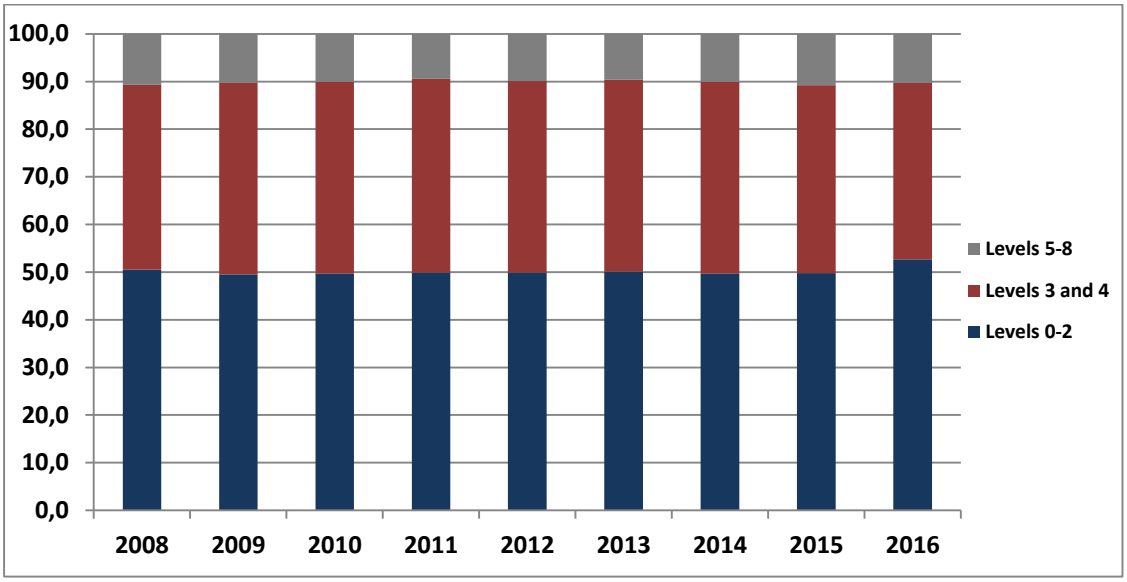
[78] 47.49% are male, 52.51% female, 19.23% under 15 years old and 77.95% 15-64 years old. As for the origins of these foreigners, from 1 January 2009 to 1 January 2017 almost 70% come from a non-EU member-state and only 30% from an EU member-state.

[79] These percentages are for the 2008-2016 mean percentages of Italy's foreign citizens, aged between 15 and 64.

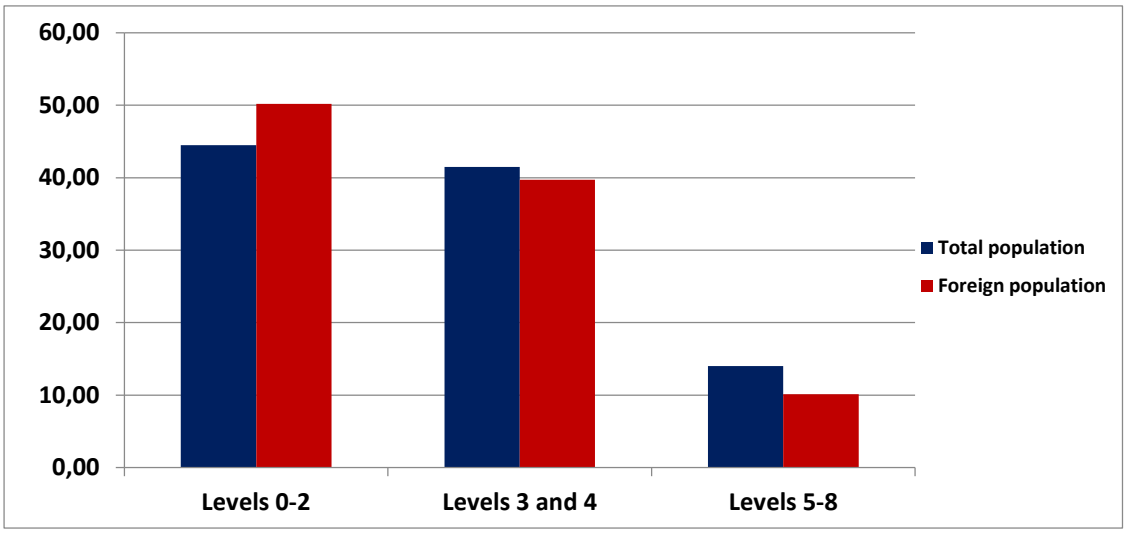
[80] However, these percentages differ between EU and non-EU foreigners. More precisely, 11.5% of EU foreign nationals have attained tertiary education, 56% upper and post-secondary education and only 32.5% less than primary, primary or lower secondary education, in contrast to 9.5%, 32.6% and 57.8% for non-EU foreign nationals respectively.

Figure 1.29: Composition of foreigners, by Educational Attainment Level (ISCED 11), Italy, 2008-2016



Source: Eurostat

Figure 1.30: Total and foreign population's distribution (%) by educational attainment level (ISCED 11), Italy, 2008-2016



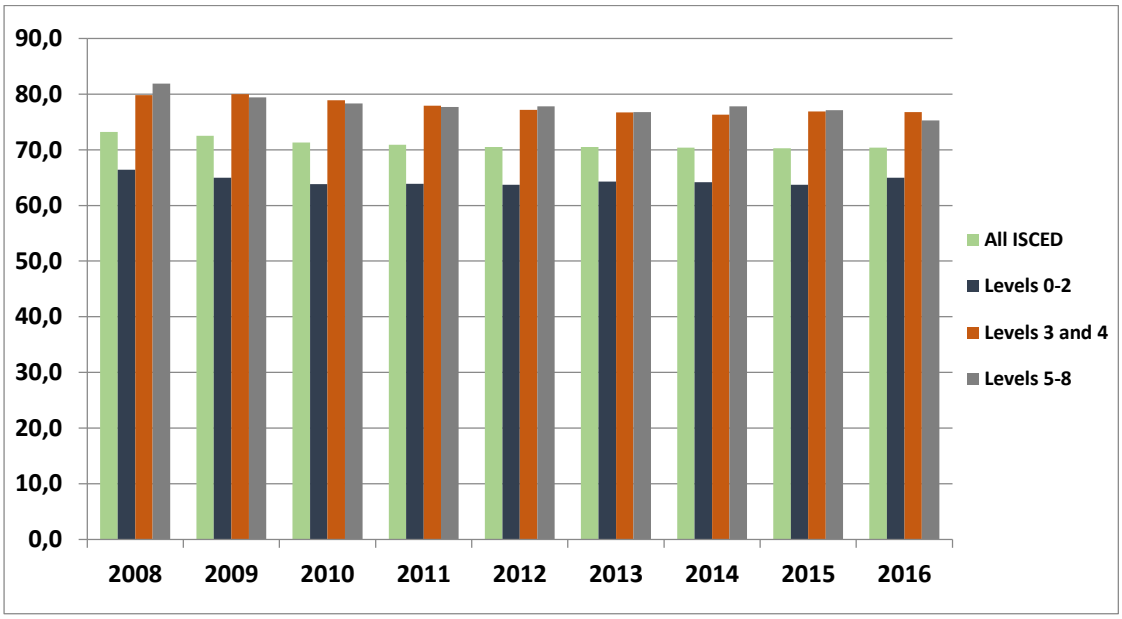
Source: Eurostat

The activity rate of foreign nationals residents in Italy is on average 71.1% for the period 2008-2016, namely 8.6 percentage units (in absolute terms) more than the

respective rate for the native-born[81]. However, the activity rate of foreign nationals follows a downward trend in this nine-year period, with a MAGR of -0.5%. In contrast, the activity rate for natives grows at a mean annual rate of 0.4% in the same period.

This rate differs among the foreign nationals according to their educational attainment level: the activity rates of foreign nationals with educational attainment levels 3-4 and 5-8 consistently exceed the overall activity rate of foreign nationals during 2008-2016 (Figure 1.31). On the other hand, the activity rate of foreign nationals of educational attainment level 0-2 falls short of the overall rate for foreign nationals during the same period. Besides, even though there is a declining trend in the overall activity rate and all its components, the activity rate of foreigners of educational attainment level 5-8 declines faster than the overall rate, with a mean annual decreasing rate of 1%[82].

Figure 1.31: Foreigners' activity rates (%) by Educational Attainment Level (ISCED 11), Italy, 2008-2016



Source: Eurostat

Additionally, foreign residents in Italy comprise on average 9% of the country's total employees in the period 2008-2016. In fact, the number of foreign national employees working in the Italian economy in 2008 was 1,682,500. This number reached 2,378,200 employees in 2016, following a MAGR of 4.40%, while the corresponding trend for total employment is -0.3% (Table 1.17).

[81] The activity rate for non-EU nationals is on average 69.3% in 2008-2016, while the corresponding rate for the EU nationals resident in Italy is 75.3%.

[82] The percentage activity rates of foreign nationals with educational attainment levels 0-2 and 3-4 decline over the period 2008-2013 at a mean annual rate of 0.3% and 0.5% respectively.

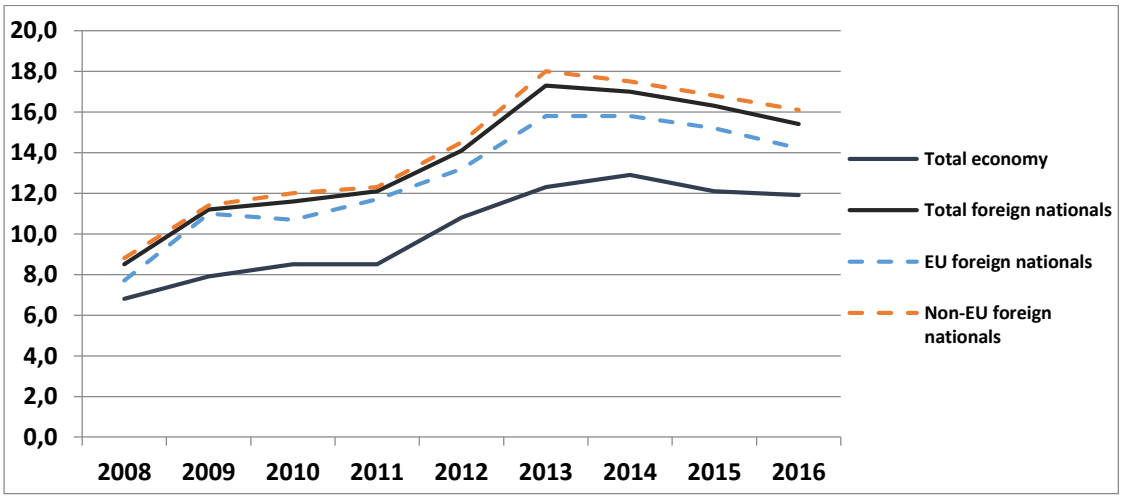
Despite the increasing number of foreign-national employees working in the Italian economy and the decreasing trend in their population's activity rate, there was nevertheless an upward trend in their unemployment rate during that period. Specifically, the foreign unemployment rate has a nine-year average of 13.7%, following a MAGR of 7.7% (Figure 1.32). The unemployment rate is higher both in mean and trend among the non-EU foreign population (14.16% and 7.8% respectively). At the same time, the average for the total economy is 10.2%, and its MAGR is 7.2%.

Table 1.17: Total and foreign nationals' employment (in billions), Italy, 2008-2016

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Employment	22.70	22.32	22.15	22.21	22.15	21.76	21.81	21.97	22.24
Foreigners' Employment	1.68	1.78	1.90	2.02	2.10	2.17	2.28	2.34	2.38
Share (%)	7.41	7.99	8.60	9.09	9.48	9.96	10.43	10.63	10.69

Source: Eurostat

Figure 1.32: Total economy's and foreign nationals' unemployment rate (%), Italy, 2008-2016

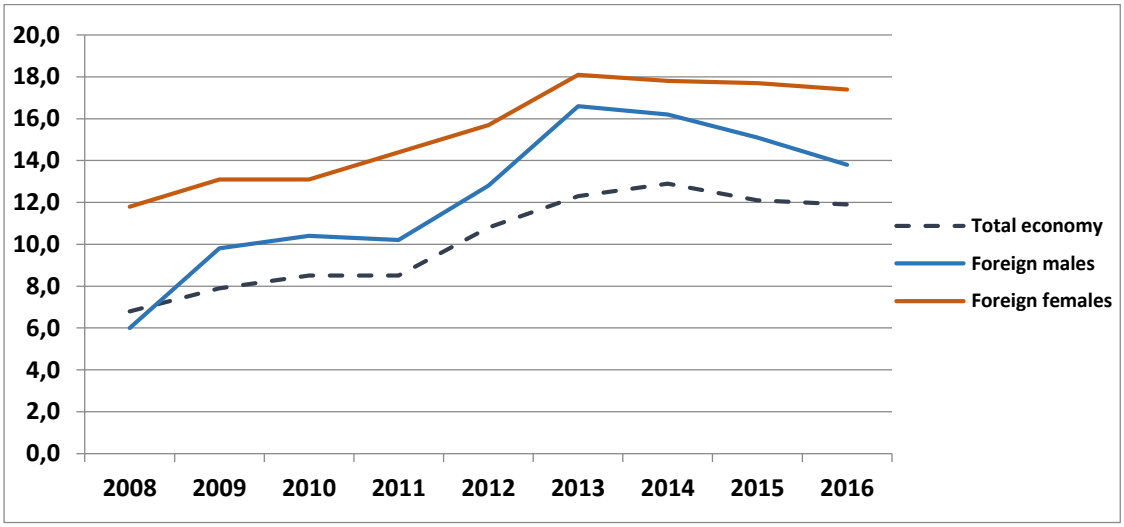


Source: Eurostat

Furthermore, by decomposing the unemployment rate of foreign nationals by gender we can see that the female unemployment rate consistently exceeds the unemployment rates of both males and the total economy. Moreover, the foreign male unemployment rate exceeds that of the total economy during the same period (Figure 1.33).

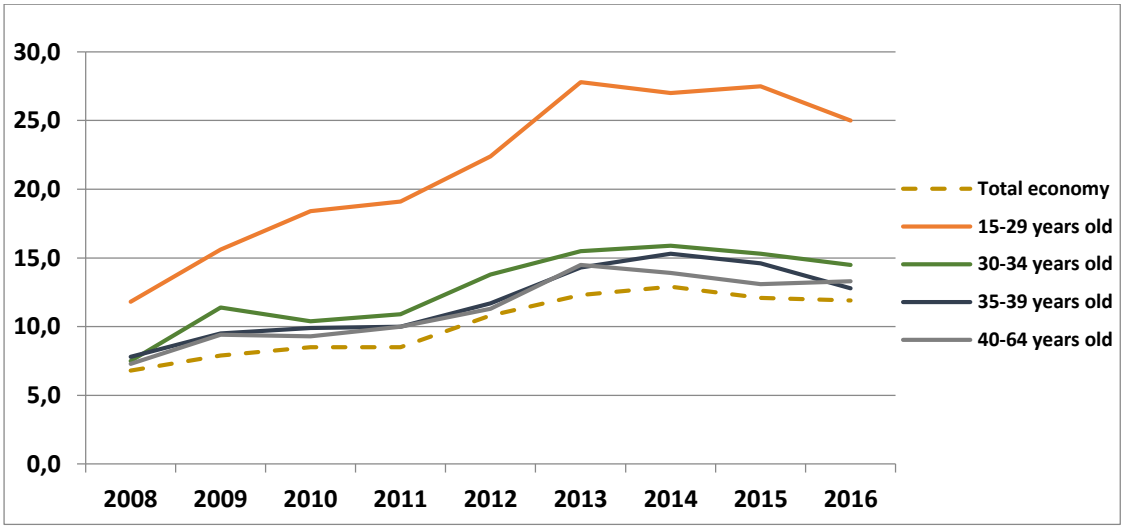
Finally, with regard to the age differentiation in unemployment among foreign-nationals, an initial comment is that all age groups face higher unemployment rates than those for the total economy[83] (Figure 1.34). However, the greatest problem is recorded among the ages 15-29. Specifically, the average unemployment rate for this age group is 21.6% in the period 2008-2016, reaching its maximum value (27.8%) in 2013, following an overall increasing trend at a MAGR of 9.8%[84].

Figure 1.33: Foreign-nationals' unemployment rate by gender (%), Italy, 2008-2016



Source: Eurostat

Figure 1.34: Unemployment rate by age group (%), Italy, 2008-2016



Source: Eurostat

[83] With the exception of the unemployment rate of the 35-39 age group, which increases with a MAGR lower than that of the total economy, namely 6.4%.

[84] The increasing trend of this age group was even sharper in the five-year period 2008-2013. During this period, the MAGR of the age group's unemployment rate was 18.7%.

1.4.2 Italy and the migration crisis

Since the early 1990s[85], Italy has constituted a traditional destination for economic and political migrants. Likewise, Italy has today been deeply affected by the post-2014 migration crisis. The reasons are much the same as with Greece: its proximity to Africa's north coast, Turkey and the Middle Eastern countries, combined with its long sea border have made Italy a major receptor of sea arrivals, mainly war refugees and asylum seekers from Syria, Afghanistan, Nigeria and Eritrea[86]. These inflows routed through Italy either from the Eastern Mediterranean, mainly through Turkey (directly or through Greece) and Egypt, or through Central and West Mediterranean, through Libya, Tunisia and Morocco (UNHCR, 2016).

More precisely, the total recorded third-country nationals that immigrated into Italy in the period 2014-2016 were 761,315 people (Table 1.18). In other words, 253,872 people on average arrived in Italy every year during this period. Surprisingly, the three-year mean annual migrant inflow is lower than its respective 2008-2013 mean. Nonetheless, it follows an increasing trend, in contrast to the sharply declining trend in 2008-2013[87].

As regards the composition of the 2014-2016 immigrants, 53.10% are males and 46.90% females. In addition, 12% are less than 15 years old, 85% are 15-64 years old, and only 3% are aged 65 or above. As for the main countries of origin, 19% are from Romania, 6% from Morocco and 5% from China (including Hong Kong), Albania and Bangladesh, respectively.

Also, there has been an increasing number of migration outflows: 134,718 persons emigrated from Italy during the period 2014-2016. This means, on average, 10,511 more people each year than in the period 2008-2013. Nonetheless, the emigration flows retain a slightly negative trend (-0.84% MAGR) in the period 2014-2016, compared with the positive trend (10.1% MAGR), of the 2008-2013 period (Figure 1.35: Third-country nationals' immigration, emigration and migration balance (in persons), Italy, 2008-2016). After all, Italy retains a positive migration balance of 626,597 persons in total in the period 2014-2016. This balance mainly depends on the migrant inflow, since Italy maintains a relatively constant outflow trend.

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[85] During the tree-year period 1989-1992, Italy received an influx of Albanian citizens, following the collapse of Albania's socialist regime.

[86] In total, 505,278 third-country nationals arrived by sea in Italy during the period 2014-2016, mainly men originating from Nigeria, Eritrea, Guinea, Cote d'Ivoire, Gambia and Syria (Itstat, 2018).

[87] In 2008-2013, migrant inflows had been declining at a MAGR of -10.9%, whereas in 2014-2016 the respective mean annual growth rate was 2.9%.

Table 1.18: Migration inflows; total, by gender, age group and top-5 countries of origin (in persons), Italy, 2014-2016

Year		2014	2015	2016
Migration Inflow		248,360	250,026	262,929
Gender	**Males**	122,887	133,916	147,348
	Females	125,473	116,110	115,581
Age Group	**< 15 Years old**	31,894	30,519	31,138
	15-64 Years old	209,656	212,165	223,622
	≥ 65 Years old	6,810	7,342	8,169
Country of Origin	**Romania**	50,705	46,439	45,238
	Morocco	17,637	15,009	14,651
	China	15,828	14,866	12,366
	Albania	11,398	11,545	12,966
	Bangladesh	12,673	12,443	10,733

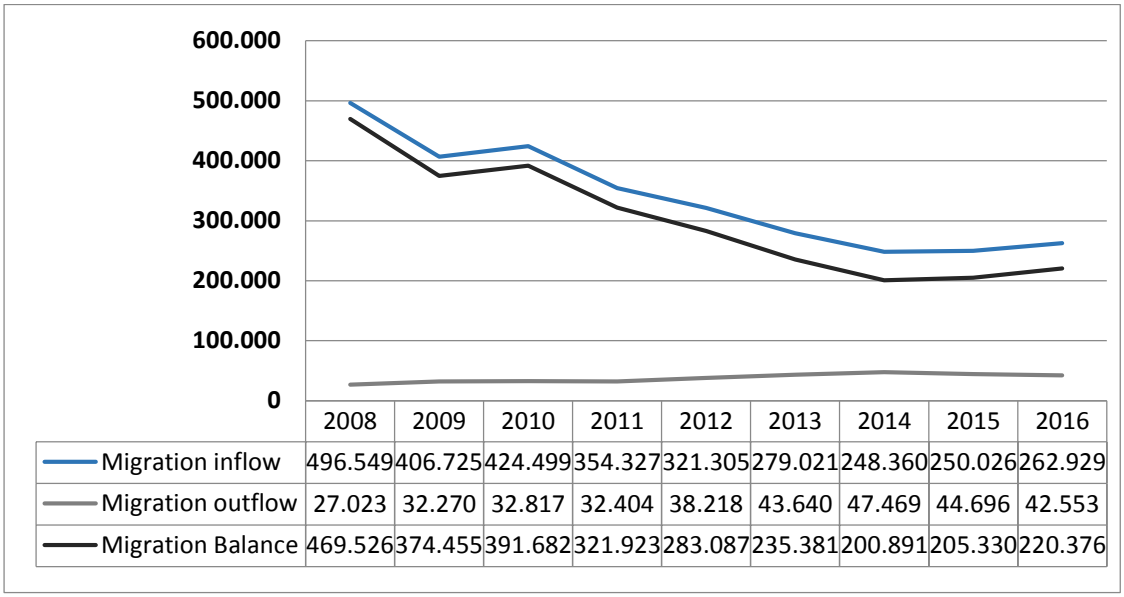
Source: Eurostat

Quantitative evidence relating to the shift in the post-2013 motives of immigrants – compared to the 2008-2013 period – is the increase in first-time asylum applications in 2014-2016. The number of first-time asylum applications in this period is 268,085[88]. This means that on average 89,362 recently-arrived immigrants applied

[88] First-time asylum applicants comprise 98.9% of total (asylum) applicants. This high percentage indicates that the asylum applicants are recent arrivals in the country.

for asylum each year, almost four times higher than the mean annual applications made in the previous period[89] (Figure 1.36).

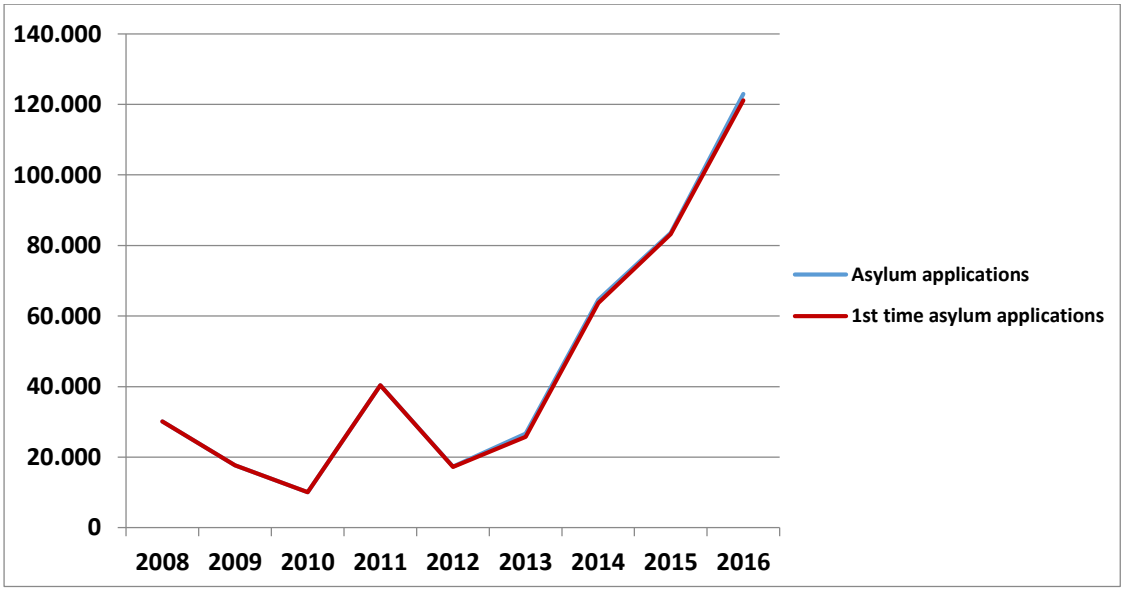
Figure 1.35: Third-country nationals' immigration, emigration and migration balance (in persons), Italy, 2008-2016



	2008	2009	2010	2011	2012	2013	2014	2015	2016
Migration inflow	496.549	406.725	424.499	354.327	321.305	279.021	248.360	250.026	262.929
Migration outflow	27.023	32.270	32.817	32.404	38.218	43.640	47.469	44.696	42.553
Migration Balance	469.526	374.455	391.682	321.923	283.087	235.381	200.891	205.330	220.376

Source: Eurostat

Figure 1.36: Total and first-time asylum applications (in persons), Italy, 2008-2016



Source: Eurostat

[89] Additionally, the post-2013 number of first-time asylum applications displays a significantly increasing trend, with a MAGR of 67.6%, in contrast to the -3.1% MAGR of the 2008-2013 period.

As for the identity of the asylum seekers, there is a significant gender and age differentiation among the post-2013 first-time asylum applicants: 88% are males and only 12% are females, while 91.5% are minors and adults in the 15-64 age group, 8.4% are minors under the age of 15, and only 0.1% are 65 or above. Moreover, 20.1% originates from Nigeria, 11.5% from Pakistan, 9.5% from Gambia, 8% from Mali, 6.9% from Senegal, and 43.9% from another non-EU country (Table 1.19).

Table 1.19: First time asylum applicants, total, by gender and age group, Italy, 2014-2016

Year		2014	2015	2016
First-time asylum applicants		7,590	11,370	49,875
Gender	**Males**	5,950	8,240	30,995
	Females	1,640	3,130	18,880
Age Group	**< 18 Years old**	1,300	2,420	19,635
	18-64 Years old	4,760	6,485	21,145
	≥ 65 Years old	1,510	2,385	8,780
Country of Origin	**Nigeria**	9,690	17,780	26,550
	Pakistan	7,095	10,285	13,470
	Gambia	8,490	8,015	8,845
	Mali	9,760	5,445	6,305
	Senegal	4,660	6,370	7,550

Source: Eurostat

1.4.3 Migration management in Italy

Along with the rise in the number of asylum applications, there has also been an increase in the number of post-2013 first instance decisions. Indeed, there were 196,400 total first-instance decisions in the period 2014-2016 or, on average, 65,467 decisions each year in this three-year period, a threefold rise on the pre-2014 figures.

Moreover, there has been an increase in first-instance positive decisions: 86,500 first-instance asylums were granted in total in 2014-2016. This means, on average, 28,533 first-instance positive decisions each year (averagely 46% of total applications), or 2.6 times the number of first-instance positive decisions in the period 2008-2013[90] (Table 1.20: First instance decisions on asylum applications by reason, Italy, 2014-2016).

Table 1.20: First instance decisions on asylum applications by reason, Italy, 2014-2016

Year	2014	2015	2016
Total 1st instance decisions	**35,180**	**71,345**	**89,875**
Total positive decisions	**20,580**	**29,615**	**35,405**
Geneva Convention status	3,640	3,575	4,800
Humanitarian status	9,315	15,770	18,515
Subsidiary protection status	7,625	10,270	12,090
Temporary protection status	0	0	0
Rejected	**14,600**	**41,730**	**54,470**

Source: Eurostat

As regards the reasons for the first-instance positive decisions, 51% were for humanitarian reasons, 35% granted subsidiary protection status, and the remaining

[90] At the same time, there has been an increase in the number of rejected first-instance asylum applications: on average, 26,450 more applications have been rejected annually in the period 2014-2016 compared to in the 2008-2013 period. This means than the ratio of positive to total first-instance decisions decreased from 0.51 in 2008-2013 to 0.44 in 2014-2016. This ratio is expected to decrease further, given that the post-2013 MAGR of the rejected applications exceeds the rate of positive first-instance decisions (81.1% over 35%), probably reflecting the efforts of the Italian Government to control the inflows of asylum seekers onto Italian territory.

14% granted Geneva Convention status. In terms of the gender and age composition of the first-instance asylums granted in 2014-2016, 86.3% are males and 13.7% females, while 5.9% are minors under the age of 18, 83.9% are adults aged up to 64, and only 0.2% are 65 or above. As for their country of origin, 10,480 (12%) come from Nigeria, 10,190 (12%) from Pakistan, 9,680 (12%) from Afghanistan, 7,770 (9%) from Mali and 7,095 (8%) from Gambia.

In addition to the first-instance decisions, there has been a rise in the total number of final decisions: in 2016 alone, there were a total of 9,770 final decisions – 4,770 of them positive – while the total and positive final decisions for the period 2008-2013 were 5,920 and 1,510 respectively[91]. Regarding the reasons for the final positive decisions, 2,410 (49.58%) positive final decisions grant subsidiary protection status, 2,030 (42.35%) were for humanitarian reasons, and 395 (8.10%) grant Geneva Convention status[92].

At the same time, 16,555 non-EU citizens were refused entry to the country: 12,415 from Albania (75%); 1,520 from Moldova (9.2%); 1,030 from Algeria (6.2%); 885 from Morocco (5.3%); and 700 from Nigeria (4.2%). Moreover, 84,970 third-country nationals were found to be irregularly present in total over this period. This figure is rather low, considering Italy's previous irregular immigration records. However, after 2013, it clearly follows an increasing trend, breaking the declining trend for 2008-2013[93] (Figure 1.37). Furthermore, there has been a decrease in the number of foreign-country nationals that returned to Italy following an order to leave in the period 2014-2016, at a total of 15,695 persons. This means on average 5,232 persons each year, almost 15% lower than in 2008-2013. This number follows the declining trend for the overall period, although after 2013 this trend becomes more moderate than in 2008-2013[94].

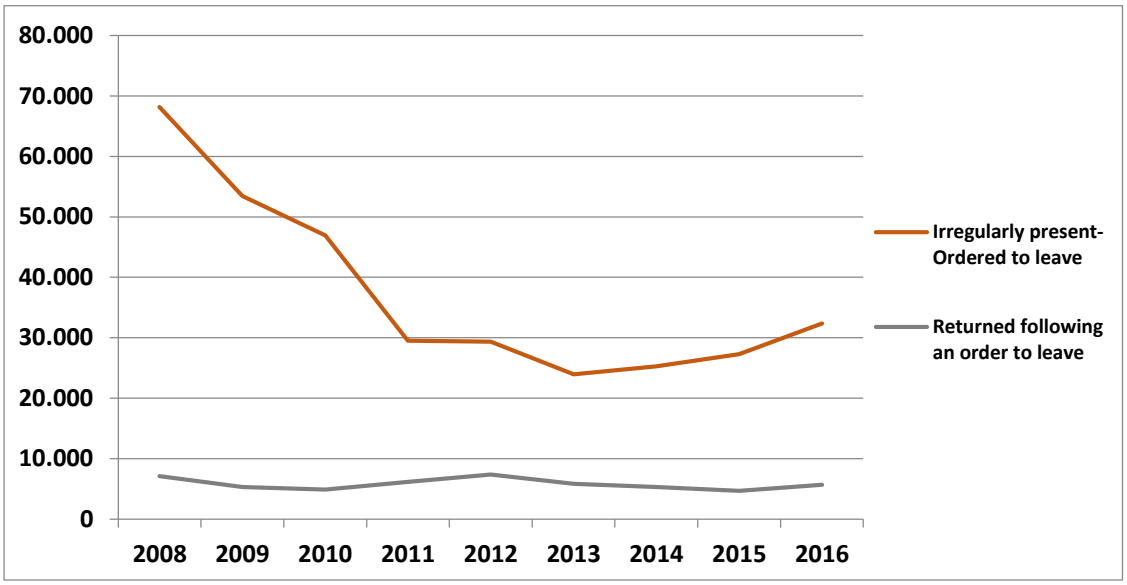
[91] The overall total and positive final decisions in the period 2014-2016 were 9,845 and 4,830 respectively. Hence, the ratio of positive to total final decisions in this three-year period almost doubled, compared to that of 2008-2013 (0.49 to 0.26).

[92] Among the asylums finally issued, the vast majority were to males (93.9%) and adults up to the age of 65 (99.2%). In terms of origins, 990 were from Nigeria (20.8%), 965 from Pakistan (20.2%), 770 from Mali (16.1%), 560 from Gambia (11.7%) and 385 from Senegal (8.1%).

[93] The same phenomenon can be observed for the number of irregularly present third-country nationals, where the mean annual number of orders to leave in 2014-2016 was 28,323, almost two-thirds of the respective 2008-2013 number. On the other hand, it increases at a MAGR of 10.6%, whereas the pre-2014 respective rate was -18.9%.

[94] The percentage mean annual decreasing rate of third-country nationals that returned to Italy following an order to leave in the period 2008-2016 is 2.7%. By distinguishing the period into two sub-periods (2008-2013 and 2014-2016), we can see that the pre-2014 MAGR is -3.9%, a much sharper fall than the post-2013 rate.

Figure 1.37: Third-country nationals found to be irregularly present, ordered to leave and returned following an order to leave (in persons), Italy, 2008-2016



Source: Eurostat

On the other hand, there has been a significant decrease in the mean annual number of first-residence permits, as 201,872 first-residence permits were issued to third-country nationals on average each year in the period 2014-2016 (605,617, in total), compared to 411,474 mean annual first-residence permits (2,468,844 in total) in 2008-2013. As for reasons these permits were issued, a total of 309,648 were for family reasons (59.13%), 64,090 (10.58%) for educational reasons, 80,086 (13.22%) for remunerated activities reasons and 151,793 (25.06%) for other reasons[95].

1.5 Finland: Statistical Overview

1.5.1 Demographic characteristics of foreign nationals

Finland's population was on average 5,409,507, over the period 1 January 2008-1 January 2017. Starting with 5,300,484 inhabitants on 1 January 2008, it followed a strictly upward trend over this period, reaching 5,503,297 inhabitants on 1 January 2017. Over this period, the population of foreign nationals constituted, on average, 3.47% of the country's total population. This percentage share increases with a MAGR of 6.54% during the examined period[96] (Table 1.21).

[95] A significant decrease has been observed for all reasons. However, the greatest decrease has been recorded for remunerated activities (85.9%). As for the other reasons, 7.2% granted refugee status and subsidiary protection, 4.5% were for humanitarian reasons, while 8.6% were for unaccompanied minors.

[96] The majority are males (52.96%), 15-64 years old (80.6%). As for the origins of the foreign nationals, almost six out of ten (59%) come from a non-EU country, and four out of ten (41 %) from an EU member-state.

Table 1.21: Total and foreign national population on 1st of January (in millions), Finland, 2008-2016

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Population	5.30	5.33	5.35	5.38	5.40	5.43	5.45	5.47	5.49	5.50
Foreign Population	0.13	0.14	0.16	0.17	0.18	0.20	0.21	0.22	0.23	0.24
Share (%)	2.50	2.69	2.91	3.12	3.39	3.60	3.81	4.01	4.19	4.43

Source: Eurostat

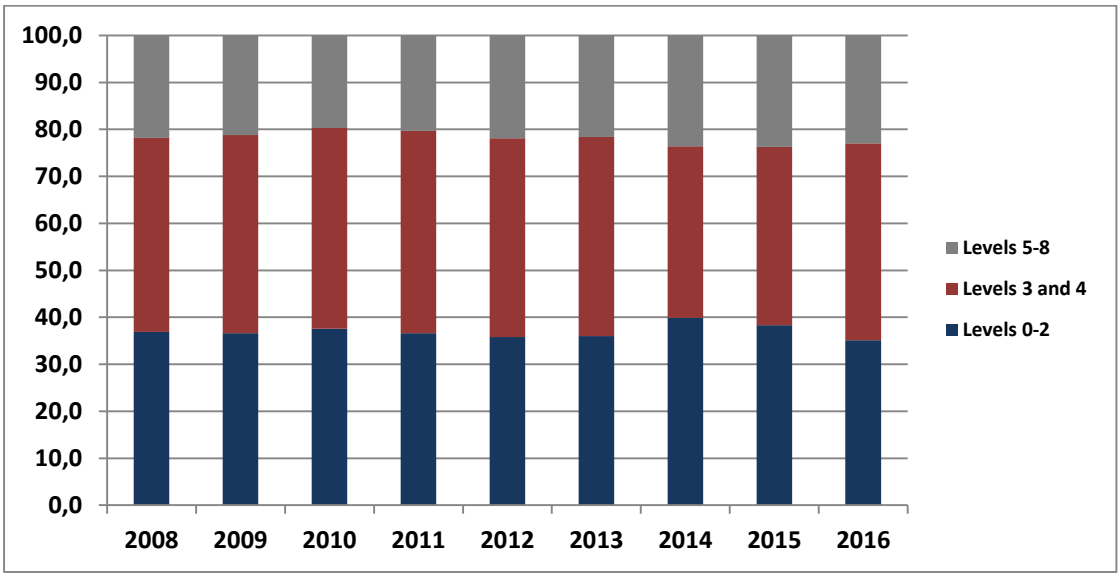
With regard to the educational attainment levels of foreign nationals on average, 36.98% has attained less than primary, primary or lower secondary education, 41.16% upper or post-secondary education and 21.86% tertiary education[97,98] (Figure 1.38).

Moreover, comparing foreign nationals' nine-year distribution – according to their educational attainment level – with that of the total population, we can infer that the percentage share of foreign nationals with educational attainment levels of 3-4 and 5-8 falls below the respective shares of the total population at 8.70% and 33.93%. On the other hand, foreign nationals' share of educational attainment levels 0-2 is 36.39% higher than that of the total population (Figure 1.39).

[97] Both the percentages of the foreign nationals who have attained upper or post-secondary and tertiary education increase, with MAGRs of 0.18% and 0.67%, respectively. On the other hand, the percentage share of foreign nationals with a less than primary, primary or lower secondary educational attainment level decreases at a 0.62% mean annual rate.

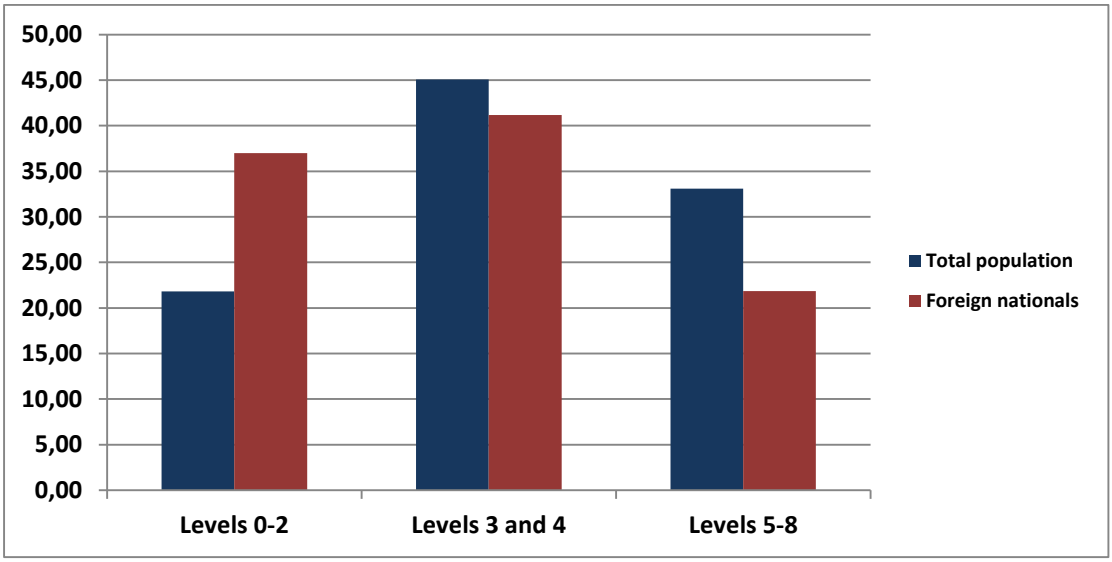
[98] These percentages differ among non-EU and EU foreign nationals. More precisely, 39.61% of the non-EU foreign nationals has achieved educational attainment levels 0-2, while 37.70% has achieved levels 3 and 4 and 22.72% has achieved levels 5-8. Conversely, 32.86% of EU foreign nationals has achieved educational attainment levels 0-2, 46.57% has achieved 3 and 4 and 20.60% has achieved 5-8.

Figure 1.38: Composition of foreigners by Educational Attainment Level (ISCED 11), Finland, 2008-2016



Source: Eurostat

Figure 1.39 Distribution of total and foreign population (%) by educational attainment level (ISCED 11), Finland, 2008-2016



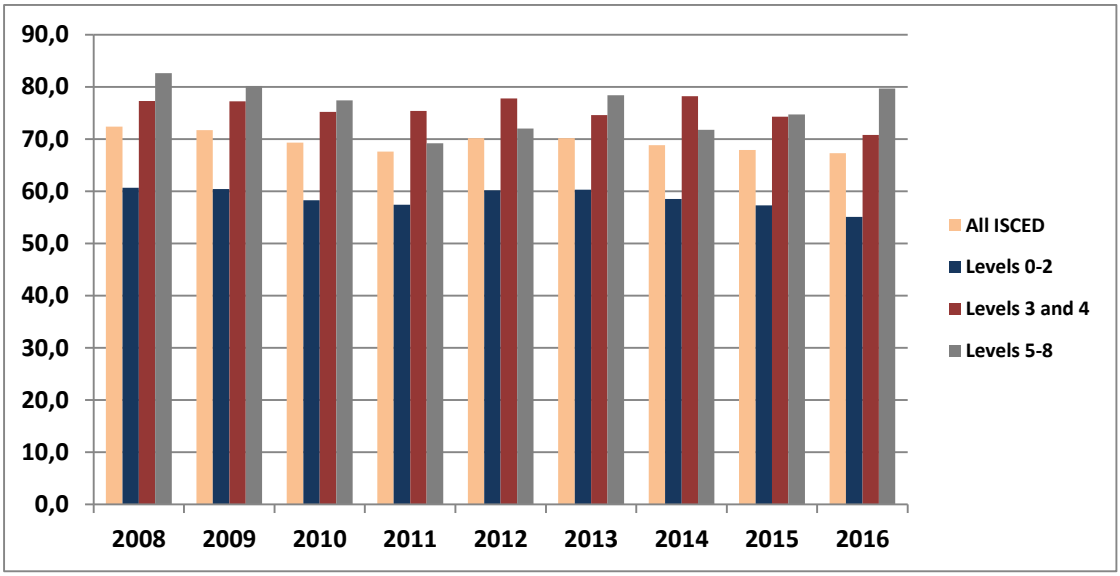
Source: Eurostat

The activity rate of foreign nationals is on average 69.50% for the period 2008-2016, in other words 7.96% (or six percentage units, in absolute terms) lower than the respective rate for the native population. Moreover, it declines slightly with a 0.91% mean annual rate, contrary to the native-born population's 0.05% MAGR[99].

[99] The percentage activity rate of EU foreign nationals is 80.94% during the examined period, while the non-EU percentage activity rate is 62.14%. Both slightly decline with mean annual rates of 0.66% and 1.34% respectively.

Foreign nationals with a tertiary educational attainment level have on average the highest activity rate (76.22%) over the examined period. Those with upper and post-secondary education follow (75.64%), while those of less than primary, primary or lower secondary education come last (58.69%)[100] (Figure 1.40).

Figure 1.40: Activity rates (%) of foreigners by Educational Attainment Level (ISCED 11), Finland, 2008-2016



Source: Eurostat

Foreign-national employees form, on average, 2.47% of Finland's labour force in the examined period. This share increases with a 6.90% MAGR over this period (Table 1.22). At the same time, the unemployment rate of foreign nationals is, on average, 17.31% in the period 2008-2016, more than twice that of the total economy (nine percentage units, in absolute terms). However, it grows with a mean annual rate of 1.36%, namely 68.80% (or three percentage units, in absolute terms) lower than the rate for the total economy (Figure 1.41). As regards unemployment among foreign nationals, non-EU foreign nationals face higher unemployment rates, both as a mean (22.3% over 11.38%) and trend (1.97% over 1.61%), than the rates for EU nationals during this period.

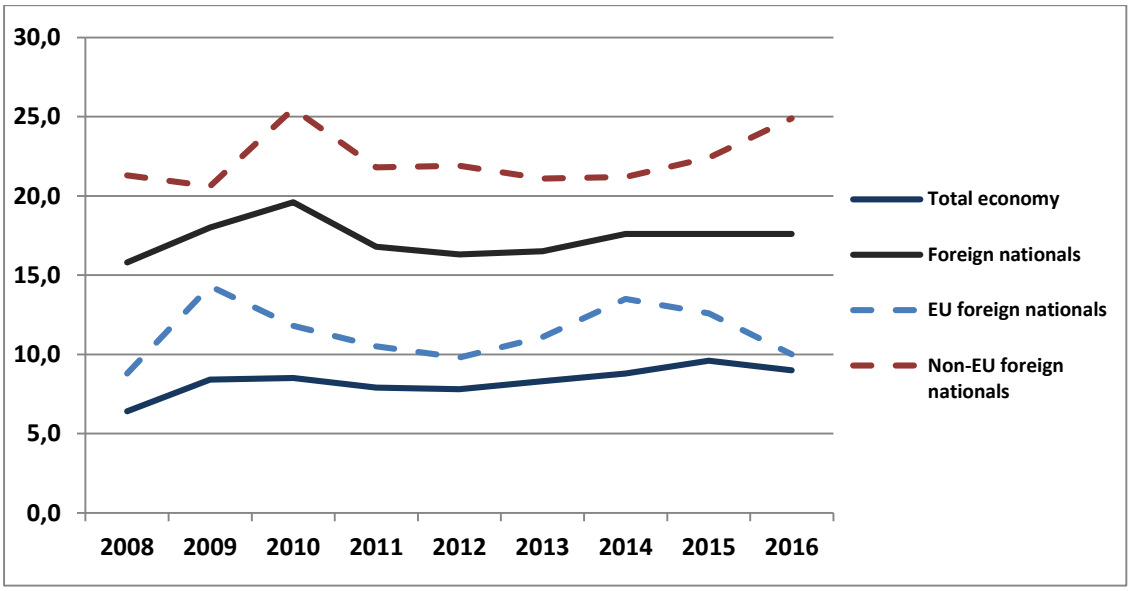
[100] The activity rates of foreign nationals of all educational attainment levels (0-2, 3-4 and 5-8) decline during the examined period, with mean annual rates of 1.20%, 1.09% and 0.45% respectively.

Table 1.22 Employment of total population and foreign nationals (in millions), Finland, 2008-2016

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Employment	2.50	2.42	2.41	2.43	2.43	2.40	2.39	2.37	2.38
Employment of foreigners	0.05	0.05	0.05	0.05	0.06	0.07	0.07	0.07	0.07
Share (%)	1.85	1.91	1.95	2.15	2.37	2.72	3.02	3.14	3.15

Source: Eurostat

Figure 1.41: Unemployment rate (%) for total economy and foreign nationals, Finland, 2008-2016

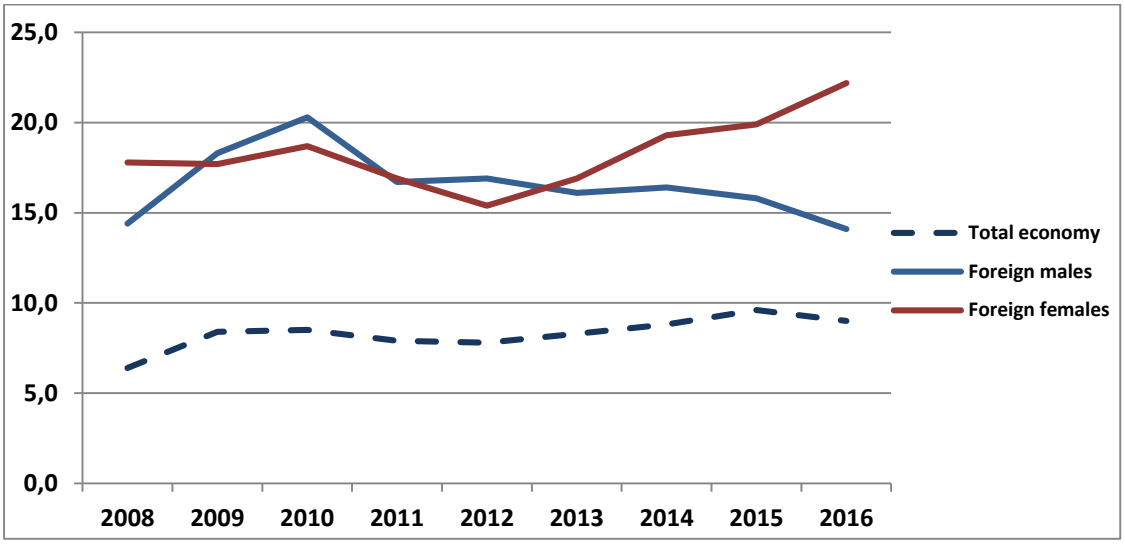


Source: Eurostat

Additionally, females face higher unemployment rates – both in mean and trend – among the foreign nationals (Figure 1.42). Indeed, the foreign female nine-year mean unemployment rate is 18.31%, namely 10.6% (or 1.76 percentage units, in absolute terms) more than the foreign male respective rate. Moreover, it increases with a 2.80% MAGR, in contrast with the negative MAGR (-0.26%) for the foreign male unemployment rate in the same period[101].

[101] Especially in the period 2012-2016, the foreign female unemployment rate increased with a MAGR of 9.57%.

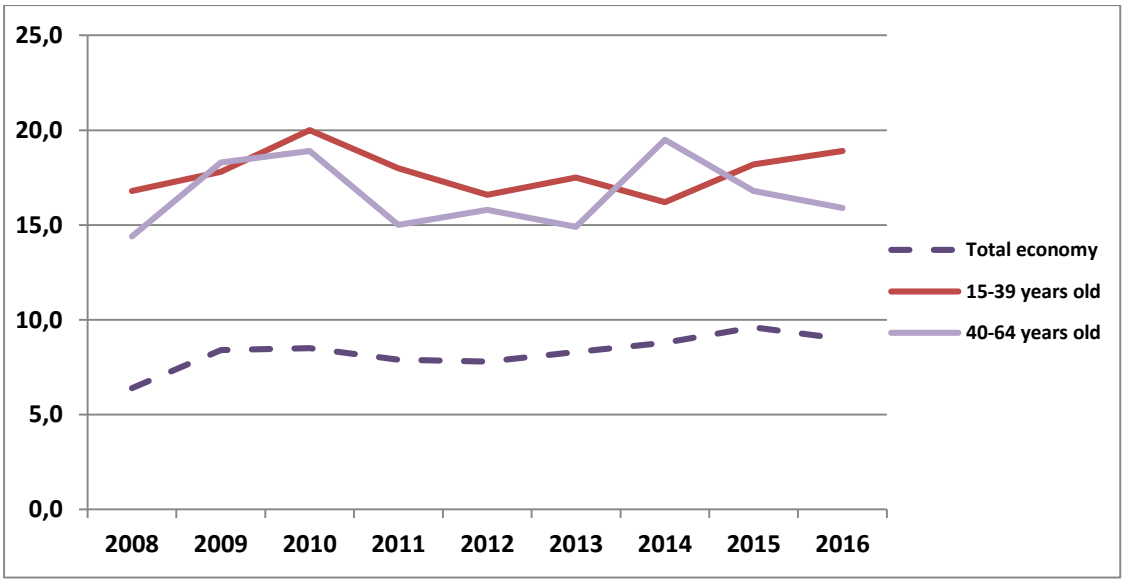
Figure 1.42: Unemployment rate of foreign nationals by gender (%), Finland, 2008-2016



Source: Eurostat

Finally, ages 15-39 have, on average, higher unemployment rates – both as a mean and trend – than ages 40-64 in the period 2008-2016[102] (Figure 1.43). More precisely, the unemployment rate of the 15-39 age group is, on average, 17.78% in the examined period, or 7.02% (1.67 percentage units, in absolute terms) higher than the mean unemployment rate of the 40-64 age group. Additionally, it increases with a 1.48% MAGR, or 19% (0.24 percentage units, in absolute terms) more than the rate of the 30-64 age group.

Figure 1.43: Unemployment rate of foreign nationals by age group (%), Finland, 2008-2016



Source: Eurostat

[102] The lack of data does not allow for more a thorough age differentiation.

1.5.2 Finland and the migration crisis

Since the early 1990s, after the collapse of the Soviet Union, Finland became a popular destination for a large-scale immigration flow originating from the countries of the former USSR. In 1999, the first national Integration Act was put in place. The main objectives of this legislation were public support and social and labour integration, especially of refugees and unemployed immigrants (Saukkonen, 2016).

Finland's current migration policy is mainly based on the 2015 Government Programme (19 May 2015), the Government migration policy (11 September 2015) and the Government action plan on asylum policy (8 December 2015): the post-2014 changes in the migration landscape led the Finnish government to implementing several changes in its migration legislation, in order to take "control of immigration and to streamline process" (Immigration Department, 2017). Asylum and residence strategies stand at the centre of the current Finnish migration policy. In fact, the main objective of the Finnish government is to tighten the requirements for issuing residence permits to asylum seekers in order to discourage migrant inflows to the country, especially from Middle East countries such as Iraq and Afghanistan.

Analytically, as regards migrant inflows, the recorded third-country nationals that immigrated to Finland have been, in total, 72,335 persons over the period 2014-2016[103] (Table 1.23). This means, on average, 3,474 more people each year, compared to the period 2008-2013[104]. Additionally, the post-2013 immigration flows increase with a MAGR of 4.54, namely 22.64% higher than the pre-2014 respective rate.

Immigrants are mainly comprised of males (55%), minors over 15 and adults up to the age of 64 (82.65%). As regards the main countries of origin, 14.67% come from Estonia, 9.74% from Russia, 6.59% from Iraq, 3.96% from Syria and 3.83% from Afghanistan.

At the same time, 19,627 third-country nationals have left Finland over the same period. This means, on average, 2,634 more people each year than in the period 2008-2013. In addition, 2014-2016 migration outflows increased with a mean annual rate of 20.87%, in contrast to a 1.19% mean annual decrease rate in the period 2008-2013.

[103] The number of asylum seekers has not been taken into account in these inflows.

[104] The total number of third-country nationals that immigrated to Finland over the period 2008-2013 is 123,828 or, on average, 20,638 persons each year during this period.

Table 1.23: Migration inflows; total, by gender, age group and top 5 countries of origin (in persons), Finland, 2014-2016

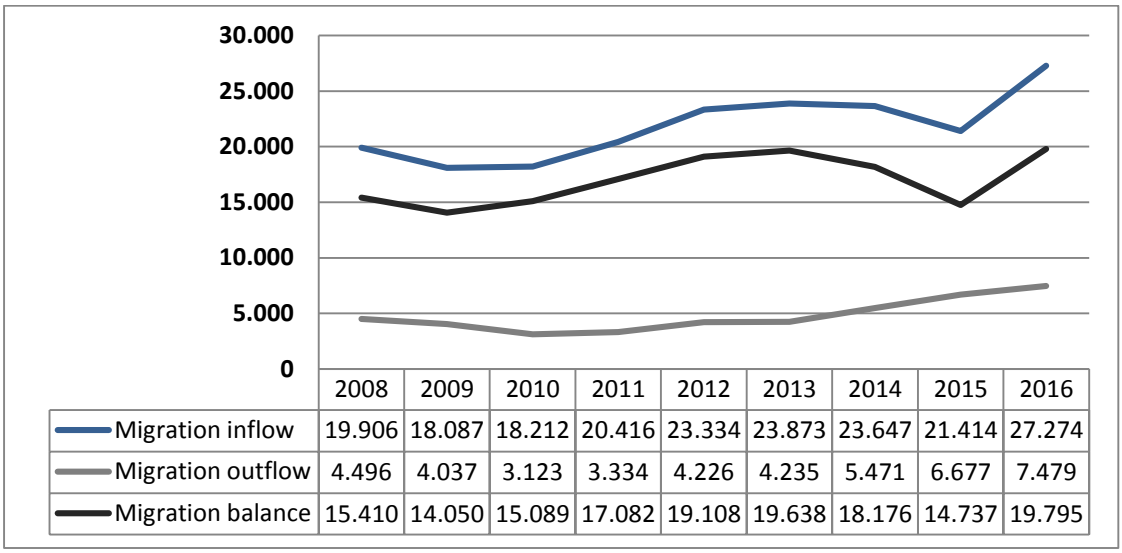
Year		2014	2015	2016
Migration Inflow		23,647	21,414	27,274
Gender	**Males**	12,173	11,584	15,914
	Females	11,474	9,830	11,360
Age Group	**< 15 Years old**	3,989	3,400	4,365
	15-64 Years old	19,424	17,767	22,597
	≥ 65 Years old	234	247	312
Country of Origin	**Estonia**	4,663	3,355	2,596
	Russia	2,420	2,086	2,540
	Iraq	776	754	3,235
	Syria	570	578	1,716
	Afghanistan	515	394	1,864

Source: Eurostat

Overall, Finland has retained a migration surplus of 52,708 migrants for the period 2014-2016, namely a mean annual surplus almost 5% higher than that for 2008-2013. Moreover, taking into account its post-2013 upward trend, this surplus is expected to increase further [105] (Figure 1.44).

[105] The post-2013 migration surpluses follow a MAGR of 0.27%.

Figure 1.44: Immigration, emigration and migration balance (in persons) of third-country nationals, Finland, 2008-2016

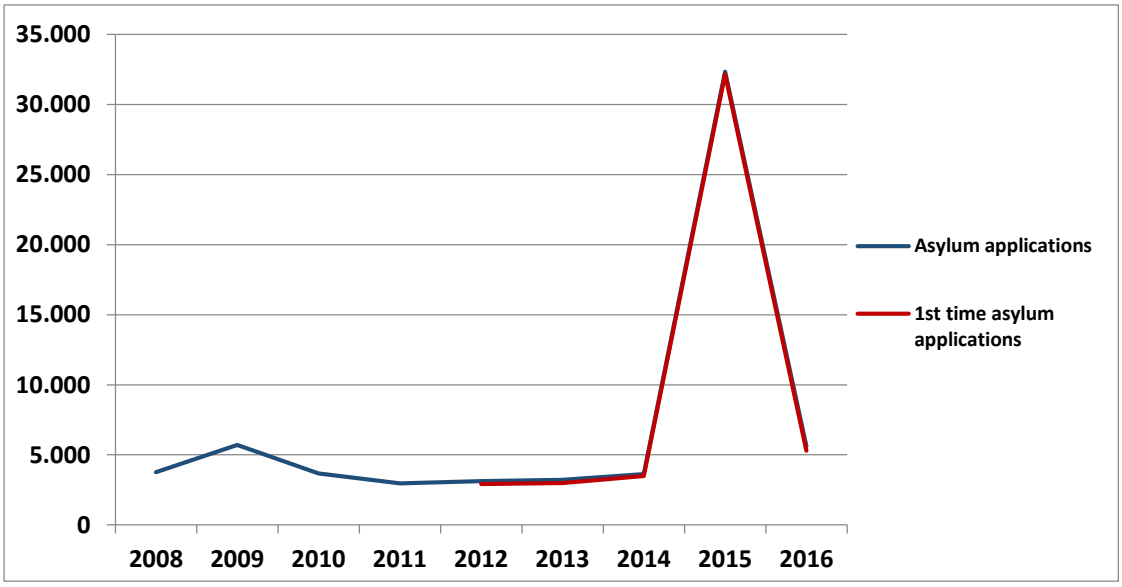


	2008	2009	2010	2011	2012	2013	2014	2015	2016
Migration inflow	19.906	18.087	18.212	20.416	23.334	23.873	23.647	21.414	27.274
Migration outflow	4.496	4.037	3.123	3.334	4.226	4.235	5.471	6.677	7.479
Migration balance	15.410	14.050	15.089	17.082	19.108	19.638	18.176	14.737	19.795

Source: Eurostat, 2018

Additionally, 41,595 third-country nationals applied for asylum in Finland – 98.42% of them for the first time – in the period 2014-2016. Of these, 32,345 applied in 2015 alone, almost 44% (or 9,890 persons, in absolute terms) more than the total asylum applicants for the period 2008-2013[106] (Figure 1.45).

Figure 1.45: Total and first time asylum applications (in persons), Finland, 2008-2016



Source: Eurostat, 2018

With regard to first-time asylum applicants, these were mainly males (78.53%); minors and adults aged 18-64: 24.83% and 74.83% respectively. Moreover, 54.42%

[106] There are no data available for the first-time asylum applicants for the period 2008-2011.

originate from Iraq, 14.83% from Afghanistan, 6.85% from Somalia, 3.96% from Syria and 2.30% from Albania (Table 1.24).

Table 1.24: First-time asylum applicants, total, by gender and age group, Finland, 2014-2016[107]

Year		2014	2015	2016
First-time asylum applicants		3,495	32,150	5,295
Gender	**Males**	2,490	26,170	3,430
	Females	995	5,920	1,860
Age Group	**< 18 Years old**	810	7,590	1,710
	18-64 Years old	2,635	24,315	3,525
	≥ 65 Years old	30	75	35
Country of Origin	**Iraq**	800	20,400	1,080
	Afghanistan	195	5,190	685
	Somalia	405	1,975	425
	Syria	145	875	600
	Albania	105	755	80

Source: Eurostat

1.5.3 Migration management in Finland

The 2015 rise in the number of asylum applications went hand-in-hand with a respective increase in the number of the following year's first-instance decisions. Overall, 26,070 first-instance decisions on asylum applications were registered over

[107] The differences in sums are due to non-responses about gender or age.

the period 2014-2016 – 20,765 of them in 2016 alone – while the total number of first-instance decisions issued in 2008-2013 was 18,490.

On the other hand, the rise in first-instance decisions has not been followed by an equivalent increase in positive first-instance decisions. Indeed, from the total registered first-instance decisions in this three-year period, only 38.43% (10,020) are positive, almost 5% less than the 2008-2013 respective percentage share. Of the positive first-instance decisions 58.58% involve granting of the Geneva Convention status, 26.35% provide a subsidiary protection status and 15.02% a humanitarian status[108] (Table 1.25).

Table 1.25: First-instance decisions on asylum applications by reason, Finland, 2014-2016

Year	2014	2015	2016
First instance decisions	8,090	12,255	10,430
Total positive decisions	5,480	9,920	7,125
Geneva Convention status	3,765	7,605	4,275
Humanitarian status	90	70	50
Subsidiary protection status	1,625	2,245	2,805
Temporary protection status	0	0	0
Rejected	**2,610**	**2,335**	**3,305**

Source: Eurostat

Of the 2014-2016 first-instance asylums that were granted, 7,025 are for males and 2,995 for females, while 3,310 were issued to minors and 6,645 to adults up to 64 years old. These individuals mainly originate from Iraq (38%), Afghanistan (19%), Syria (13%), Somalia (11%) and Iran (3%).

Together with the first-instance decisions, an increase in the mean annual number of total final decisions issued on asylum applications has also been recorded. More precisely, 1,080 final decisions have been registered in total over the period 2014-2016. This corresponds to a mean annual number of 360 decisions, 83.05% higher than the mean annual number for the period 2008-2013[109]. However, the ratio of positive to total final decisions has decreased over the examined period. In fact, only 53.24% of the total decisions for the period 2014-2016 were positive,

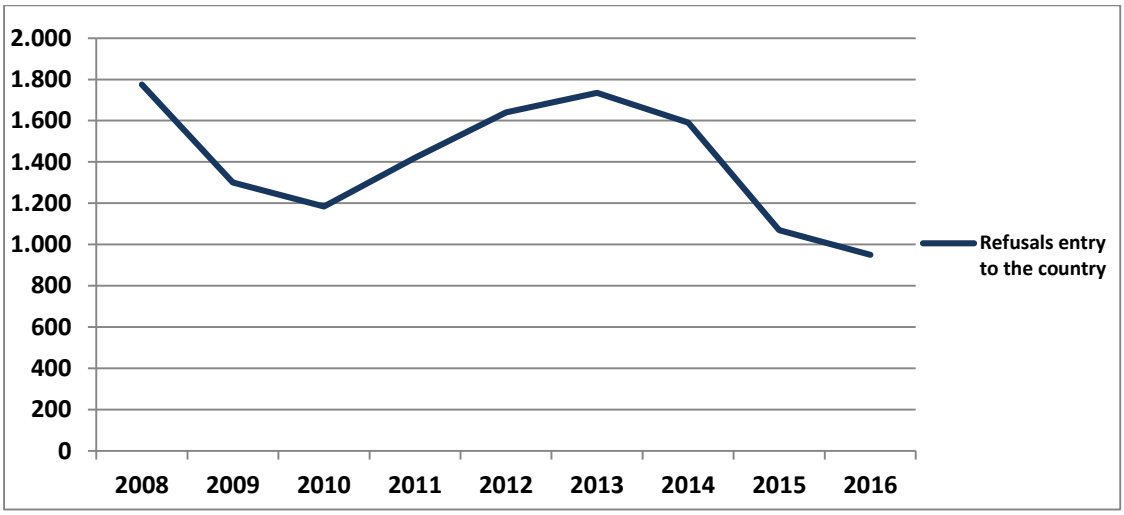
[108] The asylum grants involved refugee status (namely Geneva Convention and Humanitarian Status) decreased in 2016, whereas those of subsidiary protection increased.

[109] As with first instance decisions, this increase mainly resulted from the rise in final decisions taken in 2016: 695 final decisions were issued in this year alone, while the respective figure for 2008-2013 was 1,180.

32.8% lower than the respective share for the period 2008-2013. Again, more than half the positive decisions (53.9%) involved the granting of Geneva Convention status, 26.96% subsidiary protection status and 18.26% humanitarian status[110].

On the other hand, 3,619 third-country nationals were denied entry to the country in the period 2014-2016, the majority of whom originated from Russia (76.82%)[111]. This number marked the record low of the nine-year period, both in terms of annual mean and trend (Figure 1.46)[112].

Figure 1.46: Third-country nationals refused entry to the country, Finland, 2008-2016



Source: Eurostat

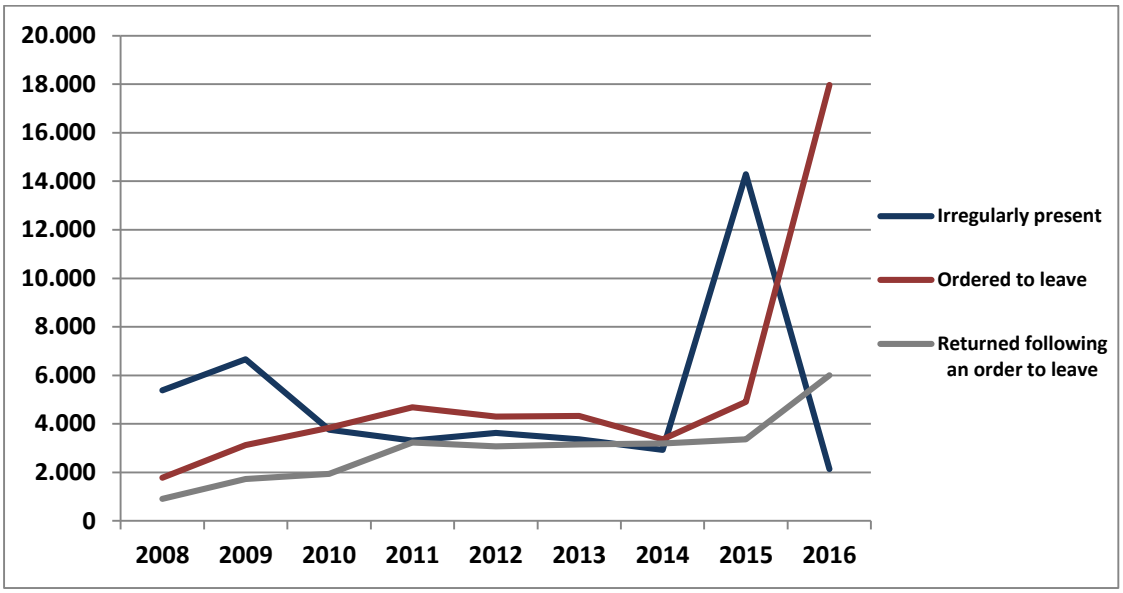
Following the country's post-2013 rise in immigration flows – especially in 2015 – there has been a significant increase in the number of third-country nationals found to be irregularly present in this period: 14,285 third-country nationals were found to be irregularly present in 2015 alone. This led to a significant increase in the following year's orders to leave, with 17,950 orders issued in 2016 alone, 500% more than the mean annual orders for the period 2008-2013. At the same time 12,565 third-country nationals returned to Finland following an order to leave during the same period. This means, on average, 4,188 people each year, almost 1,852 more people (79.24% higher) than in 2008-2013 (Figure 1.47).

[110] Asylum status was granted mainly to males (64.35%) and adults up to 65 years old (75.70%), originating primarily from Iraq (28.70%), Afghanistan (19.13%), Iran (9.57%), Kosovo (6.09%) and Russia (6.09%).

[111] 2.35% also originated from Moldova, 2.07% from Ukraine, 1.80% from Belarus and 1.52% from China (including Hong Kong).

[112] The 2014-2016 mean annual number of refusals of entry to the country is almost 20.27% lower than its pre-2014 respective number. Again, it declines at a mean annual rate of 18.19%, almost 39.40% steeper than the pre-2014 declining trend. This becomes clear with regard to the period 2010-2013, when refusals increase with a MAGR of 13.55%. This upward trend ceases in the following period.

Figure 1.47: Third-country nationals found to be irregularly present, ordered to leave and who then returned following an order to leave (in persons), Finland, 2008-2016



Source: Eurostat

Finally, first-residence permits increased, in terms of mean annual grants, in the period 2014-2016: a total of 72,141 first-residence permits were issued to third-country nationals in this period. This corresponds to a 19.50% higher number of mean annual permits compared to the period 2008-2013. As for the reasons given, 23,558 permits were issued for family reasons (32.66%), 17,519 for educational reasons (24.28%), 15,193 for remunerated activities reasons (21.06%), and 15,871 for other reasons (22%).

Compared to the registered first-residence permits for 2008-2013, the largest increase is recorded for those granted for other reasons (37.94%), with educational and remunerated activities next (21.19% and 17.76% respectively), followed by those issued for family reasons (9.56%). As for other reasons, 70.08% involves the granting of refugee status and subsidiary protection, 12.82% to unaccompanied minors, 6.1% for humanitarian reasons and 0.83% to victims of trafficking in humans.

1.6 United Kingdom: Statistical Overview

1.6.1 Demographic characteristics of foreign nationals

The population of the United Kingdom was on average 63,656,871 in the period 1 January 2008-1 January 2017, starting at 61,175,586 on 1 January 2008 and increasing with a MAGR of 0.81%. Over this period, foreign nationals constituted, on

average, 7.77% of the UK's total population. Moreover, this share increases with an MAGR of 3.88% during the examined period (Table 1.26)[113].

Table 1.26: Total and foreign-national population, on 1 January (in millions), UK, 2008-2017

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Population	61.18	62.04	62.51	63.02	63.50	63.91	64.35	64.88	65.38	65.81
Foreign Population	4.02	4.27	4.46	4.57	4.91	5.00	5.08	5.45	5.68	6.09
Share (%)	6.57	6.89	7.13	7.26	7.73	7.83	7.89	8.40	8.69	9.25

Source: Eurostat

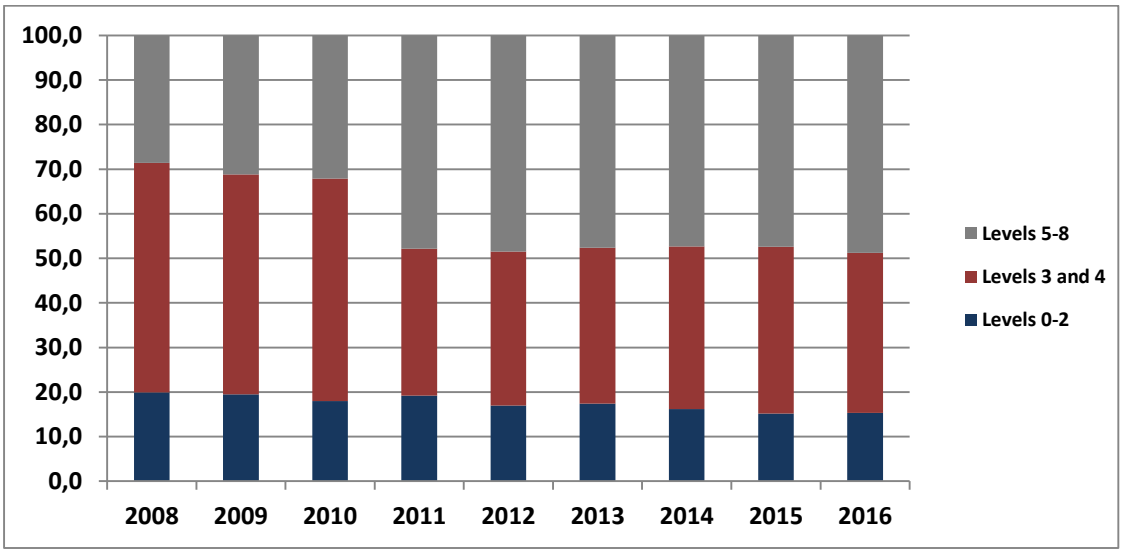
As for their educational attainment level, only 17.52% - among the foreign nationals – attained less than primary, primary or lower secondary education, while 40.33% have upper or post-secondary education and 42.33% have a tertiary education (Figure 1.48)[114]. Furthermore, the share of foreign nationals that have attained tertiary education exceeds the total population's respective rate[115] (Figure 1.49).

[113] In terms of identity, the majority are females (51.69%), aged 15-64 (79.33%). Moreover, 55.91% come from an EU country.

[114] These percentage shares refer to the nine-year mean percentage shares.

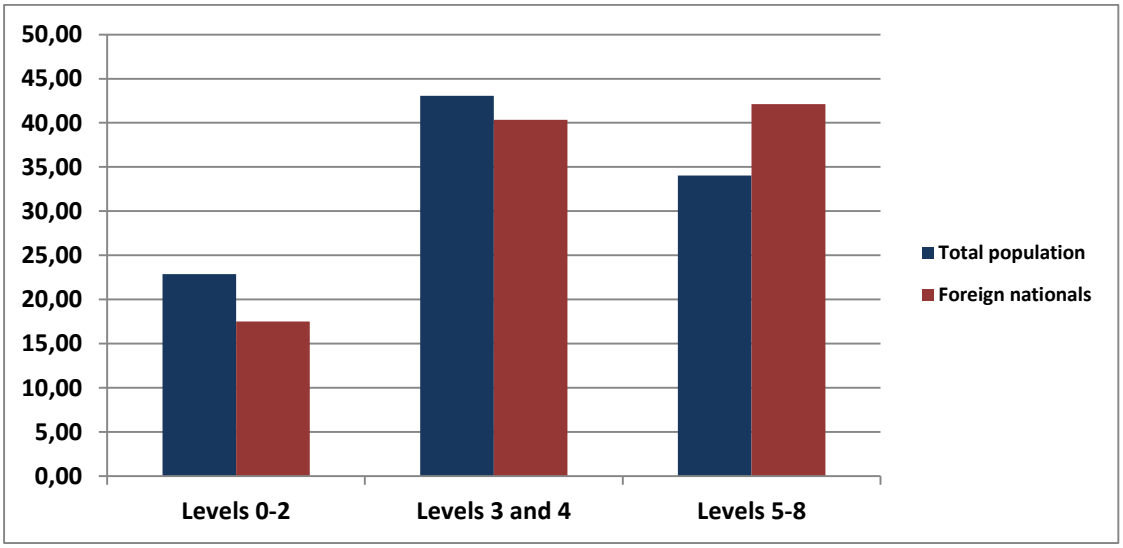
[115] The nine-year mean percentage share of foreign nationals with tertiary education is almost 23.80% more than the total population's respective share, and increases at a 86.35% higher mean annual growth rate. This share is even higher among the non-EU foreign nationals. More precisely, 46.48% of non-EU foreign nationals have a tertiary educational attainment level, 34.84% an upper or post-secondary educational level and only 18.67% have less than a primary, primary or lower secondary educational attainment level.

Figure 1.48: Composition of foreigners by Educational Attainment Level (ISCED 11), UK, 2008-2016



Source: Eurostat

Figure 1.49: Total and foreign population distribution (%) by educational attainment level (ISCED 11), UK, 2008-2016



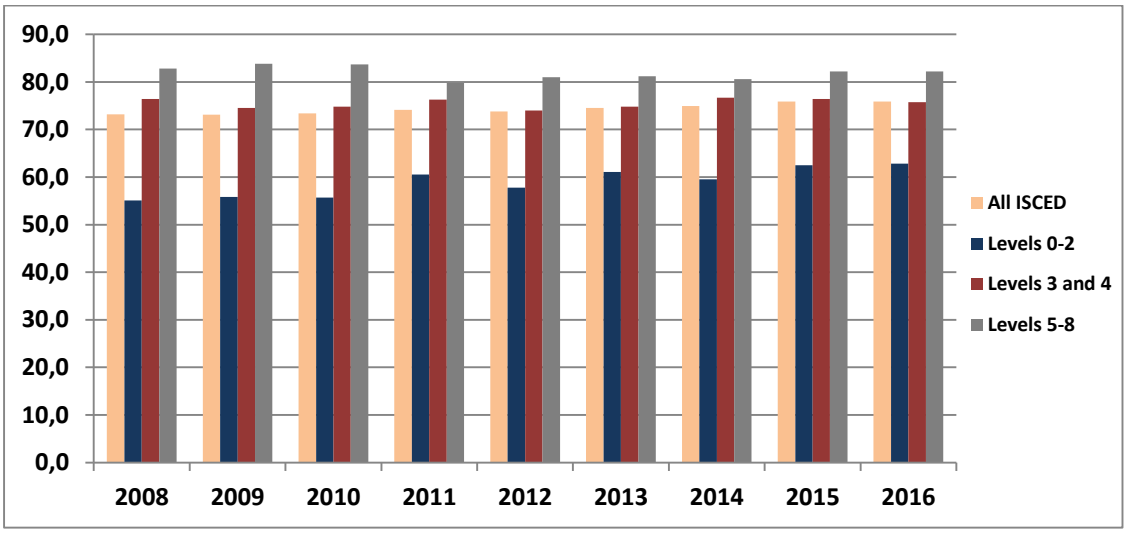
Source: Eurostat

The activity rate of foreign nationals is on average 74.31% during the examined period, and 2.73% lower than the respective rate for natives. However, it increases with a MAGR (0.45%) which is twice as big when compared to the native ones during this period[116]. Meanwhile, foreign nationals with tertiary education have, on average, the highest activity rate (81.92%), followed by those with upper and post-secondary

[116] The activity rate of EU foreign nationals exceeds, on average, the total foreigner activity rate. More precisely, the EU foreign national nine-year mean activity rate is 81.73%, increasing with a mean annual growth rate of 0.21%.

(75.51%), while those with less than primary, primary or lower secondary education rank last (58.98%)[117] (Figure 1.50).

Figure 1.50: Activity rates of foreigners (%) by Educational Attainment Level (ISCED 11), UK, 2008-2016



Source: Eurostat

Foreign-national employees constitute, on average, 9.25% of the country's labour force in the examined period. This share increases with a 4.16% MAGR over this period (Table 1.27).

Table 1.27: Total and foreign nationals employment (in millions), UK, 2008-2016

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Employment	28.83	28.32	28.29	28.40	28.65	28.92	29.56	30.02	30.42
Foreign-born Employment	2.33	2.31	2.33	2.57	2.60	2.65	2.88	3.17	3.40
Share (%)	8.07	8.15	8.24	9.04	9.08	9.17	9.76	10.57	11.19

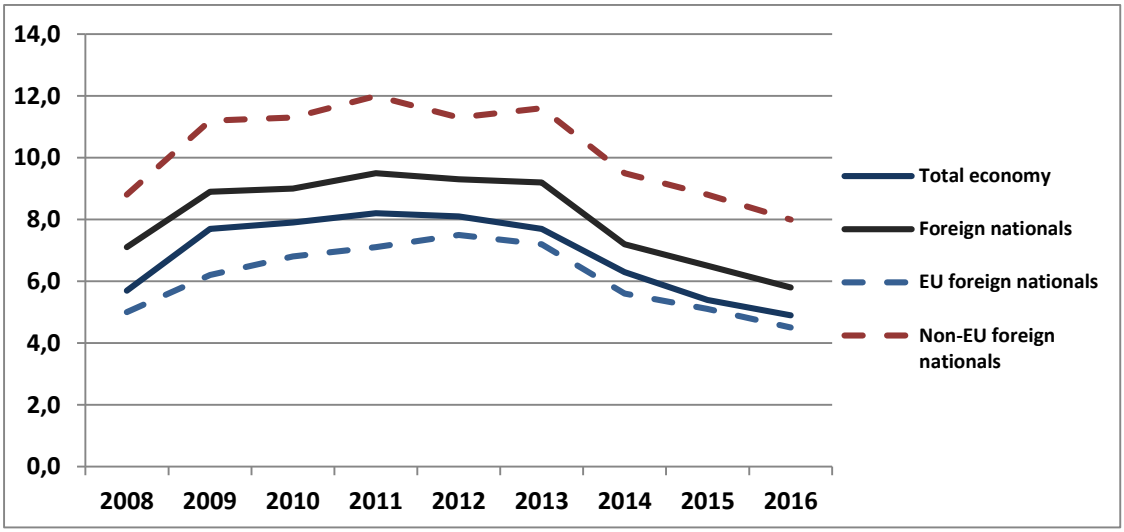
Source: Eurostat

On the other hand, the mean (percentage) unemployment rate of foreign nationals is 8.06%, or 17.12% (1.17 percentage units, in absolute terms) higher than

[117] On the other hand, the activity rates for foreign nationals with educational attainment levels of 3-4 and 5-8 decline slightly at a mean annual rate of 0.12% and 0.09% respectively, while those of levels 0-2 increase with a mean annual growth rate of 1.65% during the period 2008-2016.

the respective rate for the total economy. However, it declines with a mean annual rate of 33.69% higher than the respective one for the total economy during the same period[118] (Figure 1.51: Unemployment rate for the total economy and among foreign nationals, UK, 2008-2016).

Figure 1.51: Unemployment rate for the total economy and among foreign nationals, UK, 2008-2016



Source: Eurostat

Again, females face higher unemployment rates than males among the foreign nationals during the period 2014-2016. In fact, the nine-year mean unemployment rate for foreign females is 8.89%, or 21.03% (or 1.54 percentage units, in absolute terms) more than the respective rate for foreign-national males. Nevertheless, it declines with a mean annual rate of 1.68% (Figure 1.52).

Finally, as regards the age differentiation of unemployment among foreign nationals, the 15-29 age group has, on average, the highest unemployment rate (11.29%), with the 40-64 age group following (7.11%), in the period 2008-2016[119]. On the other hand, age groups 30-34 and 35-39 have, on average, lower unemployment rates than the respective rate for the total economy over the same period (6.18% and 6.51% respectively). Moreover, these rates decline with mean annual rates of 2.93% and 2.55% respectively (Figure 1.53).

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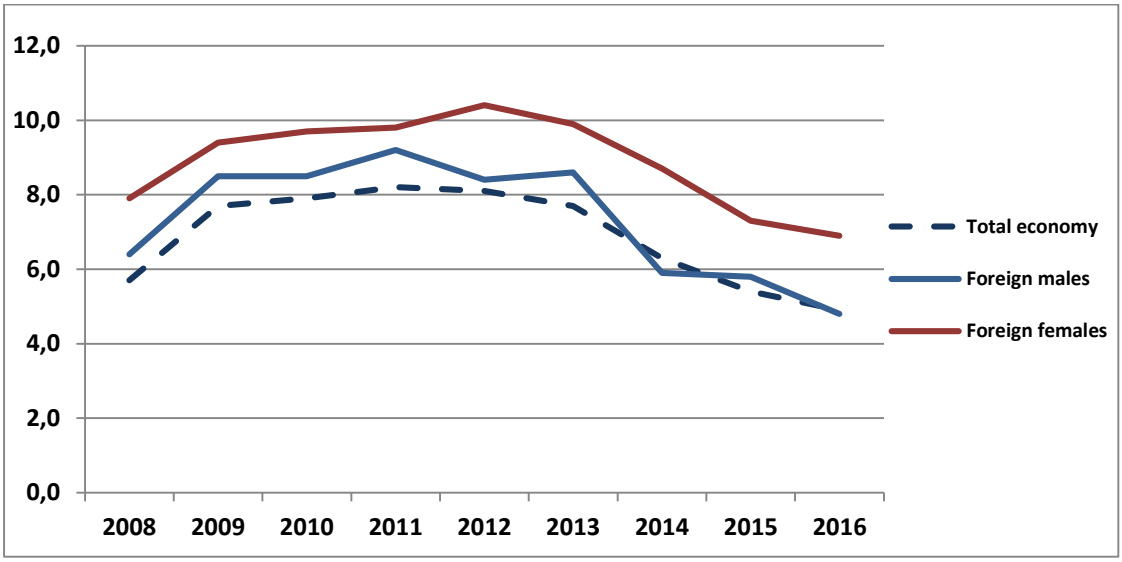
[118] Non-EU foreign nationals face higher unemployment rates than EU foreign nationals (10.28% over 6.11%), which decline at a slower pace (1.18% over 1.30%) compared to the rate for EU nationals.

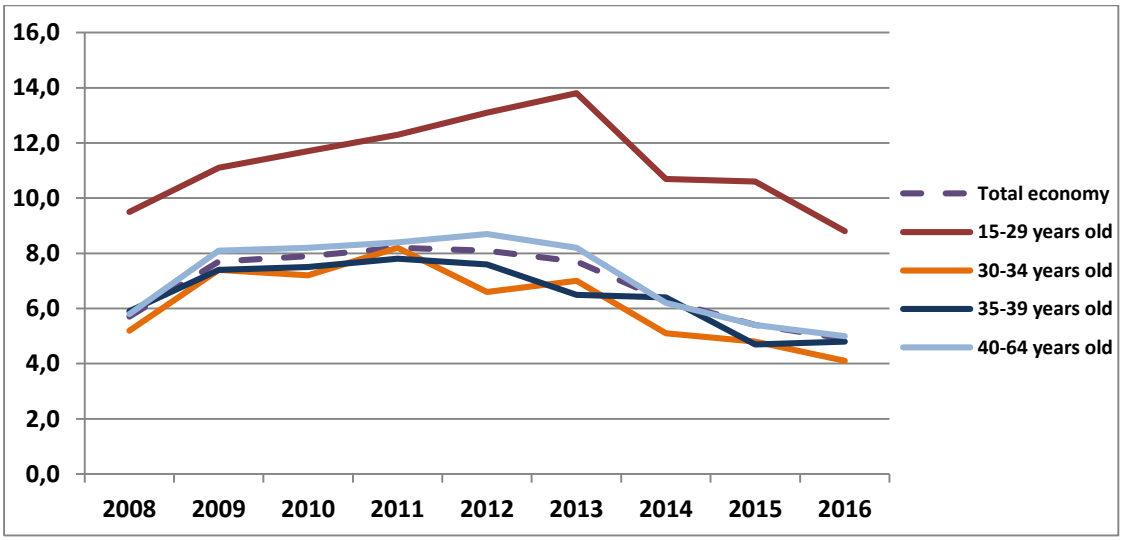
[119] Those aged 15-29 form by far the group that faces the highest unemployment, compared both to other groups and the total economy (its 2008-2013 mean unemployment rate is 64.13% higher than the total economy's respective rate). This is partly to be expected, considering that a significant share of UK foreign nationals that belong to that age group have immigrated to the country for educational reasons. However, its unemployment rate records a significant decrease since 2013 and afterwards (mean annual decrease rate of 13.93%).

Figure 1.52: Foreign-national unemployment rate by gender (%), UK, 2008-2016



Source: Eurostat

Figure 1.53: Foreign-national unemployment rate by age group (%), UK, 2008-2016



Source: Eurostat

1.6.2 The United Kingdom and the migration crisis

The United Kingdom has a long tradition of receiving and hosting immigrants, especially after World War II. Immigrants mainly originated either from Poland and Ireland or the former British Overseas Territories such as India, Pakistan, Bangladesh and Jamaica[120,121]. However, the UK immigration policy still remains a complex and divisive matter, both politically and publicly. At the same time, asylum

[120] http://www.pewglobal.org/2018/02/28/global-migrant-stocks/?country=GB&date=2017.

[121] Other popular origins for UK foreign nationals are Italy, Germany, Cyprus and the United States (Rienzo and Vargas-Silva, 2017; Hawkins, 2018).

granting in the UK has been presented as a strict and rigorous process. For example the Asylum and Immigration Appeals Act (1993) and the Asylum and Immigration Act (1999), had been launched in order to reduce the number of asylum seekers perceived to be motivated more by economic than security reasons (Bloch, 2000).

Similarly, during the recent so-called “migration crisis”, the immediate response of the British government was to introduce measures that enabled it to place controls on the number of refugees it would accept by opting out from European Directives and by establishing specific resettlement programs for Syrian refugees. Moreover, further restrictive immigration policies were promoted (for an in depth presentation and discussion of the UK migration and asylum policies cfr SIRIUS WP2 report for the UK).

The recorded third-country nationals that crossed the county’s borders over the period 2014-2016 were in total 1,613,351 persons or on average 66,333 more people each year compared to the period 2008-2013[122] (Table 1.28).

Table 1.28: Migration inflows; total, by gender, age group and top 5 countries of origin (in persons), UK, 2014-2016

Year		2014	2015	2016
Migration Inflow		550,740	547,828	514,783
Gender	**Males**	281,402	278,117	269,326
	Females	269,338	269,711	245,457
Age Group	**< 15 Years old**	27,634	31,727	23,113
	15-64 Years old	518,199	506,961	489,065
	≥ 65 Years old	4,907	9,140	2,605
Country of Origin	**Romania**	40,335	63,014	61,350
	India	49,667	40,483	39,150

[122] Including asylum applicants.

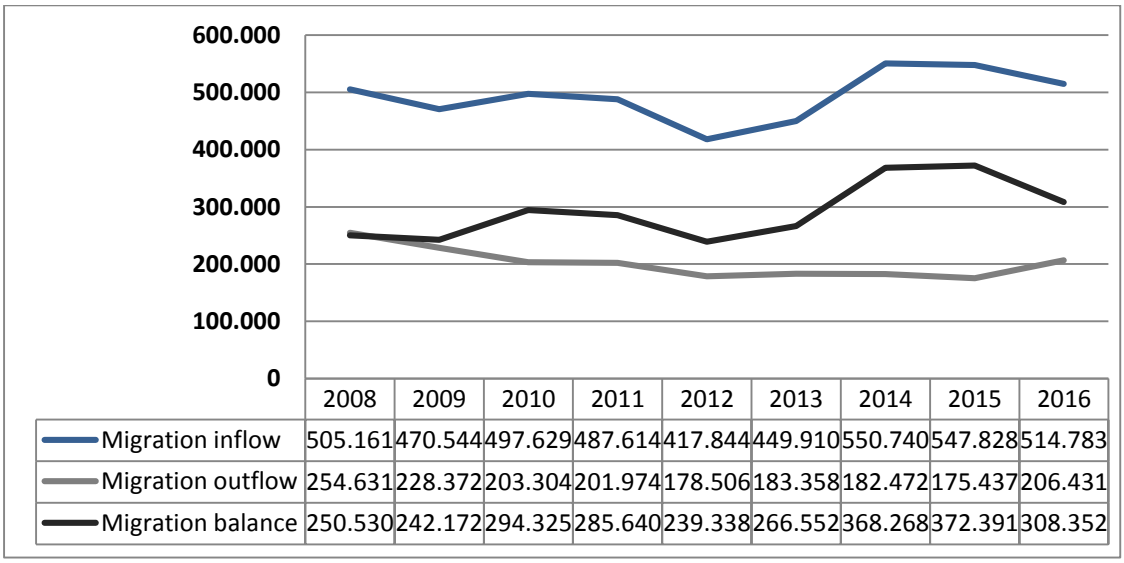
	China[123]	41,729	48,525	38,897
	Poland	35,042	44,367	32,463
	Italy	18,211	28,980	28,894

Source: Eurostat

Immigrants have been almost equally divided between males (51.37%) and females (48.63%), while the vast majority are minors and adults from 15 to 64 years old (93.86%). As regards the main countries of origin, 10.21% come from Romania, 8.01% from India, 8.00% from China (including Hong Kong), 6.93% from Poland and 4.72% from Italy.

At the same time, a decrease has been recorded for third-country nationals that left the country during the same period. Specifically, 564,340 third-country nationals left the UK during the period 2014-2016 or, on average, almost 20,244 fewer people each year, compared to the previous period (2008-2013)[124]. Hence, the UK faced a migration surplus of 1,049,011 migrants over the period 2014-2016. This means a mean annual surplus 32.91% higher than the respective one for 2008-2013[125] (Figure 1.54).

Figure 1.54: Immigration, emigration and migration balance (in persons) of third-country nationals, UK, 2008-2016



	2008	2009	2010	2011	2012	2013	2014	2015	2016
Migration inflow	505.161	470.544	497.629	487.614	417.844	449.910	550.740	547.828	514.783
Migration outflow	254.631	228.372	203.304	201.974	178.506	183.358	182.472	175.437	206.431
Migration balance	250.530	242.172	294.325	285.640	239.338	266.552	368.268	372.391	308.352

Source: Eurostat

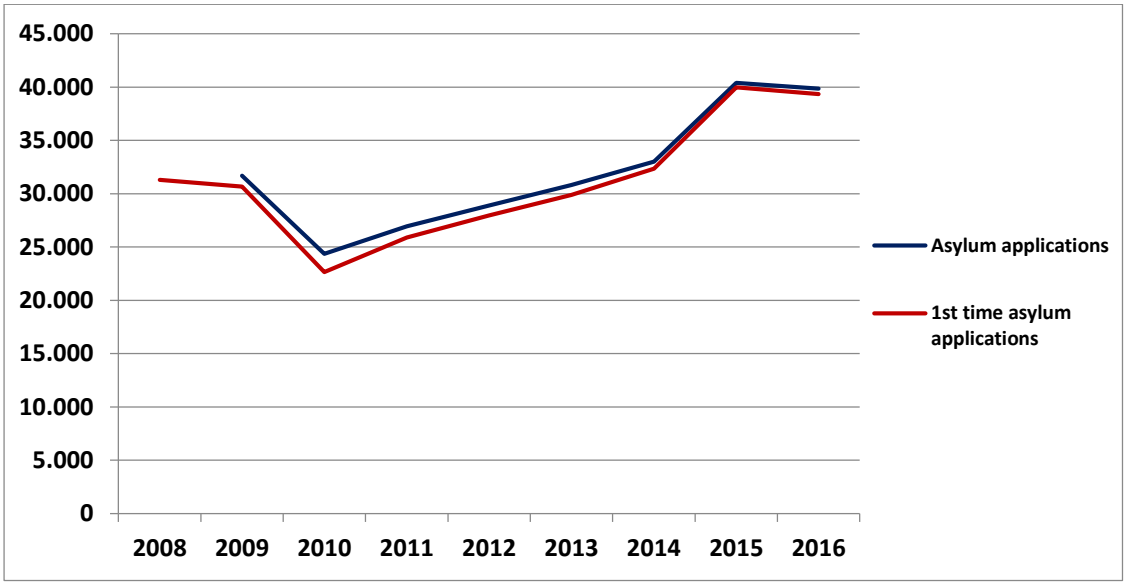
[123] Including Hong Kong.

[124] Interestingly, the migration outflow in 2016 increases compared to 2015, stopping the declining trend of the previous period.

[125] The migration surplus for the period 2008-2013 was 1,578,557 third-country nationals.

Among the third-country nationals who entered the UK over the period 2014-2016, a total of 111,670 applied for asylum[126]. This means, on average, 37,223 first-time asylum applications each year, during this period; 32.63% more than the mean annual number of first-time asylum applications in the period 2008-2013 (Figure 1.55)[127,128]. Additionally, post-2013 first-time asylum applications follow an increasing trend, namely an increase with a mean annual rate of 9.62%, in contrast to the pre-2014 applications, which decrease with a mean annual rate of 0.94%[129].

Figure 1.55: First time asylum applications (in persons), UK, 2008-2016



Source: Eurostat

The first-time asylum applicants are mainly males (69.79%), minors (22.66%) and adults up to 64 years old (76.25%). Moreover, 9.95% come from Pakistan, 9.90% from Iran, 7.44% from Eritrea, 6.91% from Afghanistan and 6.53% from Iraq (Table 1.29).

[126] The total asylum applications for the period 2014-2016 were 113,275. Almost all (98.58%) were first-time applications, a fact that suggests that the asylum seekers were mainly newly entrants into the country.

[127] But much more below the levels of the early 2000s, a period when more restrictive asylum laws were promulgated (Blinder 2017).

[128] Eurostat data on asylum seekers do not include the resettlement scheme of the UK. Between 2015 and 2016 the Vulnerable resettlement scheme supported 5,706 Syrians.

[129] The overall declining trend for 2008-2013 is due to the significant decrease in first-time asylum applications in 2010. Since 2010, first-time asylum applications have followed an upward trend, although this was more moderate than the post-2013 upward trend. On the other hand, the post-2013 upward trend is mainly the result of the increase in first-time asylum applications of 2015.

Table 1.29: First time asylum applicants, total, by gender and age group, UK, 2014-2016[130]

Year		2014	2015	2016
First-time asylum applicants		32,345	39,970	39,355
Gender	**Males**	21,485	29,325	27,060
	Females	10,825	10,615	12,270
Age Group	**< 18 Years old**	6,865	8,125	9,330
	18-64 Years old	23,665	30,080	28,085
	≥ 65 Years old	425	340	400
Country of Origin	**Pakistan**	3,975	3,365	3,775
	Iran	2,500	3,715	4,835
	Eritrea	3,290	3,755	1,265
	Afghanistan	1,755	2,850	3,115
	Iraq	910	2,650	3,735

Source: Eurostat

1.6.3 Migration management in the UK

The rise in asylum applications – first time and total – led to an increase in first-instance decisions in the period 2014-2016. Indeed, 95,290 first-instance decisions on asylum applications were registered over this period or, in other words, 8,590 more decisions each year compared to the period 2008-2013. Moreover, together with the rise in first-instance decisions a greater proportional increase in positive first

[130] Differences in sums are due to the non-responses about gender or age.

instance-decisions has also been recorded in comparison with the previous period 2008-2013. Hence, the ratio of positive to total first-instance decisions in the period 2014-2016 increased by 16.73%, compared to the respective ratio for 2008-2013[131]. As regards the positive first-instance decisions (averagely 35% of total applications are positive), 87.00% involve the granting of the Geneva Convention status, 11.70% humanitarian status and only 1.30% subsidiary protection status[132] (Table 1.30).

As regards those who received asylum in the first instance during this period, 24,105 (70.87%) were males and 9,910 (29.13%) females. Moreover, 8,175 (24.03%) were minors up to the age of 18 and 24,570 (72.23%) adults up to the age of 64, while 450 (1.32%) were old people aged 65 and over[133]. In addition, 5,245 (15.42%) originated from Syria, 5,030 (14.79%) from Eritrea, 4,975 (14.63%) from Iran, 4,530 (13.32%) from Sudan and 2,155 (6.34%) from Afghanistan.

Table 1.30: First-instance decisions on asylum applications by reason, UK, 2014-2016

Year	2014	2015	2016
Total first-instance decisions	**26,005**	**38,265**	**31,020**
Total positive decisions	**10,125**	**13,955**	**9,935**
Geneva Convention status	9,005	12,180	8,410
Humanitarian status	1,015	1,650	1,315
Subsidiary protection status	105	125	210
Temporary protection status	0	0	0
Rejected	**15,880**	**24,310**	**21,085**

Source: Eurostat

On the other hand, in contrast to the first-instance decisions, there has been a decrease in the mean annual final decisions on asylum applications in this period. More specifically, 38,720 final decisions were taken in total in this period. This corresponds to a mean annual number of almost 12,907 decisions, or 22.68% less

[131] The total first-instance decisions on asylum applications in 2008-2013 came to 149,170, of which 45,615 were positive.

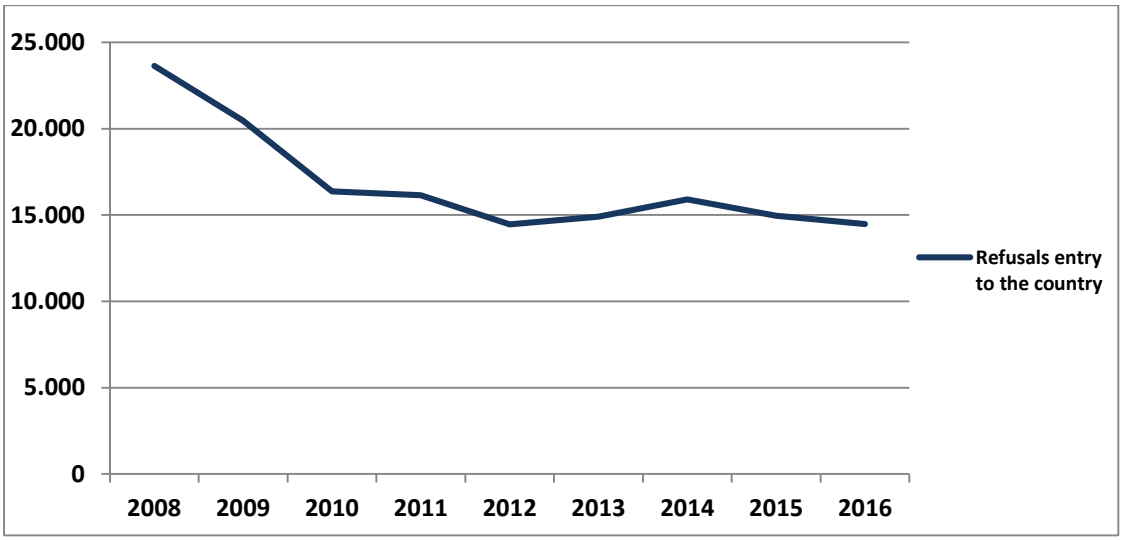
[132] Regarding the reasons for granting asylum in first-instance applications during 2014-2016, the greatest increase compared to the 2008-2013 period was in the granting of Geneva Convention status (71.74%). Subsidiary protection status followed with 20.55%, while humanitarian status recorded a relative fall of 23.70%.

[133] There is another 2.4% for which there is no data available about relating to age.

than the respective number for 2008-2013. However, the share of positive final decisions out of the total in the period 2014-2016 is 5.57% higher compared to the previous period. Again, the majority of positive decisions (81.13%) involve the granting of Geneva Convention status, 14.81% humanitarian status and 4.03% subsidiary protection status[134].

At the same time, 45,335 third-country nationals were refused entry to the country in 2014-2016[135] (Figure 1.56). This is on average 2,552 fewer people every year, compared to the period 2008-2013.

Figure 1.56: Third-country nationals that have been refused entry to the country, UK, 2008-2016



Source: Eurostat

Alongside this, there has been a significant increase in the number of third-country nationals found to be irregularly present in the United Kingdom during this period. More precisely, 195,280 third-country nationals were irregularly present in 2014-2016; 10.26% higher – in terms of the annual mean – compared to the period 2008-2013[136]. Additionally, the post-2013 figure of irregularly-present third-country nationals increased, following the overall post-2012 increasing trend[137,138]. At the

[134] Those granted asylum were mainly male (63.62%), minors (25.19%) and adults aged up till 65 (72.74%), and mainly originating from Sri Lanka (11.64%), Eritrea (11.07%), Iran (10.00%), Pakistan (9.87%) and Afghanistan (9.47%).

[135] Coming mainly from the United States (12.93%), Brazil (6.71%), Albania (6.12%), India (4.92%) and Nigeria (4.70%).

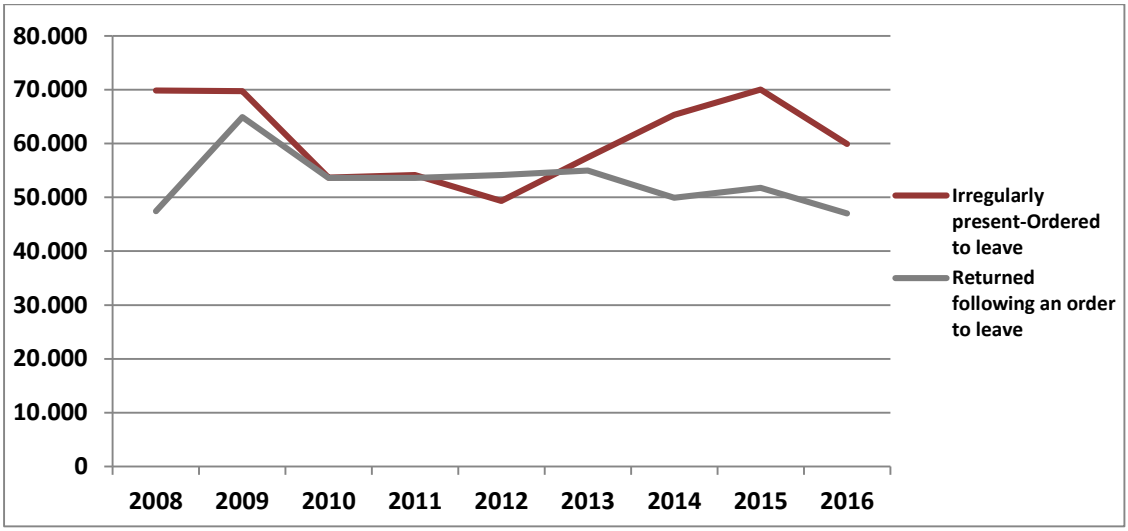
[136] 110,395 were adults aged 18-34.

[137] Since 2012, the number of irregularly present third-country nationals increased at a MAGR of 4.95%, reaching its highest value in 2015.

[138] In the UK, just like in Italy, the number of those ordered to leave is identical to the number of third-country nationals found to be irregularly present in the country. Hence, 195,280 orders were issued in total over this period; 10.26% higher, in terms of annual means, than in the period 2008-2013.

same time, 148,705 people returned to the UK following an order to leave in this period or, on average, 49,568 people every year, almost 5,224 fewer people than for the period 2008-2013[139] (Figure 1.57).

Figure 1.57: Third-country nationals found to be irregularly present, ordered to leave and who then returned following an order to leave (in persons), UK, 2008-2016



Source: Eurostat

Finally, 2,066,717 first-residence permits were issued to third-country nationals, in the last three-year period. This means on average almost 688,906 permits each year, during this period, a slight increase (0.95%) from the period 2008-2013. In terms of the reasons for the granting of residency, 275,778 permits were issued for family reasons (13.34%), 771,786 (37.34%) for educational reasons, 351,863 (17.03%) for remunerated activities reasons, and 667,290 (32.29%) for other reasons[140].

1.7 Switzerland: Statistical Overview

1.7.1 Demographic characteristics of foreign nationals

Switzerland's population was, on average, 8,006,899 over the period 1 January 2008-1 January 2017. During this period, Switzerland's population followed a strictly upward trend, increasing at an MAGR of 1.15%, with foreign nationals constituting,

[139] The number of the third-country nationals who returned following an order to leave follows the 2009-2016 overall downward trend, namely a decrease with a mean annual rate of 4.51%.

[140] Compared to first-residence permits issued in 2008-2013, the only increase - in terms of mean annual issues – was recorded for permits granted for educational reasons (9.89%). All other reasons (family, remunerated activities and other) decreased (18.24%, 0.53% and 0.90%, respectively). With regard to other reasons, 2.85% involved the granting of refugee status and subsidiary protection, 1.21% to unaccompanied minors, and 0.16% for humanitarian reasons.

on average, 23.09% of the country's total population. Again, this share increased at a mean annual rate of 1.88%, over the same period[141] (Table 1.31).

Table 1.31: Total and foreign-national population on 1 January (in millions), Switzerland, 2008-2017

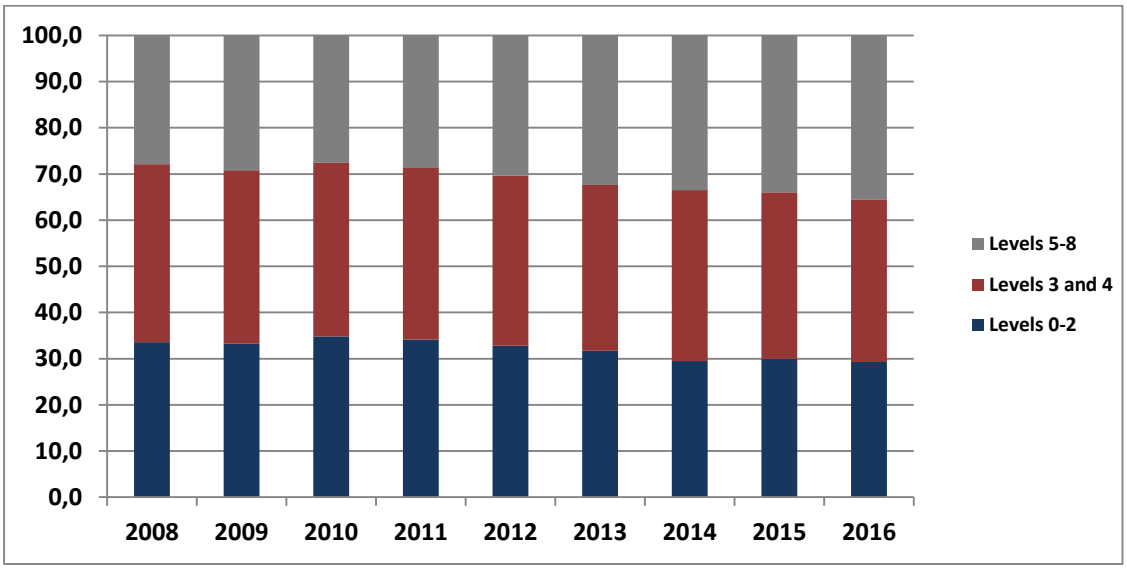
Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Population	7.59	7.70	7.79	7.87	7.95	8.04	8.14	8.24	8.33	8.42
Foreign Population	1.60	1.67	1.71	1.77	1.82	1.87	1.94	2.00	2.05	2.10
Share (%)	21.10	21.68	22.01	22.44	22.83	23.26	23.80	24.26	24.60	24.96

Source: Eurostat

Additionally, among the foreign nationals in 2008-2016, on average 32.11% had less than a primary, primary or lower secondary education, 36.87% an upper or post-secondary education and 31.03% a tertiary education (Figure 1.58). Furthermore, the percentage share of foreign nationals with a tertiary education increased during the period examined, at a mean annual rate of 3.01%. On the other hand, the foreign nationals with educational attainment levels 0-2 and 3-4 decreased in terms of their share of the total foreign population, with mean annual rates of 1.70% and 1.11% respectively.

[141] Males form the majority of Switzerland's foreign-national population (53.07%), with the 15-64 age group dominating (75.64%). Moreover, since 1 January 2014 (for when data is available), 66.05% have originated from an EU country.

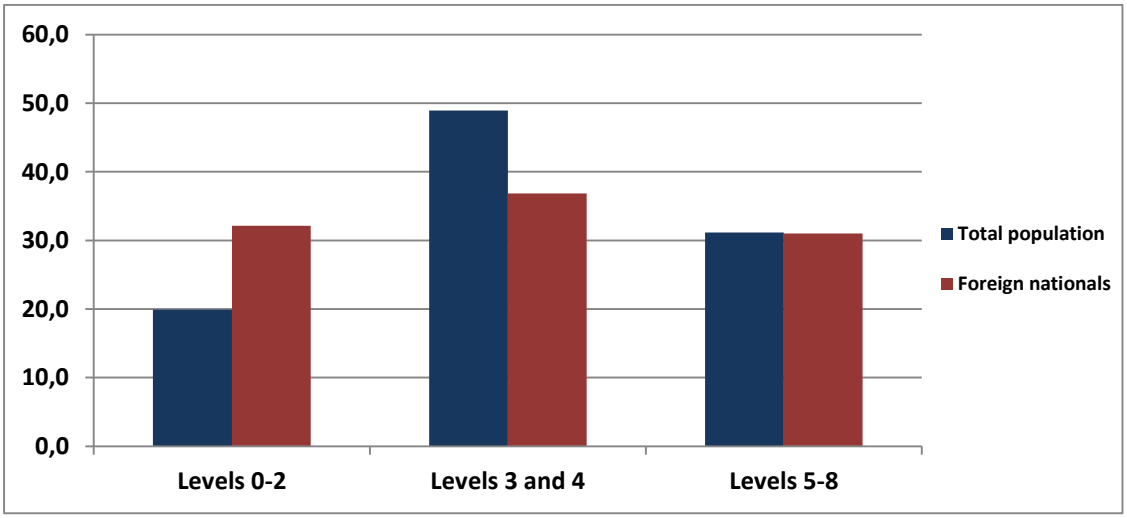
Figure 1.58: Composition of foreigners by Educational Attainment Level (ISCED 11), Switzerland, 2008-2016



Source: Eurostat

Compared to Switzerland's total population, the share of foreign nationals with a tertiary education was, on average, almost the same as that of the total population (31% over 31.10%) in the examined period (Figure 1.59). Even so, the share of foreign nationals with educational attainment levels of 0-2 and 3-4 is 61.44% higher and 24.67% lower than the respective shares of the total population[142].

Figure 1.59: Distribution (%) of total and foreign population by educational attainment level (ISCED 11), Switzerland, 2008-2016



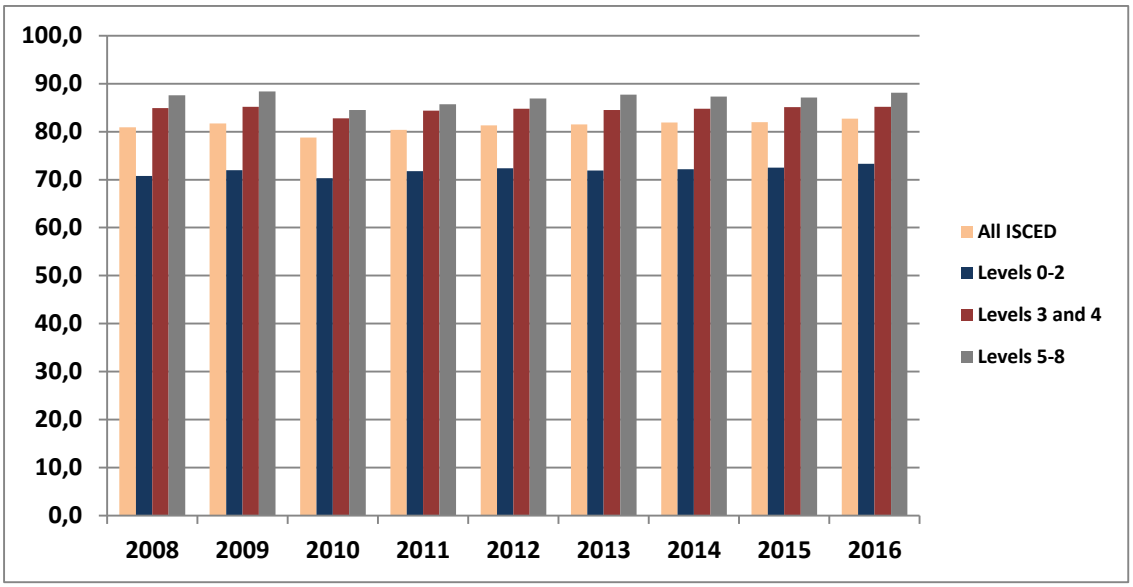
Source: Eurostat

[142] These shares differ among the foreign nationals, according to their origin. For example, for EU foreign nationals in the period 2008-2016, the mean percentage share with tertiary education was 35.53%, those with upper or post-secondary 37.6% and those with less than primary, primary or lower secondary education 26.90%.

The percentage share of the active population of foreign nationals is, on average, 81.24% in the examined period – 2.12% lower than the native share. However, it increases with a mean annual rate of 0.28%, or 22.60% higher than the native share in this period. This share is even higher among the EU foreign nationals resident in Switzerland. In fact, the percentage share of the active population among the foreign nationals from an EU member-state is 85.27%, namely 2.73% higher than the native share. In addition, it increases with a mean annual rate of 0.31%, namely 36.14% higher than the native rate during this period.

Furthermore, foreign nationals with tertiary education have, on average, the highest activity rate (87.03%) during this period. Those with upper and post-secondary education follow (84.63%), while those with less than primary, primary or lower secondary education rank last (71.91%). However, the activity shares of all educational attainment levels increase with mean annual rates of 0.43%, 0.04% and 0.07% respectively (Figure 1.60).

Figure 1.60: Activity rates (%) of foreigners by Educational Attainment Level (ISCED 11), Switzerland, 2008-2016



Source: Eurostat

Foreign-national employees comprised, on average, 24.07% of the country's total employees in the period 2008-2016. Moreover, this share increased with a mean annual rate of 1.92% over the period (

Table 1.32).

Table 1.32: Total and foreign national employment (in millions), Switzerland, 2008-2016

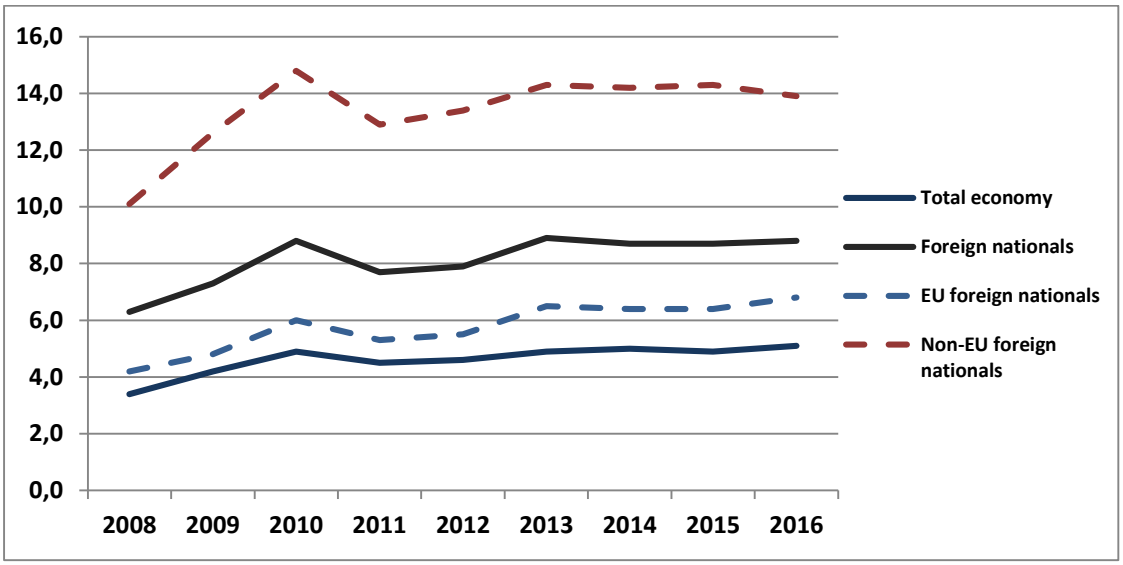
Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Employment	4.11	4.14	4.09	4.17	4.21	4.25	4.31	4.37	4.42
Employment of Foreigners	0.92	0.95	0.93	0.98	1.02	1.04	1.08	1.12	1.15
Share (%)	22.28	23.01	22.66	23.44	24.10	24.50	25.12	25.57	25.93

Source: Eurostat, 2018

In parallel, the mean unemployment rate for foreign nationals was, on average, 8.12%, or 3.50 percentage units – in absolute terms – higher than the respective rate for the total economy. On the other hand, it increased with a mean annual rate 17.95% lower than that of the total economy (Figure 1.61).

Among the foreign nationals, those who originate from a non-EU country also face the highest unemployment. Indeed, their nine-year mean unemployment rate is 13.39%, increasing at a mean annual rate of 4.07%, during this period.

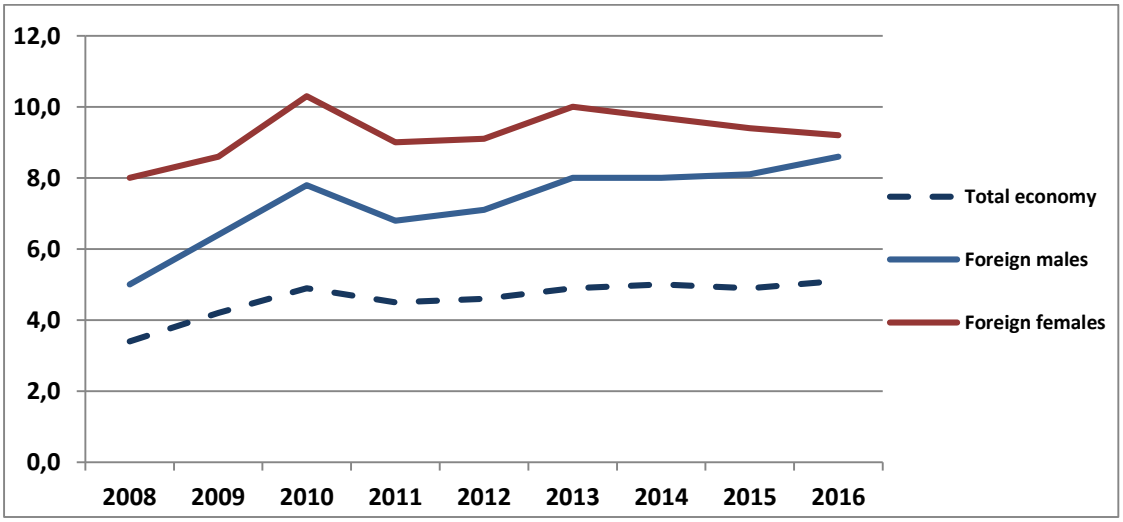
Figure 1.61: Unemployment rate (%) for total economy and foreign nationals, Switzerland, 2008-2016



Source: Eurostat

Foreign females also faced higher unemployment rates than males during the period 2014-2016. In fact, the nine-year mean unemployment rate for foreign females was 9.26%, almost two percentage units higher than that for foreign males. On the other hand, it increased with a 74.87% slower mean annual rate than that for foreign males, converging to their rate of unemployment in the last three years of the examined period (Figure 1.62).

Figure 1.62: Unemployment rate for foreign nationals by gender (%), Switzerland, 2008-2016

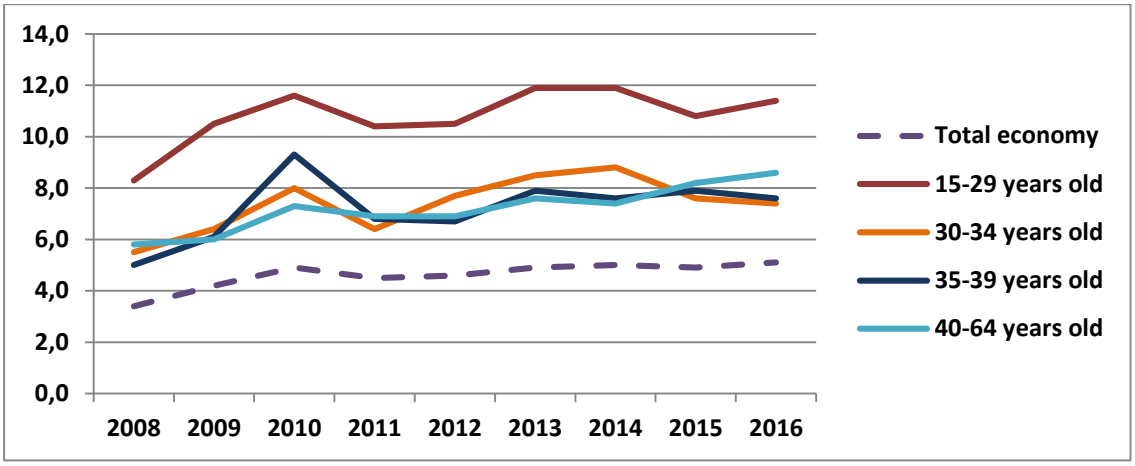


Source: Eurostat

Finally, the 15-29 age group had, on average, the highest unemployment rate (10.81%) among foreign nationals in the period 2008-2016. This was followed by the

30-34 and 35-39 age groups, at 7.37% and 7.21% respectively. In contrast, the 40-64 age group had, on average, the lowest unemployment rate, namely 7.19%, during this period[143] (Figure 1.63).

Figure 1.63: Unemployment rate for foreign nationals by age group (%), Switzerland, 2008-2016



Source: Eurostat

1.7.2 Switzerland and the migration crisis

Switzerland is a popular migration destination for European citizens (Germans, Italians, Portuguese, French, Serbian and Turkish)[144], who arrive in the country mainly to work but also for educational reasons. During the post-2014 so-called migration crisis, war refugees and asylum seekers, mainly from the Middle East and Africa (Syria, Afghanistan, Eritrea, Sri Lanka, Nigeria, Somalia, Tunisia and Morocco) were added to the traditional arrivals[145].

[143] The unemployment rates for all age groups increased during the period 2008-2016. The 35-39 age group faced the steepest rise, with a mean annual rate of 5.37%. The 40-64 and 15-29 age groups came next, with a mean annual rate of 5.05% and 4.05%, respectively, while the 30-34 age group ranked last with a 3.78% mean annual rate.

[144] http://www.pewglobal.org/2018/02/28/global-migrant-stocks/?country=CH&date=2017.

[145] *Migration Report 2014*, Swiss Confederation, Federal Department of Justice and Police, State Secretariat for Migration, June 2014:

https://www.sem.admin.ch/dam/data/sem/publiservice/berichte/migration/migrationsbericht-2014-e.pdf.

Overall, 382,809 third-country nationals entered Switzerland over the period 2014-2016. This means, on average 127,603 people each year during this period, 9,603 fewer people compared to the period 2008-2013[146] (

Table 1.33). Furthermore, the post-2013 immigration flows follow the overall downward trend for the period 2008-2016, namely a fall at a mean annual rate of 3.16%.

Table 1.33: Migration inflows; total, by gender, age group and top 5 countries of origin (in persons), Switzerland, 2014-2016

Year		2014	2015	2016
Migration Inflow		130,105	127,675	125,029
Gender	**Males**	67,481	66,304	65,026
	Females	62,624	61,371	60,003
Age Group	**< 15 Years old**	16,047	15,500	15,619
	15-64 Years old	112,160	110,399	107,844
	≥ 65 Years old	1,898	1,776	1,566
Country of Origin	**Germany**	21,323	19,859	18,972
	Italy	16,789	16,312	16,496
	France	13,126	13,266	12,796

[146] Including asylum applicants.

	Portugal	10,707	8,481	7,177
	Spain	6,354	5,692	4,918

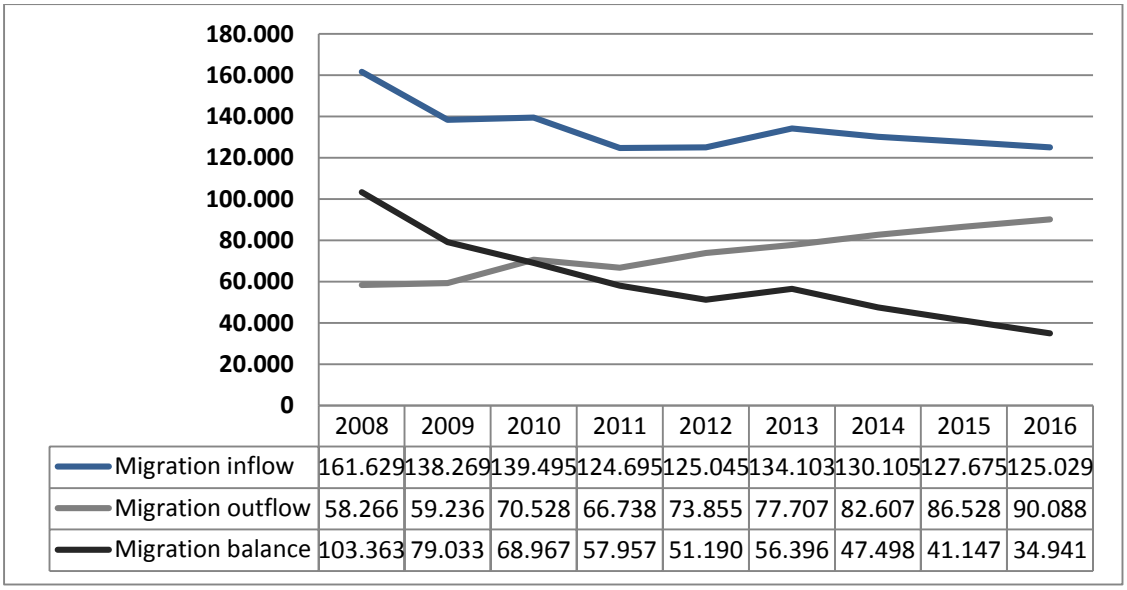
Source: Eurostat

In terms of the identity of the immigrants, these are mainly males (51.93%), minors aged 15 years old or older, and adults up to the age of 65 (86.31%). As for the top five countries of origin, all are among the "traditional countries" of origins for foreign nationals in Switzerland: 15.71% come from Germany, 12.96% from Italy, 10.24% from France, 6.89% from Portugal and 4.43% from Spain.

On the other hand, the mean annual number of third-country nationals that left Switzerland during the period 2014-2016 increased. Specifically, a total of 259,223 third-country nationals left in that period, or 18,686 more people each year than in the period 2008-2013[147] (Figure 1.64).

Nevertheless, Switzerland had a total migration surplus of 123,586 third-country nationals over the period 2014-2016, or 40.71% lower than in the 2008-2013 period. This is expected to further decrease, following the downward mean annual rate for the overall period (-12.68%).

Figure 1.64: Immigration, emigration and migration balance (in persons) of third-country nationals, Switzerland, 2008-2016



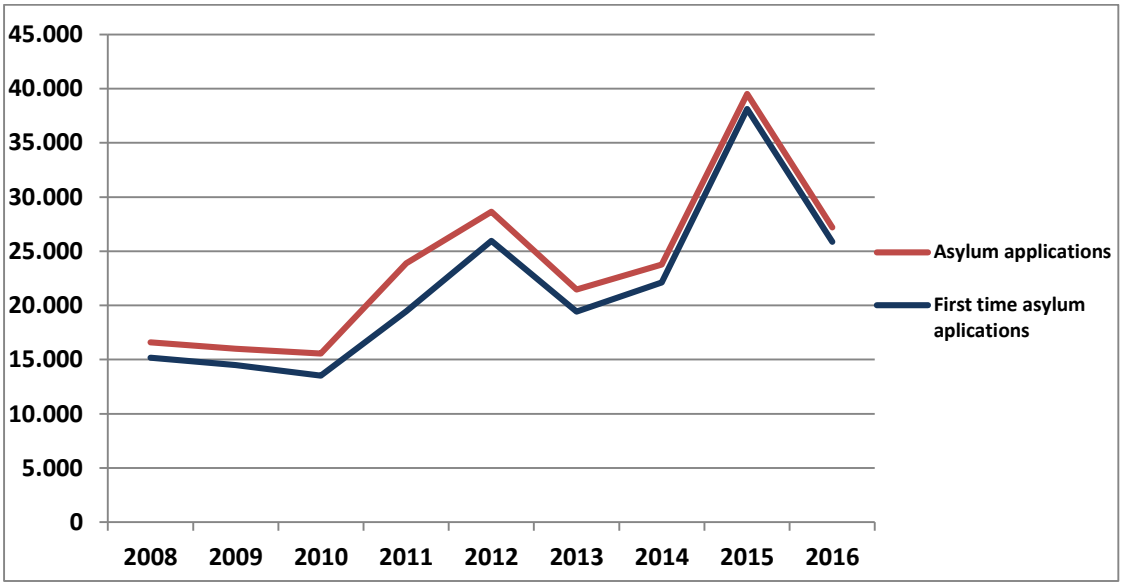
	2008	2009	2010	2011	2012	2013	2014	2015	2016
Migration inflow	161.629	138.269	139.495	124.695	125.045	134.103	130.105	127.675	125.029
Migration outflow	58.266	59.236	70.528	66.738	73.855	77.707	82.607	86.528	90.088
Migration balance	103.363	79.033	68.967	57.957	51.190	56.396	47.498	41.147	34.941

Source: Eurostat

[147] Post-2013 migration outflows follow the upward trend for the overall period, increasing with a 5.60% MAGR.

With regard to third-country nationals that immigrated to Switzerland in the period 2014-2016, at least 86,125 were asylum seekers[148]. This means, on average, 28,708 first-time asylum applications every year during this period, a 59.40% increase compared to the period 2008-2013[149] (Figure 1.65). Additionally, post-2013 first-time asylum applications increased with a 10% mean annual rate, mostly because of an increase in applications for 2015.

Figure 1.65: First-time asylum applications (in persons), Switzerland, 2008-2016



Source: Eurostat

First time asylum applicants in 2014-2016 were mainly males (71.22%), minors (30.88%) and adults up to 64 (68.74%), while 25.22% came from Eritrea, 13.60% from Afghanistan, 12.15% from Syria, 4.64% from Sri Lanka and 4.43% from Iraq (Table 1.34).

[148] Of the 90,480 asylum applications made in 2014-2016, a total of 86,125 (95.19%) were for the first time. Assuming that first-time asylum applications were from recent arrivals in the country, then the number of first-time asylum applicants is part of the migration inflow in this period.

[149] A total of 108,055 first-time asylum applications were made in the period 2008-2013, with a mean annual total of 18,009 first-time applications.

Table 1.34: First time asylum applicants, total, by gender and age group, Switzerland, 2014-2016[150]

Year		2014	2015	2016
First-time asylum applicants		22,130	38,120	25,875
Gender	**Males**	15,505	27,530	18,295
	Females	6,615	10,590	7,575
Age Group	**< 18 Years old**	6,490	11,155	8,940
	18-64 Years old	15,495	26,840	16,835
	≥ 65 Years old	110	120	95
Country of Origin	**Eritrea**	6,825	9,860	5,040
	Afghanistan	730	7,800	3,185
	Syria	3,770	4,650	2,040
	Sri Lanka	905	1,775	1,315
	Iraq	280	2,285	1,250

Source: Eurostat

1.7.3 Migration management in Switzerland

Alongside the asylum applications, a significant increase in first-instance decisions on asylum applications was also recorded for the period 2014-2016. Indeed, 66,325 first-instance decisions were registered in this period, compared to the 81,110 first-instance decisions for the period 2008-2013: on average, there were 8,590 more decisions each year in 2014-2016 than in the previous period (63.54% increase). Furthermore, 64.22% of the 2014-2016 first-instance decisions were positive, 45.56%

[150] Differences in sums are due to the non-responses about gender or age.

more than the 2008-2013 percentage share[151]. Of the positive first-instance decisions, 42.90% granted the Geneva Convention status, 40.49% a humanitarian status and 16.61% subsidiary protection status[152] (Table 1.35).

As for the recipients of first-instance asylum in this period, 25,340 (59.48%) were males and 17,260 (40.52%) females. In addition, 17,635 (41.42%) were minors up to the age of 18, 24,560 (57.68%) adults until the age of 64, and 385 (0.90%) older people aged 65 and over[153]. In terms of origin, 14,375 (33.74%) were from Eritrea, 9,355 (21.96%) from Syria, 4,100 (9.62%) from Afghanistan, 3,475 (8.16%) from Sri Lanka and 1,940 (4.55%) from China[154].

Table 1.35: First-instance decisions on asylum applications by reason, Switzerland, 2014-2016

Year	2014	2015	2016
Total first-instance decisions	21,860	21,860	22,605
Total positive decisions	15,410	14,000	13,190
Geneva Convention status	6,140	6,285	5,850
Humanitarian status	6,630	5,085	5,535
Subsidiary protection status	2,640	2,630	1,805
Temporary protection status	0	0	0
Rejected	6,450	7,860	9,420

Source: Eurostat, 2018

In contrast with the first-instance decisions, final decisions decreased in terms of mean annual grants over the period 2014-2016. More precisely, 6,535 final decisions were registered in total, or an average of 2,178 decisions every year during this

[151] There was a total of 42,600 positive decisions for the period 2014-2016, which corresponds to an annual mean of 14,200 positive decisions, 138.05% higher than for 2008-2013.

[152] Among the reasons involved, the greatest increase in comparison to the period 2008-2013 was in the granting of subsidiary protection status (184.71%), followed by humanitarian status and then Geneva Convention status, with increases of 153.68% and 112.25%, respectively.

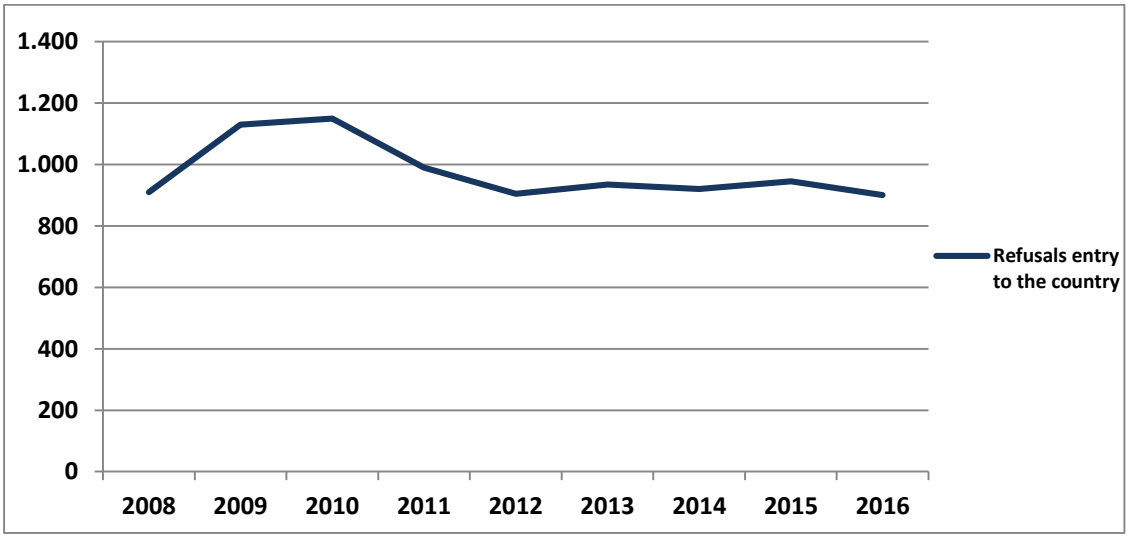
[153] There is another 0.05% for which there is no data available relating to age.

[154] Including Hong Kong.

period, that is 51.29% less compared to the period 2008-2013[155]. Moreover, the share of positive to total final decisions decreased from almost 10% in 2008-2013 to 6.81% in 2014-2016 (31.82% decrease). Again, the majority of positive decisions (47.19%) involve the granting of Geneva Convention status, 43.82% of humanitarian status and 8.99% of subsidiary protection status[156].

At the same time, 2,765 third-country nationals, over the period 2014-2016 were refused entry into the country, an 8.14% decrease in terms of mean annual refusals compared to 2008-2013. However, this number remains almost unchanged from 2012 onwards[157] (Figure 1.66). Those refused entry come mainly from Serbia (14.83%), Albania (10.85%), Macedonia (9.04%), the United States (6.33%) and Kosovo (4.70%).

Figure 1.66: Third-country nationals refused entry to the country, Switzerland, 2008-2016



Source: Eurostat, 2018

Furthermore, 45,120 third-country nationals were found to be irregularly present in the country over this period[158]. This number follows the overall upward trend of the period 2009-2016 and increases at a MAGR of 4.30%[159]. Alongside this, 10,485 orders to leave were issued in total over the same period (2014-2016). Despite the lack of data for the whole period of 2008-2016, these orders appear to have slightly

[155] In total, 26,835 final decisions on asylum applications were registered over the period 2008-2013. This corresponds to 4,473 mean annual decisions.

[156] Asylum was granted mainly to males (58.43%), minors (35.96%) and adults up to the age of 65 (64.04%), who came mainly from Syria (22.47%), Turkey (7.87%), Kosovo (6.74%), Eritrea (6.74%) and Sri Lanka (5.62%).

[157] In fact, it slightly decreases at a MAGR of 0.14%.

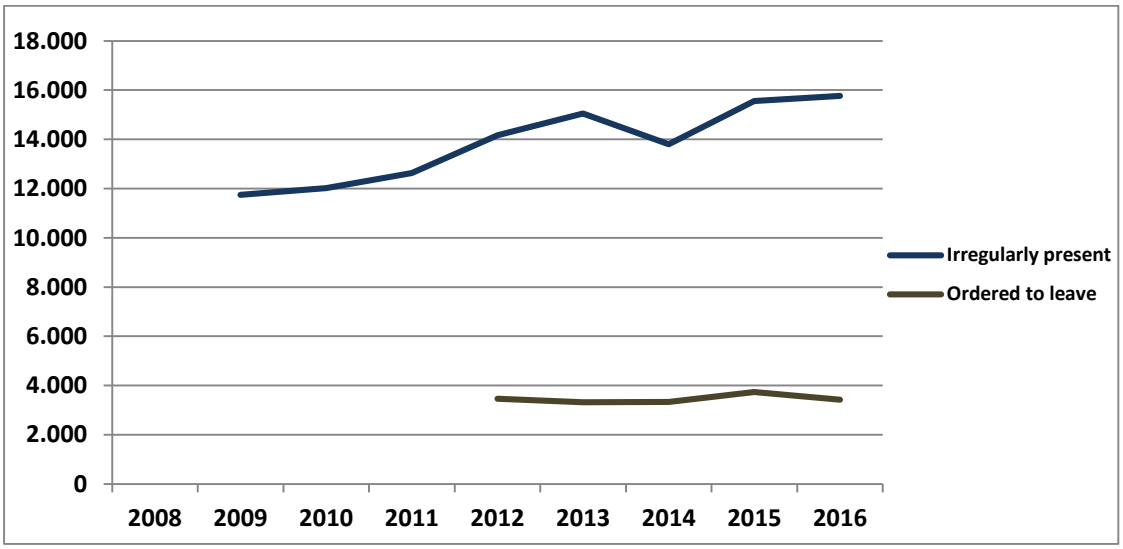
[158] The majority (68.58%) are adults aged 18 to 34.

[159] No data was available for 2008.

increased in 2015[160]. Nevertheless, the number of orders to leave in 2014-2016 was 76.76%, lower than the number of irregularly present third-country nationals in this period[161] (Figure 1.67).

Finally, 126,378 first residence permits were issued to third-country nationals, over the period 2014-2016, of which 44.78% were for family reasons, 26.09% for remunerated activities, 23.00% for educational reasons and 6.12% for other reasons[162].

Figure 1.67: Third country nationals found to be irregularly present and ordered to leave (in persons), Switzerland, 2009-2016



Source: Eurostat

2. Comparative Analysis

2.1 Demographic characteristics of foreign nationals

Switzerland retains by far the highest percentage share (24.96%) of foreign nationals of all the SIRIUS countries. The United Kingdom, Italy, Denmark and Greece come

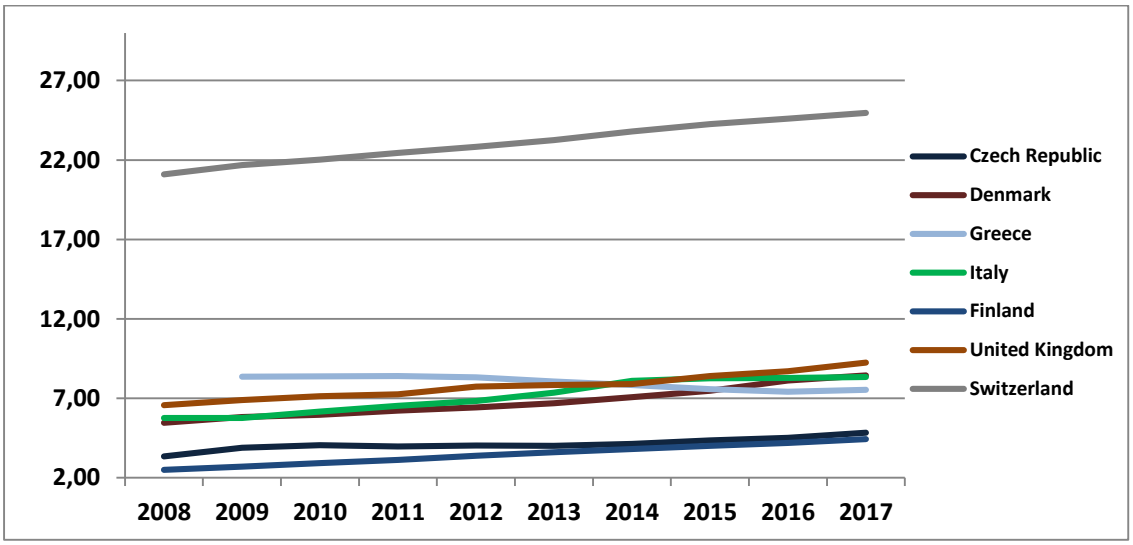
[160] Data are available from 2012.

[161] No data was available for the number of third-country nationals who returned to Switzerland following an order to leave, in the period 2008-2016.

[162] Of the other reasons, 60.18% is for residence only, 12.94% for humanitarian reasons and 8.96% for the granting of refugee status and subsidiary protection.

next, while the Czech Republic and Finland are the countries with the lowest shares of foreign nationals (4.83% and 4.43% respectively) (Figure 2.1).

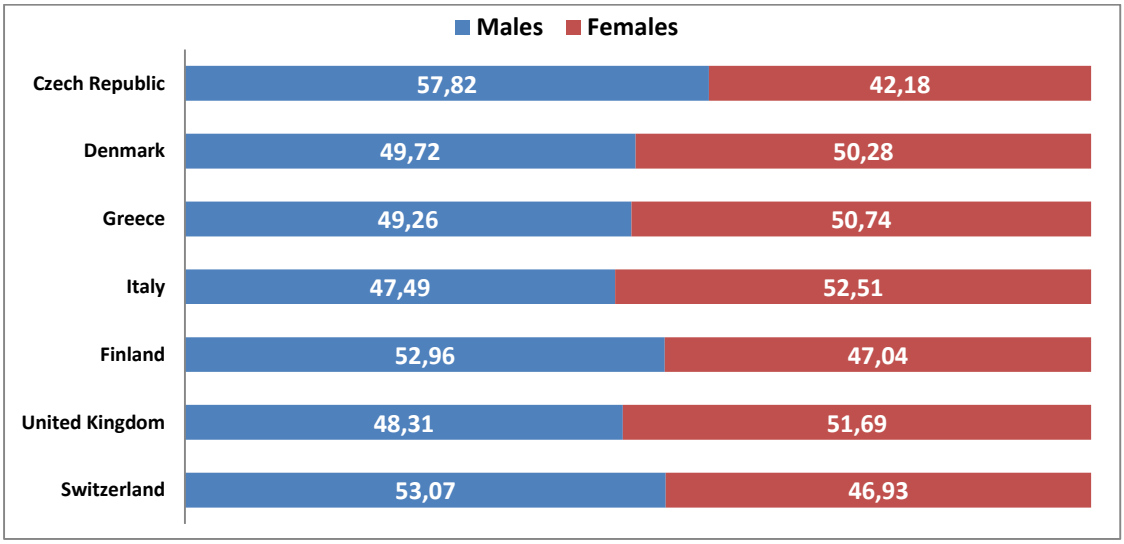
Figure 2.1: Share of foreign nationals to total population (%), SIRIUS countries, 1 January 2008- 1 January 2017



Source: Eurostat

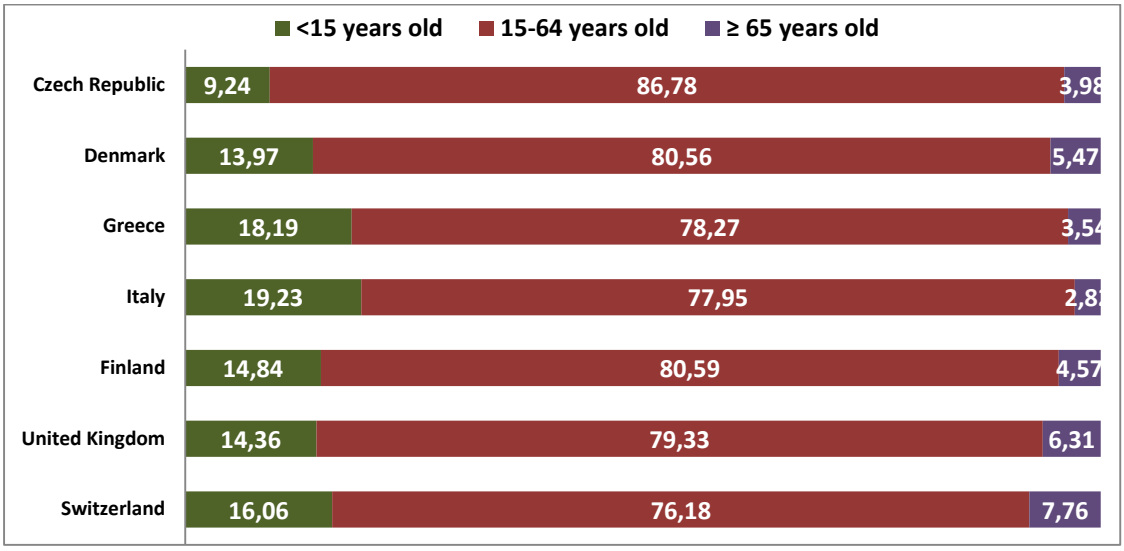
In terms of the gender composition of the foreign nationals, in the Czech Republic, Finland and Switzerland, males outweigh females, while in the other countries the opposite is the case (Figure 2.1). Moreover, the vast majority of foreign nationals are concentrated in the 15-64 age group with Greece and Italy being the countries with the highest percentages of minors under the age of 15 (18.19% and 19.23% respectively), in the period 2008-2016. At the same time, Switzerland and the United Kingdom retained the highest percentage shares of elderly people, 65 years old and over, in the same period (7.76% and 6.31%, respectively) (Figure 2.3).

Figure 2.2: Gender distribution of foreign nationals (%), SIRIUS countries, 2008-2016



Source: Eurostat

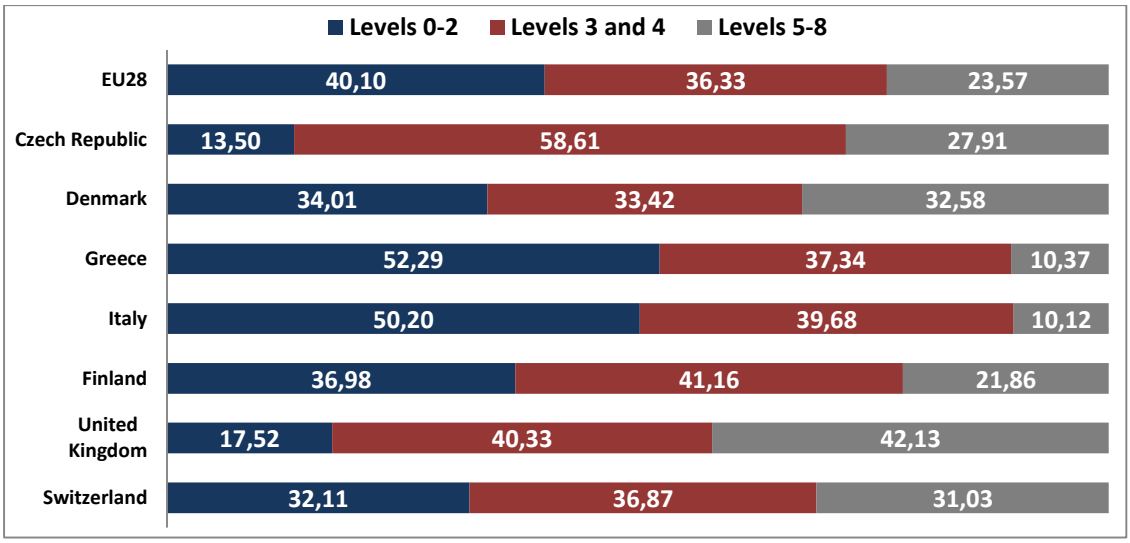
Figure 2.3: Age distribution (%) of foreign nationals, SIRIUS countries, 2008-2016



Source: Eurostat

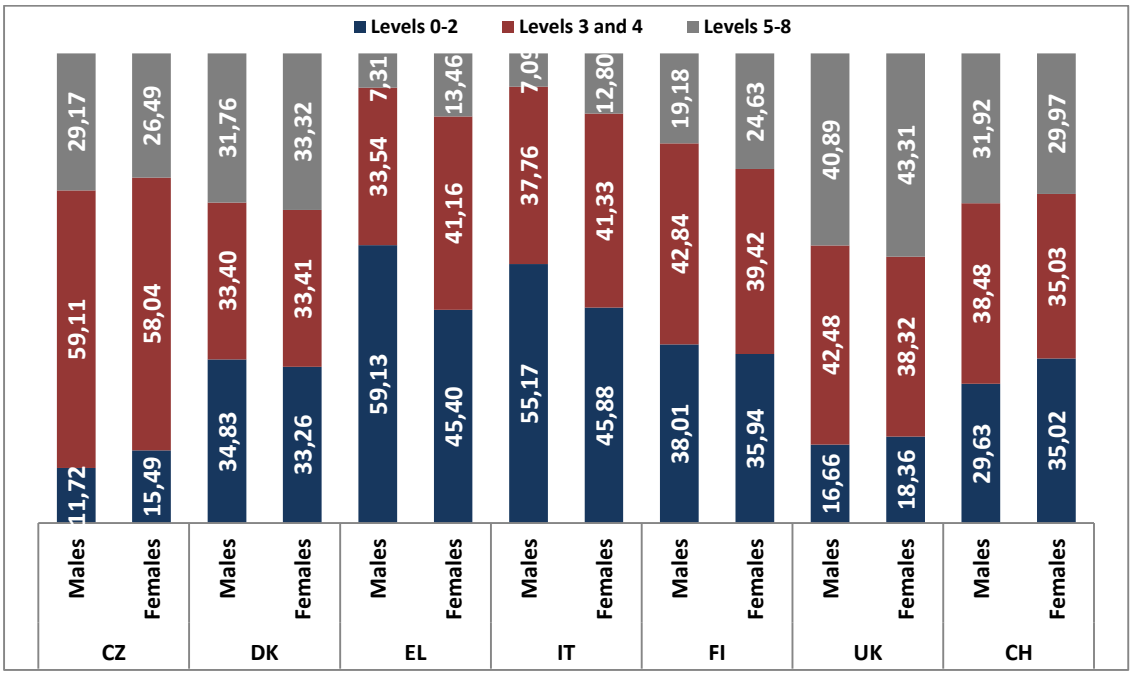
The United Kingdom, Denmark and Switzerland also retain high shares of foreign nationals with a tertiary educational attainment level (42.13%, 32.58% and 31.03% of the total foreign nationals population, respectively). In contrast, Greece and Italy are the countries with the lowest shares of foreign nationals who have attained a tertiary education (10.37% and 10.12%, respectively). Interestingly, in the United Kingdom and the Czech Republic, foreign nationals of less than primary, primary or lower secondary educational attainment levels constitute only 17.52% and 13.50% of the total foreign population respectively (Figure 2.4). Moreover, with the exceptions of the Czech Republic and Switzerland, foreign women have higher shares of tertiary educational attainment levels, compared to foreign males. Alongside this, with the exceptions of the Czech Republic, the UK and Switzerland foreign women also have lower shares of educational attainment levels 0-2 than men (Figure 2.5).

Figure 2.4: Distribution of foreign nationals according to their educational attainment level (%), SIRIUS countries, 2008-2016



Source: Eurostat

Figure 2.5: Educational attainment level of foreign nationals according to gender (%), SIRIUS countries, 2008-2016

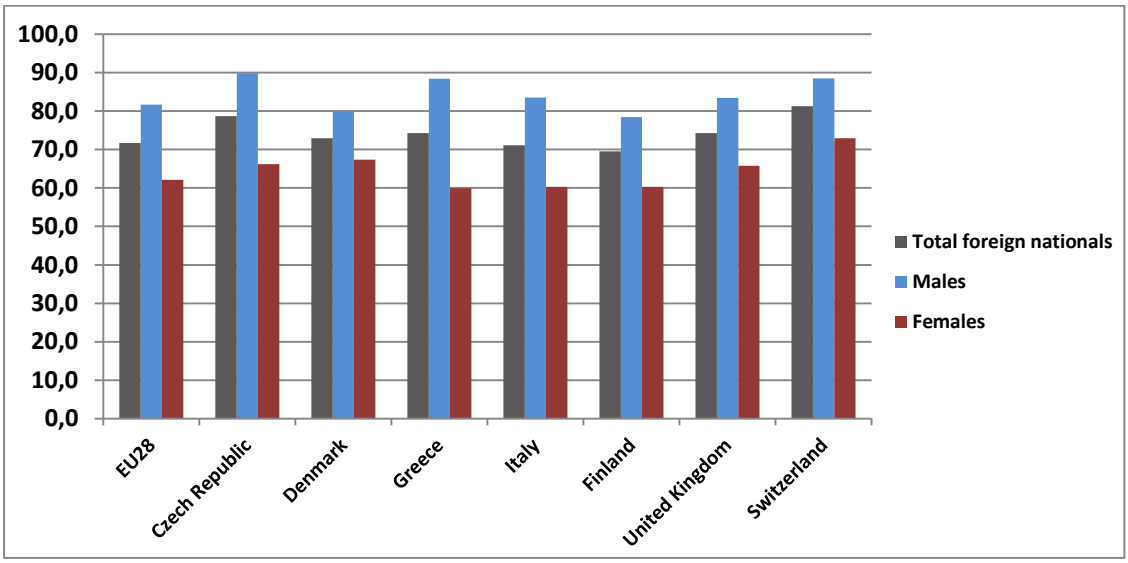


Source: Eurostat

Foreign males are the most active among the foreign nationals. In fact, in every SIRIUS country, the activity rate of foreign males exceeds that of foreign females. The biggest differences are recorded in Greece, Italy and the Czech Republic, where the activity rates of foreign males are, respectively, 47.58%, 38.47% and 35.80% higher than those of females[163]. The smallest difference is recorded in Denmark, where the 2008-2016 mean activity rate for males only exceeds that of foreign females by 16.50% (Figure 2.6).

[163] For the percentage (%) change calculations, all the relevant decimals have been used, instead of one (1) decimal point reported in the figures for the sake of economy

Figure 2.6: Mean activity rates of foreign nationals, according to their gender (%), SIRIUS countries, 2008-2016

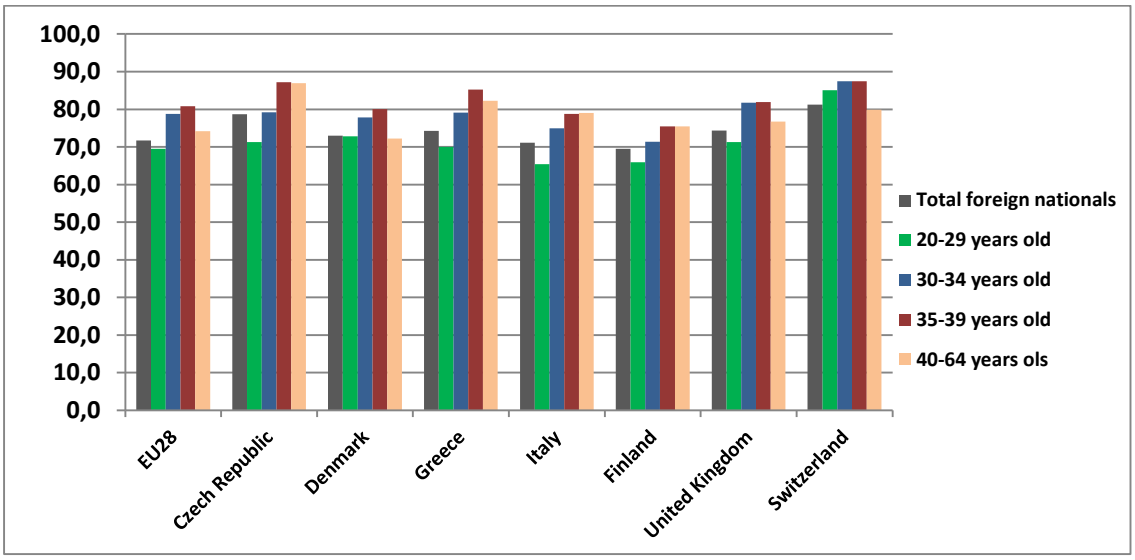


Source: Eurostat, 2018

Also, the 35-39 age group is the most active among the foreign nationals, in all SIRIUS countries apart from Italy (Figure 2.7). The age groups 30-34 and 40-64 come next, while the least active age group is that of 20-29, since a significant share of foreign nationals who belong to this age group are students and, hence, inactive. Especially in Finland and Italy, the nine-year mean activity rates of the foreign nationals who belong to this age group are 66.00% and 65.4% respectively, the lowest ones among the examined countries. Even so, in Switzerland, this age group's nine-year mean activity rate is 85.1%, only 2.30% different than the activity rate of the age group 30-39, which faces the highest activity rate among the foreign nationals (87.4%).

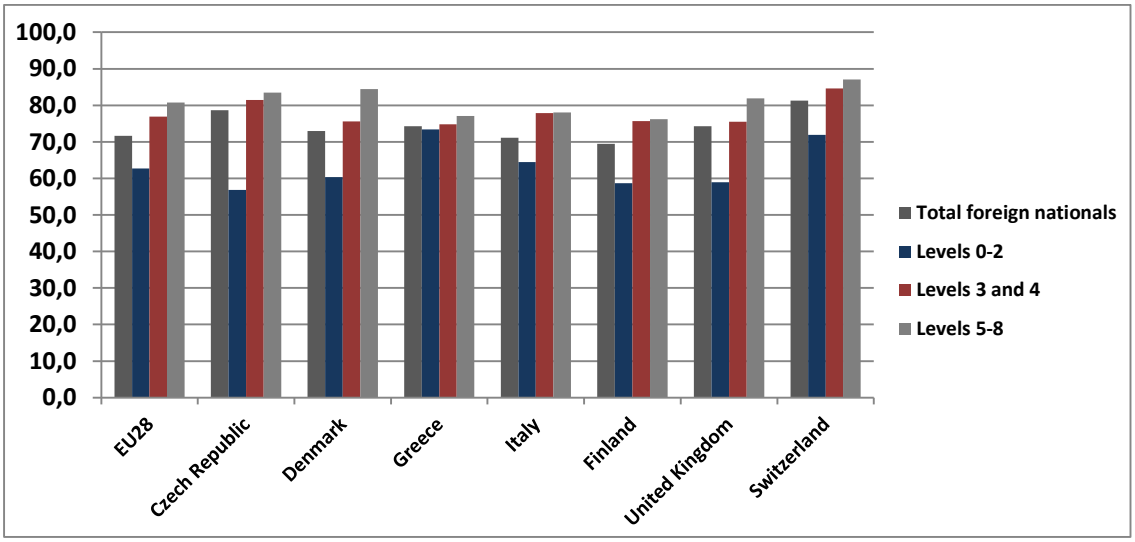
On the other side, foreign nationals with tertiary education have higher activity rates than those that have attained upper or post-secondary educational levels who, in turn, have higher activity rates than foreign nationals with less than primary, primary or lower secondary educational attainment levels (Figure 2.8). The less noticeable differences in activity rates among foreign nationals of different educational attainment levels have been recorded in Greece. Indeed, in this country the mean 2008-2016 activity rate of foreign nationals with educational attainment levels 0-2 is 73.4%, which is 1.87% and 4.80% lower than those of educational attainment levels 3-4 and 5-8, respectively.

Figure 2.7: Mean activity rates of foreign nationals by age group (%), SIRIUS countries, 2008-2016



Source: Eurostat

Figure 2.8: Mean activity rates of foreign nationals by educational attainment level (%), SIRIUS countries, 2008-2016



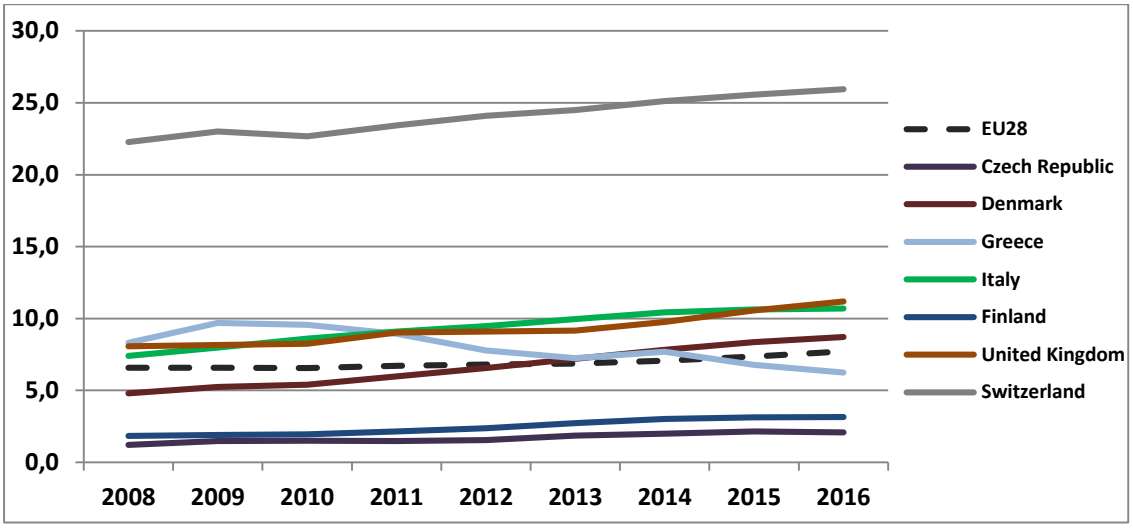
Source: Eurostat

With regard to the position of foreign nationals in the labour market of each country, again in Switzerland foreign national employees represent, on average, 24.07% of the country's total employees. Italy, the United Kingdom and Greece come next with 9.37%, 9.25% and 8.03%, respectively. Finland and the Czech Republic rank last, in terms of the foreign nationals' participation in the country's labour market, with 2.47% and 1.70%, respectively (Figure 2.9).

Foreign males are the most active among the foreign nationals. In fact, in every SIRIUS country, the activity rate of foreign males exceeds that of foreign females. The biggest differences are recorded in Greece, Italy and the Czech Republic, where the activity rates of foreign males are, respectively, 47.58%, 38.47% and 35.80%

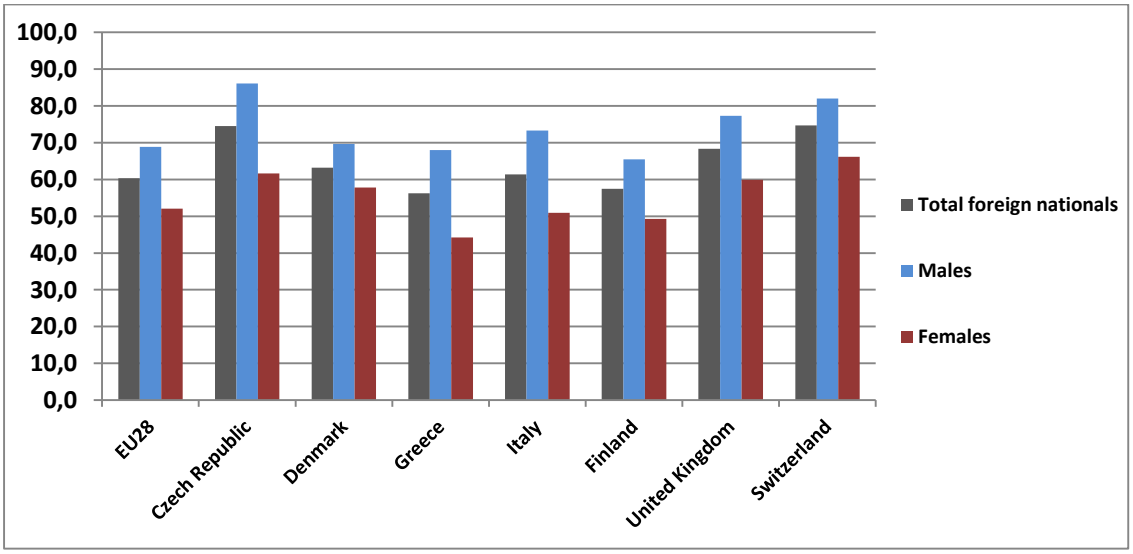
higher than those of females. The smallest difference is recorded in Denmark, where the 2008-2016 mean activity rate for males only exceeds that of foreign females by 16.50%. (Figure 2.10).

Figure 2.9: Participation of foreign nationals in the country's labour market (%), SIRIUS countries, 2008-2016



Source: Eurostat

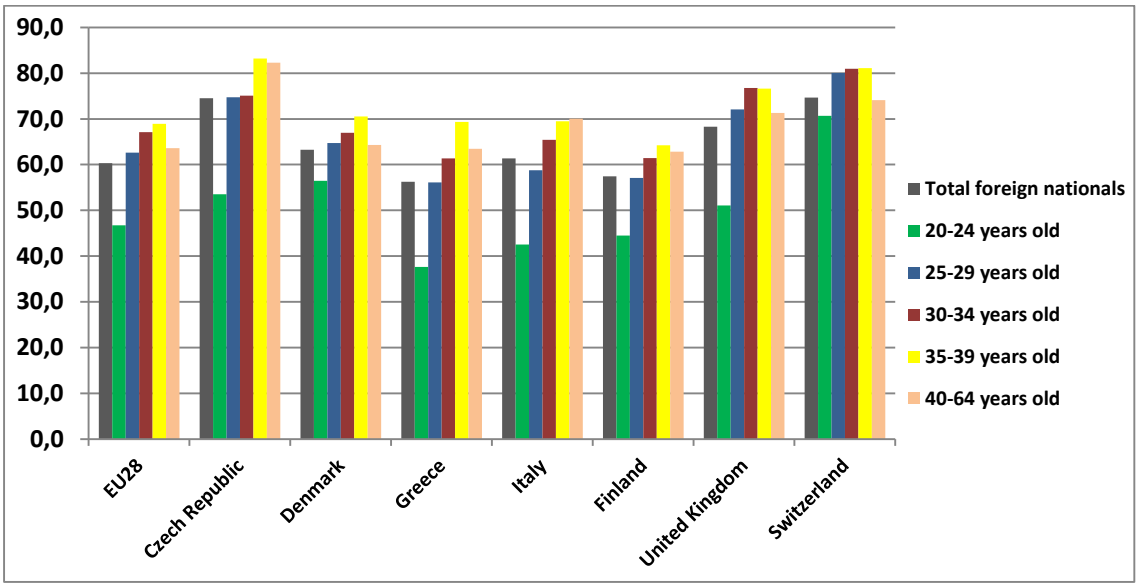
Figure 2.10: Mean employment rates of foreign nationals, by gender (%), SIRIUS countries, 2008-2016



Source: Eurostat

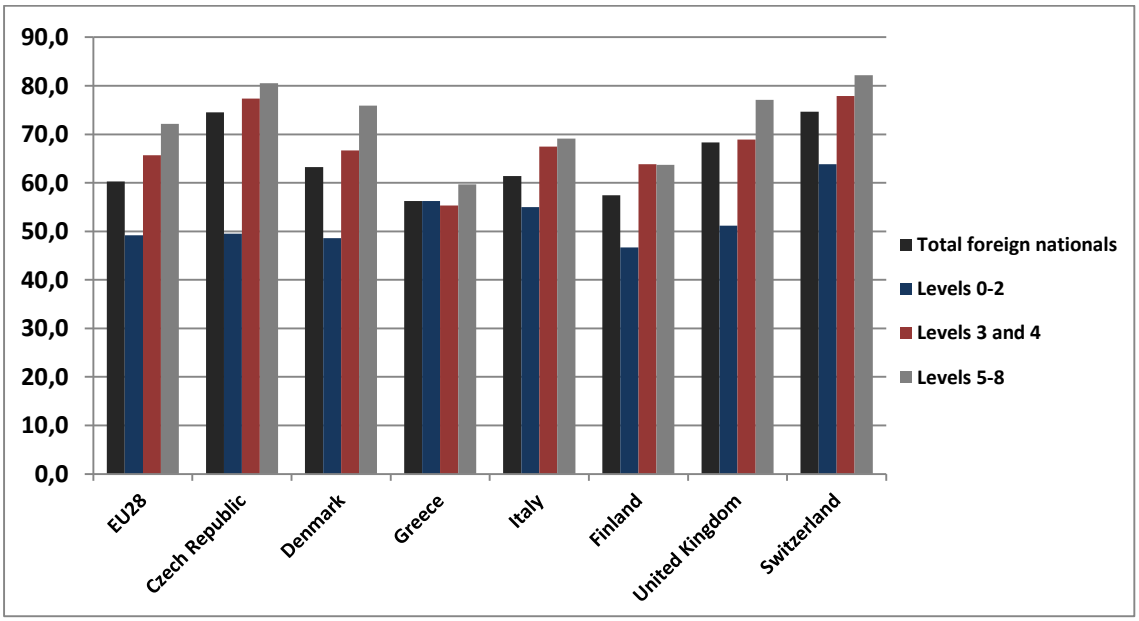
With regard to the differentiation of employment rates, according to the age and educational attainment level, foreign nationals aged 35-39 and with educational attainment level 5-8 have, on average, the highest employment rates in all SIRIUS countries over the period 2008-2016 (Figure 2.11; Figure 2.12). Those aged 30-34 and with educational attainment levels 3 and 4 follow, while those aged 20-24 and with educational attainment levels 0-2 rank last.

Figure 2.11: Mean employment rates of foreign nationals, by age group (%), SIRIUS countries, 2008-2016



Source: Eurostat

Figure 2.12: Mean employment rates of foreign nationals by educational attainment level (%), SIRIUS countries, 2008-2016



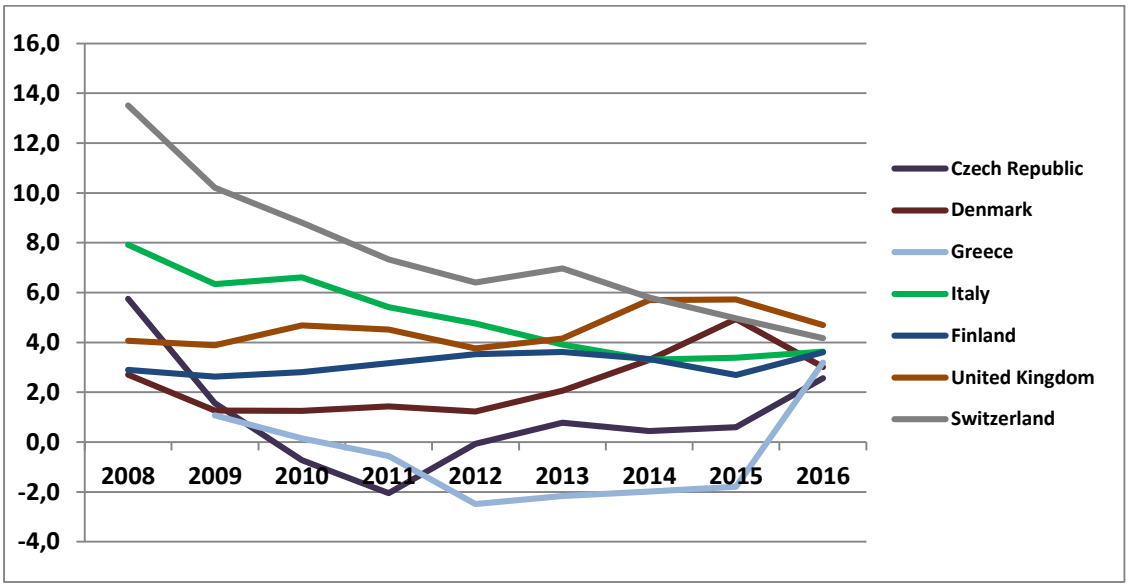
Source: Eurostat

2.2 Post-2014 Flows and Migration Management

As described in detail in the first chapter, during the post-2014 migration crisis, an inflow of migrants, war refugees and asylum seekers from the Middle East, Sub-Saharan and North African countries passed through Greece and Italy and on to the Central and Northern parts of Europe. This inflow of third-country nationals was dispersed in most European countries, changing the already established migration flows.

With regard to the net migration rate of the SIRIUS countries[164], the highest increase was recorded in Finland, although it fell in 2016, breaking its 2012-2015 upward trend[165]. Switzerland and Italy experience high net migration rates, with downward trends though, while the UK's net migration rate records an almost 36% increase in 2014 (compared to 2013) - which remains in 2015 - before decreasing again in 2016. Finally, Greece and the Czech Republic retain smaller net migration rates, over the examined period; both, however, increased in 2016. For Greece in particular, its 2016 net migration rate was almost 280% higher than its 2015 one[166] (Figure 2.13).

Figure 2.13: Net migration rate, SIRIUS countries, 2008-2016



Source: Eurostat

Focusing on the migration flows of the period 2014-2016, the highest net migration rate was recorded in the United Kingdom (16.12). Switzerland and Denmark come next with 14.94 and 11.25, respectively. On the other hand, Greece records a negative net migration rate over the period 2014-2016, namely -0.59 (Figure 2.14).

As regards the asylum applicants per 1000 persons, in 2015 Finland, Switzerland and Denmark faced, proportionally, the greatest inflow of asylum seekers among the SIRIUS countries (5.9, 4.6 and 3.7, respectively). Greece, on the other hand, faced an increase in 2016 (4.6 asylum applicants per 1,000 persons). In contrast, the Czech Republic seems not to have been affected during the period 2014-2016 (Figure 2.15).

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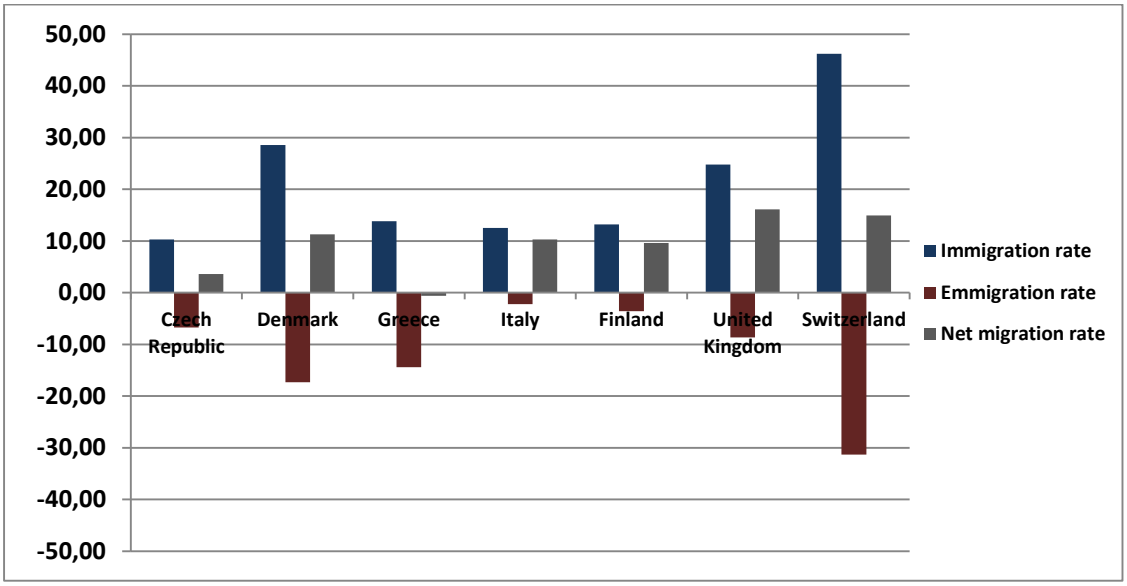
[164] Net migration balance per 1,000 persons. Asylum seekers are not included in the figures for the Czech Republic, Denmark, Greece (until 2015) and Finland.

[165] See previous section for a more thorough analysis.

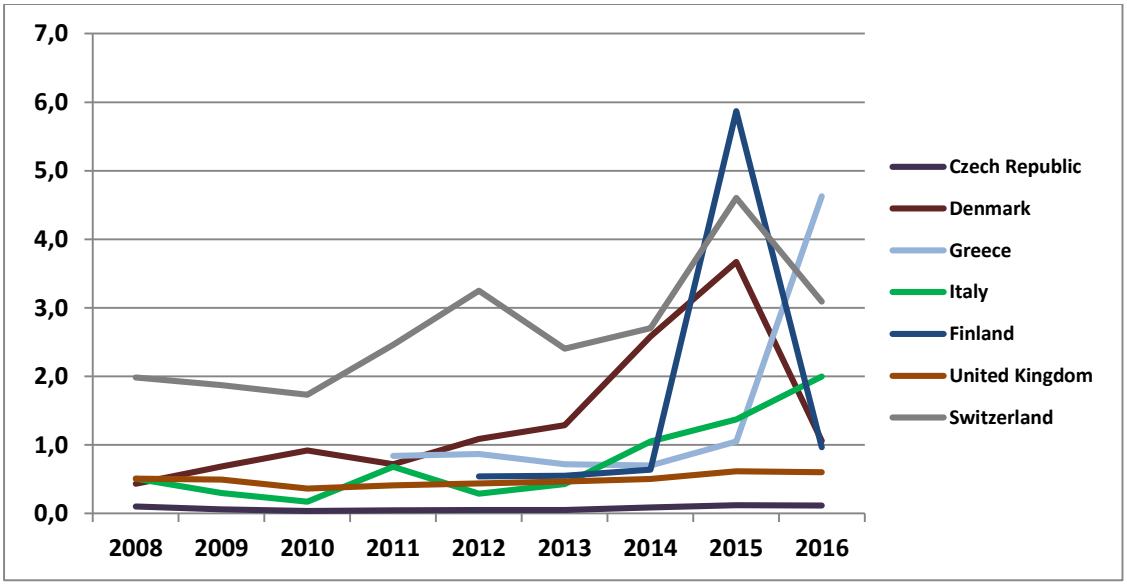
[166] Part of this increase is due to the fact that asylum seekers are included in the 2016 inflows.

Figure 2.14: Accumulative net migration rate, SIRIUS countries, 2014-2016



Source: Eurostat

Figure 2.15: First time asylum applicants per 1,000 persons, SIRIUS countries, 2014-2016

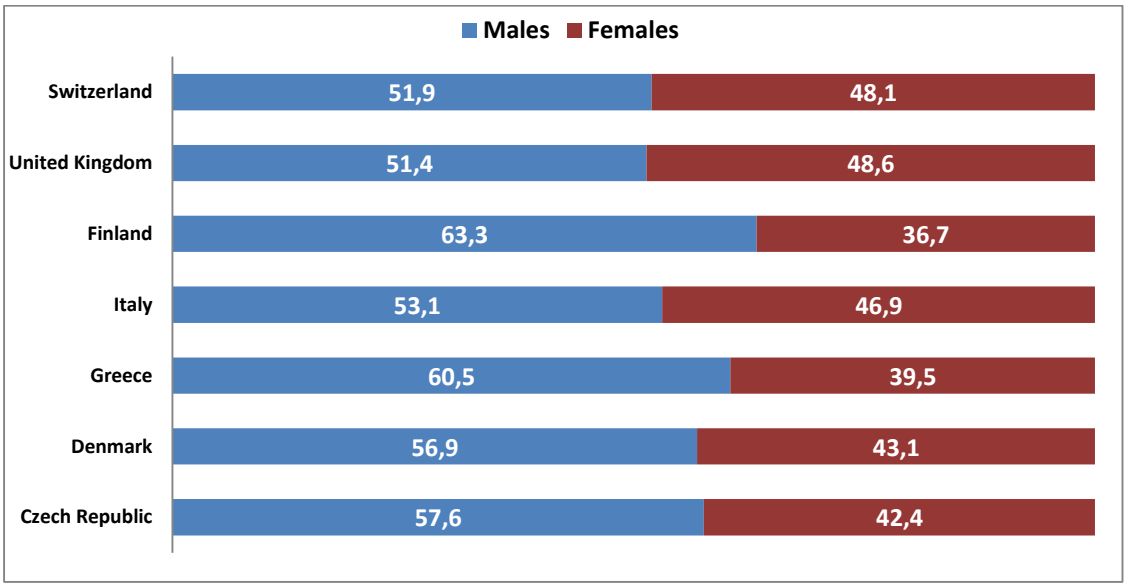


Source: Eurostat

The migrant inflows[167] are mainly composed of males and adults aged 20-64 (Figure 2.16; Figure 2.17).

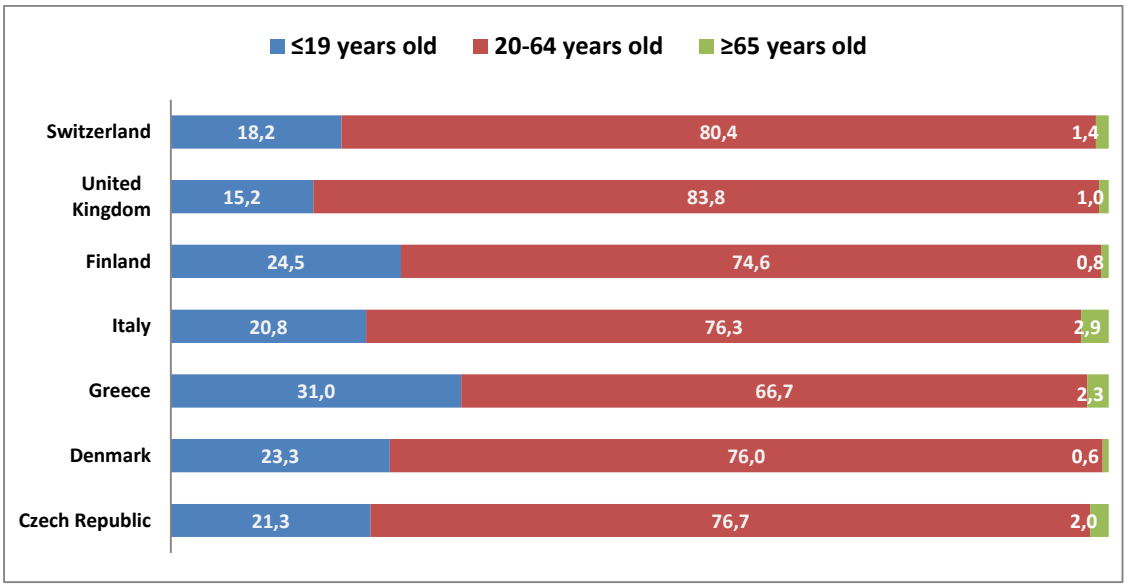
[167] Both immigrants and asylum seekers.

Figure 2.16: Distribution of immigrants (including asylum seekers) by gender, SIRIUS countries, 2014-2016



Source: Eurostat

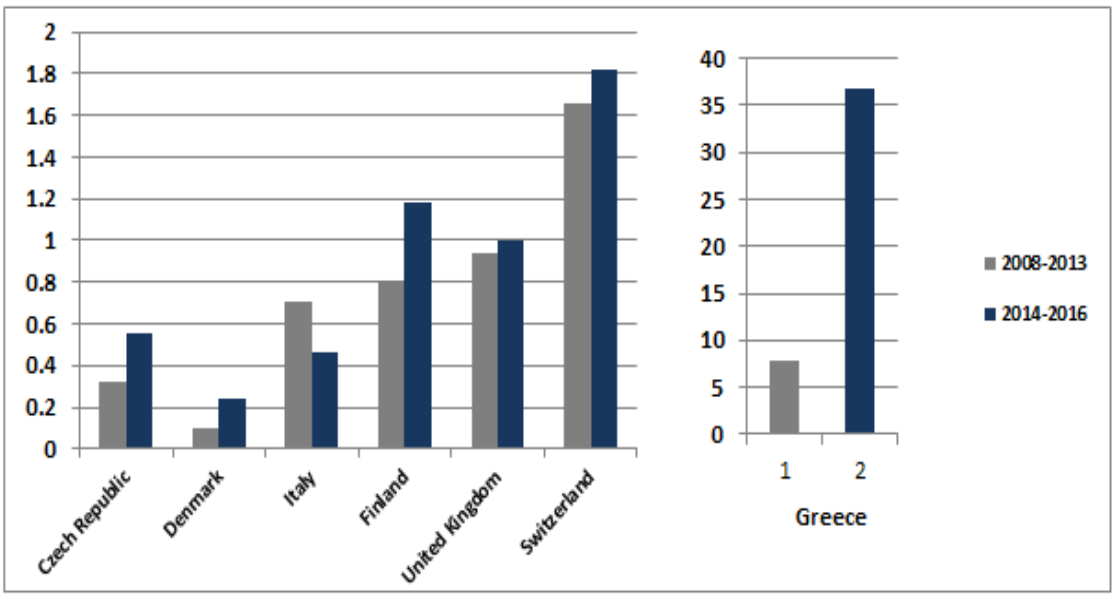
Figure 2.17: Distribution of immigrants (including asylum seekers) by age, SIRIUS countries, 2014-2016



Source: Eurostat

As for the third-country nationals that were found to be irregularly present (per 1,000 persons) over the period 2014-2016, the largest number was in Greece (almost 37 third-country nationals per 1,000 persons). Switzerland, and Finland follow (1.82 and 1.18, respectively), while the smallest number was in Denmark (0.24). Greece also faced the highest increase of such cases, compared to the period 2008-2013. In fact, the mean annual number of third-country nationals that were found to be irregularly present in Greece in the period 2014-2016 is 375.06% higher than the respective number for the period 2008-2013 (Figure 2.18).

Figure 2.18: Mean annual number of third-country nationals found to be irregularly present (per 1,000 persons), SIRIUS countries, 2008-2013, 2014-2016



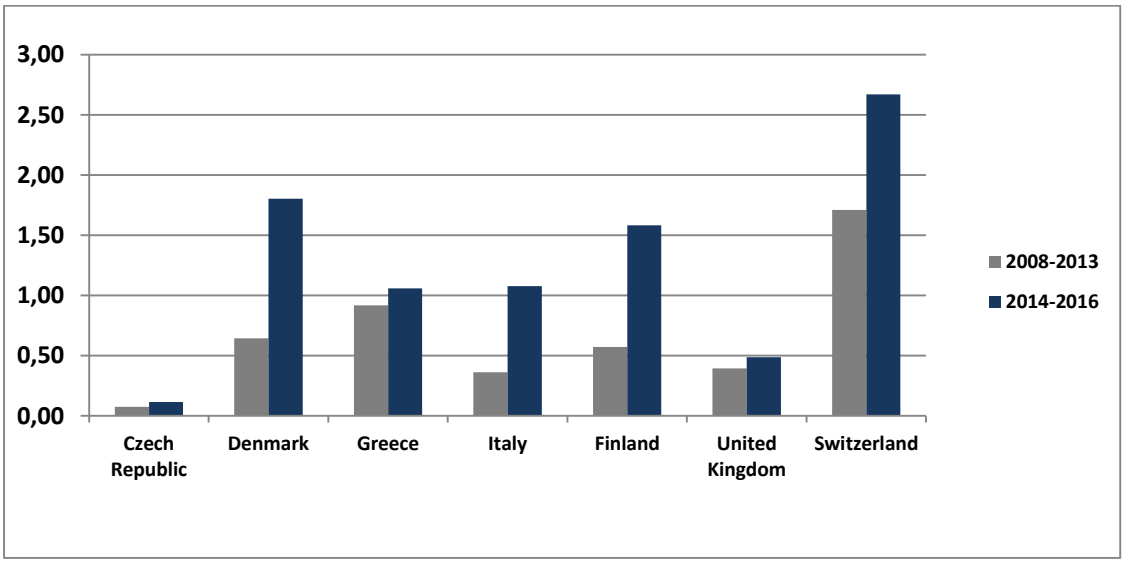
Source: Eurostat

The rise in the number of asylum seekers in the period 2014-2016 caused a respective increase in this period's mean annual number of first instance decisions on asylum applications (per 1,000 persons), compared with the period 2008-2013. In fact, all SIRIUS countries increased this number over the last period with the greatest increases recorded in Italy, Denmark and Finland (with a 197.14%, 180.41% and 176.31% higher number of first instance decisions per 10,000 persons than in the previous period, respectively) (Figure 2.19). Along with this, the ratio of positive to total first-instance decisions has also increased over this period[168] (Figure 2.20). Greece is the country with the highest percentage relative increase, namely 134.41%.

Finally, in the Czech Republic, Denmark, Greece and Finland, there has been an increase in the mean annual number of first residence permits per 1,000 persons over the period 2014-2016, compared to the period 2008-2013. However, the highest number still remains in the United Kingdom (10.57 first residence permits per 1,000 persons), followed by Denmark and the Czech Republic with 7.24 and 5.82 residence permits respectively (Figure 2.21).

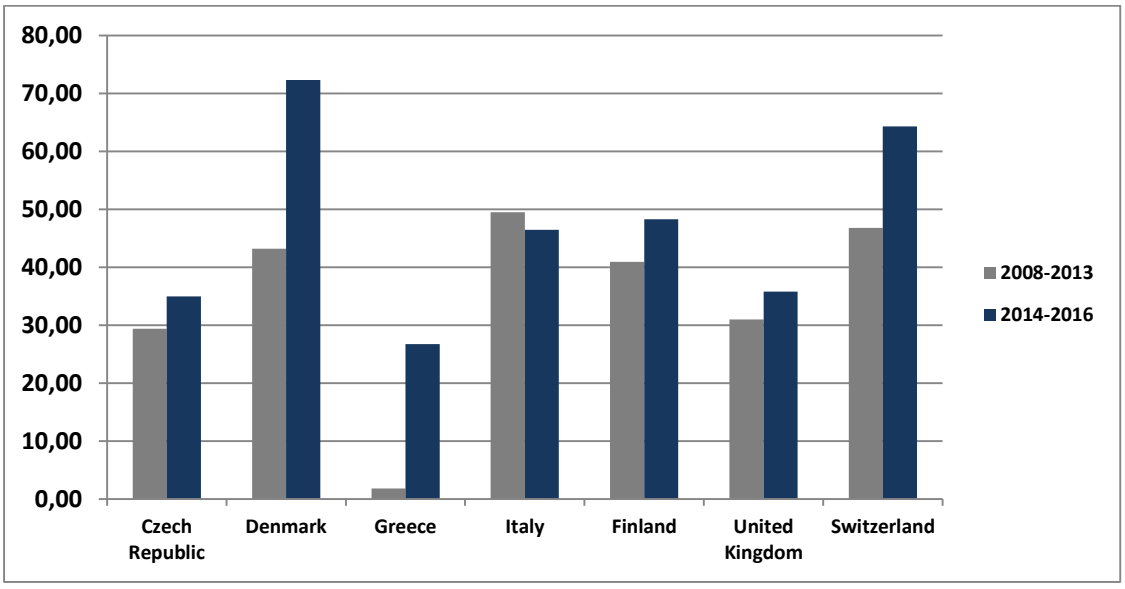
[168] In all SIRIUS countries, except Italy.

Figure 2.19: Mean annual number of first-instance decisions on asylum applications (per 1,000 persons), SIRIUS countries, 2008-1023, 2014-2016



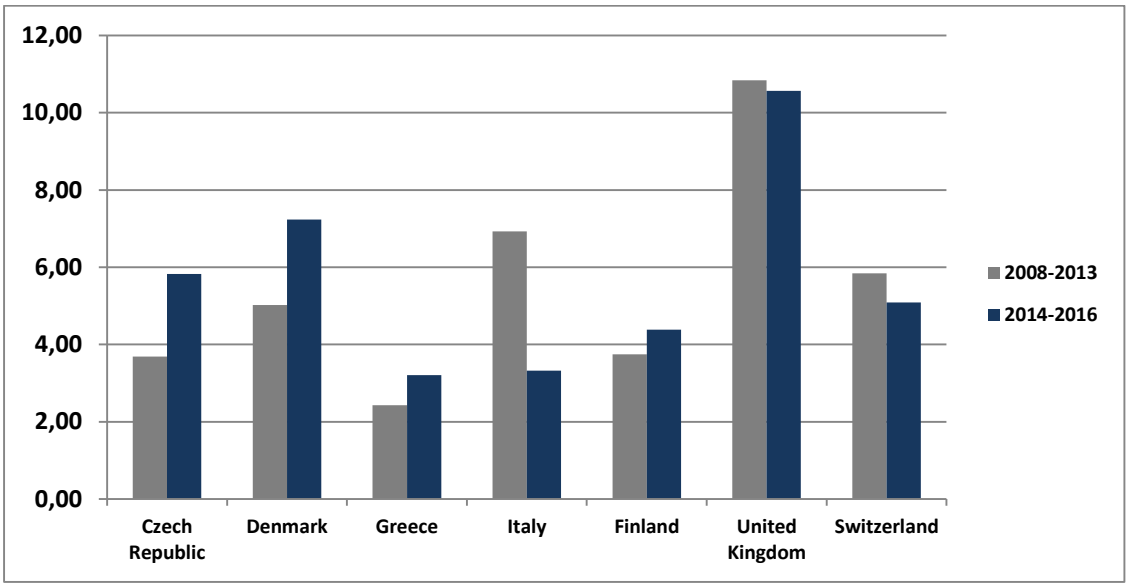
Source: Eurostat

Figure 2.20: Ratio of positive to total final decisions on asylum applications, SIRIUS countries, 2008-2013, 2014-2016



Source: Eurostat

Figure 2.21: Mean annual number of first residence permits (per 1,000 persons), SIRIUS countries, 2008-2013, 2014-2016



Source: Eurostat

2.3 Comparative-Econometric Analysis

In this section, a comparative analysis among the various SIRIUS economies will be attempted. Various panel data models will be employed in an attempt to capture the determinants that directly influence, either positively or negatively, the employment opportunities of MRAs in the various labour markets. More precisely, using random effects panel data models and stepwise backward elimination we will uncover the fundamental determinants of employment opportunities for the MRAs. Next, using panel data probability models and stepwise backward elimination we will estimate the statistically significant factors that increase or decrease the probability of MRAs to integrate in the SIRIUS economies labour markets through employment.

For the estimation of the panel random effects with stepwise backward elimination, the following model is employed:

$Y_{it} = a_i + \boldsymbol{BX_{it}} + v_{it} + \varepsilon_t$, $\varepsilon_t \sim N(0, \sigma_\varepsilon^2)$ and $v_{it} \sim NID(0, \sigma_v^2)$, $i = 1, \dots, N$, $t \in T$

where: i=1,..,N represent the SIRIUS economies, , $t \in T$ is the time dimension of the panel, Y_{it} is the employment rate of foreign citizens in each economy, a_i are the panel intercepts, and X_{it} is a vector which incorporates all the MRA characteristics i.e gender, age-group, level of education and occupation. For estimation purposes, following standard econometric literature, GLS estimation was employed, see among others Wooldridge (2013). Note, that according to standard econometric literature, our analysis is static, since lagged values of the dependent variable were not included in our specification.

The stepwise backward elimination results of the panel data random effects model are presented below (Table 2.1).

Table 2.1: Stepwise Random Effects GLS Regression

	(1)	(2)	(3)	(4)	(5)
	employment_rate	**employment_rate**	**employment_rate**	**employment_rate**	**employment_rate**
Males	23.10	17.33***	17.77***	17.08***	16.94***
	(0.68)	(4.77)	(5.65)	(5.95)	(6.25)
Females	5.646				
	(0.17)				
Minors	-4.650	0.925			
	(-0.14)	(0.30)			
E.A.L. 0-2	22.21	28.35	24.79	11.89	13.19**
	(0.50)	(1.12)	(1.17)	(1.84)	(2.94)
E.A.L. 3 and 4	17.63	24.43	21.97	8.774**	9.278***
	(0.38)	(1.05)	(1.06)	(3.21)	(4.57)
E.A.L. 5-8	12.25	17.96	16.75*	12.20**	11.58**
	(0.35)	(1.83)	(1.98)	(2.68)	(3.01)
OC2	-14.81	-15.47	-14.65	-2.958	
	(-0.62)	(-0.70)	(-0.70)	(-0.29)	
OC3	-19.32	-18.94	-17.04	-21.29	-24.60***
	(-1.04)	(-1.09)	(-1.11)	(-1.59)	(-3.55)
OC5	-83.70***	-84.39***	-81.78***	-73.13***	-74.73***

	(-3.41)	(-3.72)	(-4.11)	(-5.14)	(-5.94)
OC6	-43.45	-43.23	-39.56*	-28.34**	-29.37***
	(-1.70)	(-1.80)	(-2.02)	(-3.28)	(-3.88)
OC7	-43.05	-44.18	-37.80		
	(-0.61)	(-0.68)	(-0.64)		
OC8	-35.00	-36.40	-37.22	-28.78*	-26.72*
	(-1.51)	(-1.79)	(-1.95)	(-2.13)	(-2.42)
OC9	-65.68	-65.33	-59.22	-36.80***	-39.04***
	(-1.41)	(-1.50)	(-1.62)	(-3.43)	(-5.43)
_cons	73.46***	73.51***	73.45***	72.84***	72.80***
	(22.74)	(24.36)	(25.72)	(27.85)	(29.12)

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note that the first model is the full-blown model that incorporated all the determinants of the employment rate, the second model corresponds to the full blown model where the least significant determinant in model {1) was excluded from the set of determinants, whereas the last model is the best model based on a backward elimination strategy with a 5% level of significance.

Based on our findings, the gender of MRAs plays a statistically significant and positive role on the employment rate since male candidates have better chances of being integrated in the labour market. The same picture applies for the educational attainment level as well. On the other hand, there are some low-skilled occupations that were found to have a negative and statistically significant impact on the employment rate. More precisely, based on our analysis, MRAs with occupations: technicians and associate professions, service and sales workers, skilled agricultural, forestry and fishing workers, plant machine operators and assemblers and elementary occupations have statistically significantly decreased employment opportunities, since these professions are considered to be saturated in the various labour markets. As a result, a general finding is that SIRIUS labour markets prefer educated male MRAs that have significant occupational skills, like managers, professionals etc.

Next, we estimated some probability panel data models to investigate how MRA characteristics affect their employment opportunities. In this context, both random

effects Probit and Logit models were estimated, using again stepwise backward elimination with a 5% level of significance. Table 2.2 and

Table 2 3 summarize our findings.

Table 2.2: Stepwise Backward Elimination Ordered-Probit

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	employment_rate	**employment_rate**	**employment_rate**	**employment_rate**	**employment_rate**	**employment_rate**	**employment_rate**	**employment_rate**
employment_rate								
Males	11.46	11.23	12.69**	13.03***	12.45***	10.32***	10.08***	9.069***
	(0.57)	(0.60)	(2.98)	(3.36)	(3.40)	(4.05)	(4.13)	(4.46)
Females	-1.205	-1.403						
	(-0.06)	(-0.08)						
Minors	1.665	1.832	0.428					
	(0.09)	(0.10)	(0.19)					
E.A.L 0-2	19.29	19.55	17.91	16.69	4.904*	5.884**	5.927**	6.127**
	(0.72)	(0.76)	(1.15)	(1.18)	(2.11)	(2.91)	(2.91)	(3.06)
E.A.L. 3 and 4	19.82	20.25	18.48	17.44	6.130	8.266**	8.763***	8.599***
	(0.67)	(0.75)	(1.23)	(1.25)	(1.96)	(3.13)	(3.92)	(3.81)
E.A.L. 5-8	18.44	18.75	17.32*	16.78**	12.95**	14.01***	14.06***	13.69***
	(0.87)	(0.97)	(2.47)	(2.62)	(3.02)	(3.38)	(3.40)	(3.40)
OC2	-20.83	-21.28	-21.15	-20.28*	-12.84*	-10.94*	-11.27**	-10.39*
	(-1.20)	(-1.87)	(-1.88)	(-1.96)	(-2.54)	(-2.46)	(-2.60)	(-2.52)

OC3	-0.539							
	(-0.03)							
OC5	-74.49**	-74.52**	-74.26***	-73.93***	-62.74***	-70.68***	-71.31***	-69.08***
	(-3.27)	(-3.27)	(-3.30)	(-3.31)	(-3.84)	(-4.83)	(-4.87)	(-4.86)
OC6	-19.70	-19.48	-19.45	-18.17	-8.569			
	(-1.08)	(-1.14)	(-1.14)	(-1.17)	(-0.86)			
OC7	-32.20	-32.86	-32.42	-29.50				
	(-0.75)	(-0.86)	(-0.85)	(-0.85)				
OC8	-22.51	-22.66	-22.46	-22.99	-18.80	-5.629	-4.859	
	(-1.15)	(-1.19)	(-1.19)	(-1.24)	(-1.17)	(-0.93)	(-0.84)	
OC9	-28.79	-28.74	-28.69	-26.60	-8.284	-2.348		
	(-1.11)	(-1.11)	(-1.10)	(-1.13)	(-0.91)	(-0.35)		
sigma2_u								
_cons	3.44e-33	8.55e-34	2.66e-33	2.13e-33	3.09e-33	7.70e-33	9.84e-34	2.93e-33
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	21	21	21	21	21	21	21	21

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2 3: Stepwise Backward Elimination Ordered-Logit

	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
employment_rate	**employment_rate**	**employment_rate**	**employment_rate**	**employment_rate**	**employment_rate**	**employment_rate**	**employment_rate**	**employment_rate**
Males	28.83	22.91**	22.73**	22.40**	17.85***	17.79***	16.86***	16.71***

	(0.85)	(2.74)	(2.91)	(2.99)	(3.94)	(3.96)	(3.93)	(3.93)
Fs								
emale	5.488							
	(0.18)							
Minors	-5.687	-0.294						
	(-0.19)	(-0.06)						
E.A.L 0-2	33.47	39.82	40.35	40.79	43.45	25.95*	12.39**	12.29**
	(0.75)	(1.41)	(1.50)	(1.52)	(1.52)	(1.96)	(2.99)	(2.99)
E.A.L. 3 and 4	30.53	38.06	38.35	39.79	44.81	27.94*	14.37**	15.14***
	(0.61)	(1.34)	(1.37)	(1.50)	(1.62)	(2.10)	(2.99)	(3.56)
E.A.L. 5-8	30.06	35.81*	35.93*	36.78*	39.73**	33.53**	26.72**	26.73**
	(0.86)	(2.35)	(2.38)	(2.57)	(2.64)	(2.96)	(3.15)	(3.17)
OC2	-35.78	-37.69	-37.61	-41.05*	-37.25	-26.76*	-19.07*	-19.77*
	(-1.19)	(-1.32)	(-1.33)	(-2.14)	(-1.92)	(-2.39)	(-2.37)	(-2.53)
OC3	-5.174	-3.266	-3.911					
	(-0.18)	(-0.12)	(-0.16)					
OC5	-154.3**	-154.7**	-154.7**	-154.1**	-174.0***	-154.7***	-128.8***	-129.7***
	(-2.88)	(-2.89)	(-2.88)	(-2.89)	(-3.31)	(-3.68)	(-4.10)	(-4.14)
OC6	-31.05	-30.36	-31.33	-30.40	-12.12			
	(-0.95)	(-0.93)	(-1.10)	(-1.09)	(-0.71)			
OC7	-63.73	-67.36	-68.02	-73.04	-73.49	-31.38		
	(-0.88)	(-0.96)	(-0.99)	(-1.18)	(-1.11)	(-1.15)		

OC8	-29.34	-30.39	-29.91	-30.79				
	(-0.75)	(-0.78)	(-0.79)	(-0.82)				
OC9	-57.00	-56.66	-57.70	-57.97	-45.60	-21.67	-3.793	
	(-1.30)	(-1.30)	(-1.43)	(-1.44)	(-1.15)	(-1.07)	(-0.34)	
sigma2_u								
_cons	3.01e-33	2.49e-32	1.04e-32	4.19e-33	7.54e-33	3.32e-33	4.44e-34	2.34e-32
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	21	21	21	21	21	21	21	21

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Based on our findings, the best Probit and Logit models exhibit the same statistically significant determinants, a fact that validates the robustness of our probabilistic approach. In detail, for both models, the probability of an MRA to be integrated into the labour market increases when the MRA is an educated male. On the other hand, the probability of an MRA being integrated into the labour market decreases if the MRA has an occupation that is either self-employed (i.e. professional) or if she is a female and works in the service and sale sector.

In general terms, our findings across different specifications are robust since in all cases male MRAs are (statistically significantly) preferred over females, whereas the educational attainment level also plays a positive and statistically significant role.

The basic limitation of our models is that any attempt to directly interpret the coefficients in either of the probabilistic models employed (Logit, Probit) would not make sense, since in our specification the MRA characteristics refer to characteristics of MRA flows in total and not to individual characteristics. Nonetheless, from a statistical point of view, an interpretation of the respective signs is a valid approach (Baltagi, 2008).

Part 2: Sirius Economies: Labour Market Issues

The purpose of Part 2 is to offer a descriptive report for each of the SIRIUS countries labour market, both individually and comparatively, with regard to the main demographic characteristics and to the labour market characteristics.

More precisely, the report is organised as follows: first, for each individual country we analyse i) the demographic characteristics, ii) the unemployment rate, iii) the employment structure by sector of economic activity and iv) the employment structure by occupation. All data are compared with the average levels of EU28

countries. Secondly, the data analysed above are compared among the SIRIUS countries, with special attention to each country's specialisation trends.

All data used are drawn from Eurostat (http://ec.europa.eu/eurostat/data/database), AMECO (http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm) and from the various SIRIUS countries statistical authorities.

It should be noted that according to Eurostat's Glossary and Definitions (http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Eurostat):

- The labour force or workforce or economically active population, also shortened to active population, includes both employed (employees and self-employed) and unemployed people, but not the economically inactive, such as pre-school children, school children, students and pensioners.
- An employed person is a person aged 15 and over (or 16 and over in Iceland and Norway) who during the reference week performed work - even if just for one hour a week - for pay, profit or family gain. Alternatively, the person was not at work, but had a job or business from which he or she was temporarily absent due to illness, holiday, industrial dispute or education and training.
- An unemployed person is defined as: someone aged 15 to 74 (in Italy, Spain, the United Kingdom, Iceland, Norway: 16 to 74 years), without work during the reference week, available to start work within the next two weeks (or has already found a job to start within the next three months) and actively having sought employment at some time during the last four weeks.
- The unemployment rate is the number of people unemployed as a percentage of the labour force.

The analysis below is based on the NACE Rev. 2, digit 1 classification of sectors of economic activity listed in Table A.II (Appendix) and on the ISCO-08, 1-digit classification of occupations described in A.IV (Appendix).

3. Labour Market of Sirius Economies: Main Characteristics

3.1 Czech Republic

According to Figure 3.1, the population and the labour force of the Czech Republic increased in the period 2000-2017 more slowly than the corresponding figure for EU28, while the population aged 15-64 decreased by 3.28%. For the same period, the Czech active population (as a percentage of the population of those aged 15 or older) follows - with slight deviations in the last years - the EU28 average, as shown in Figure 3.1.

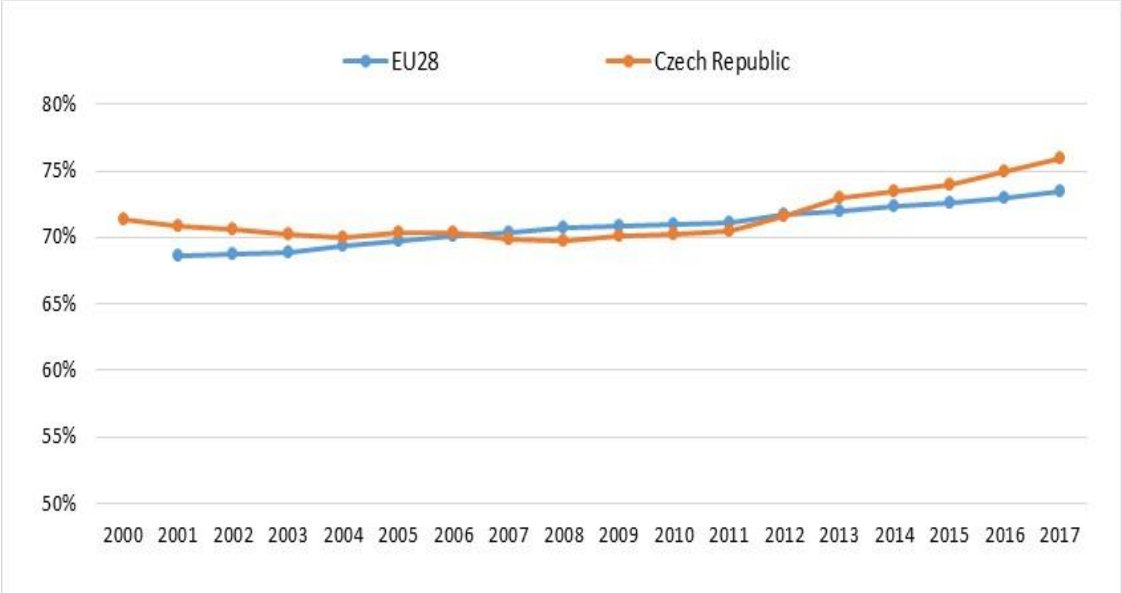
Table 3.1: Growth of Total Population, Population between 15-64 and Labour Force, Czech Republic

	Total Population	Population: aged 15 to 64	Labour Force
	2000-2017	**2000-2017**	**2000-2017**
EU28	4.84%	1.33%	8.50%

Czech Republic	3.26%	-3.28%	3.47%

Source: AMECO

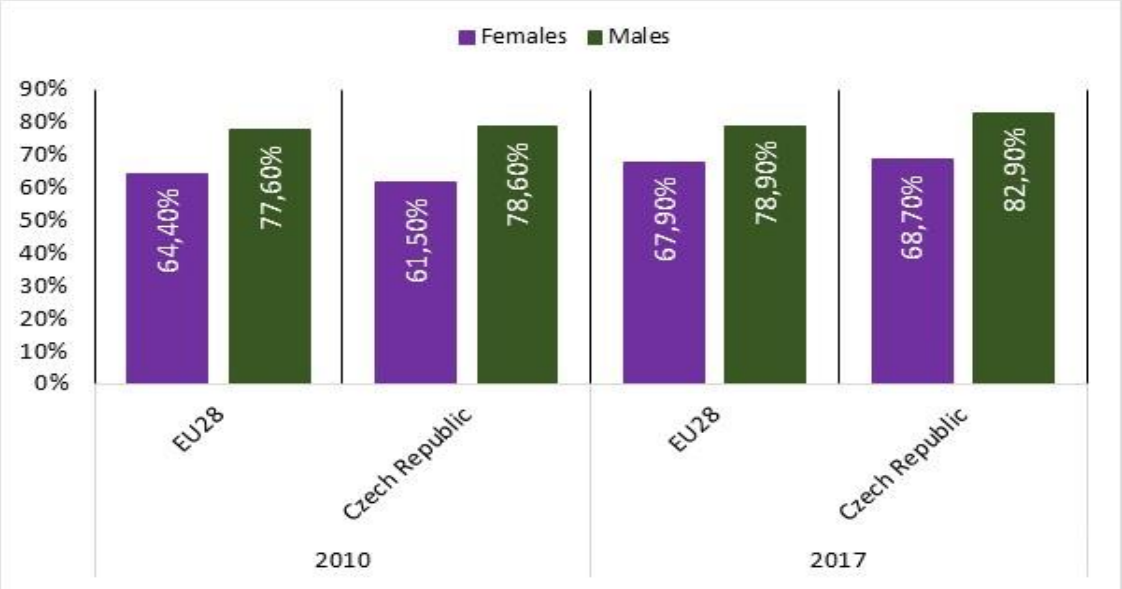
Figure 3.1: Active population as a percentage of the population aged 15 or above, Czech Republic



Source: AMECO

According to Figure 3.2, the active population by gender as a percentage of the population aged 15 or above follows the EU28 average, but with a 4% higher participation of males in the active population for 2016.

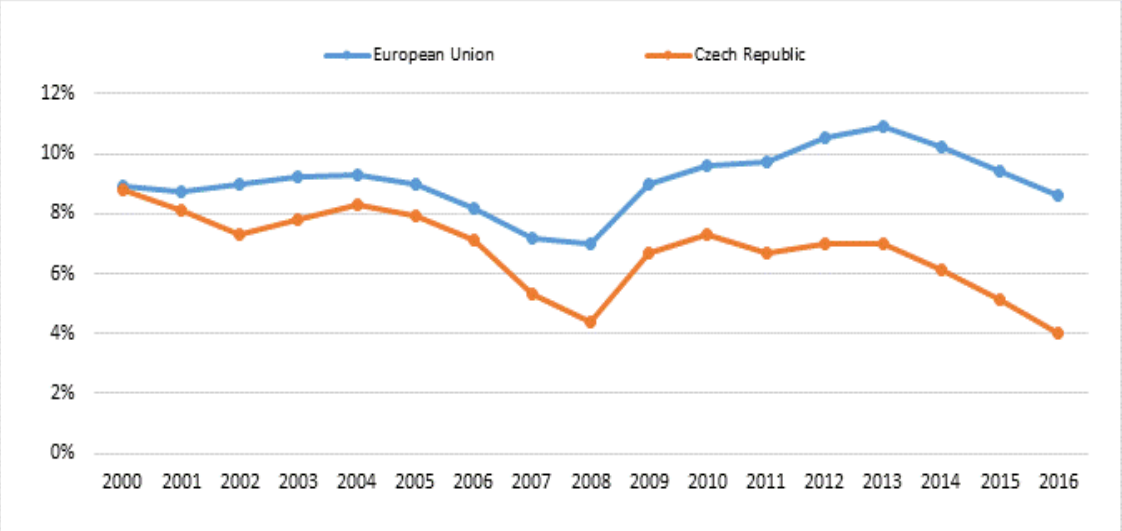
Figure 3.2: Active population by gender, as a percentage of the population aged 15 or above, Czech Republic



Source: AMECO

Figure 3.3 shows that the unemployment rate in the Czech Republic is significantly lower than the EU28 average, with the gap increasing in the years after the beginning of the economic crisis.

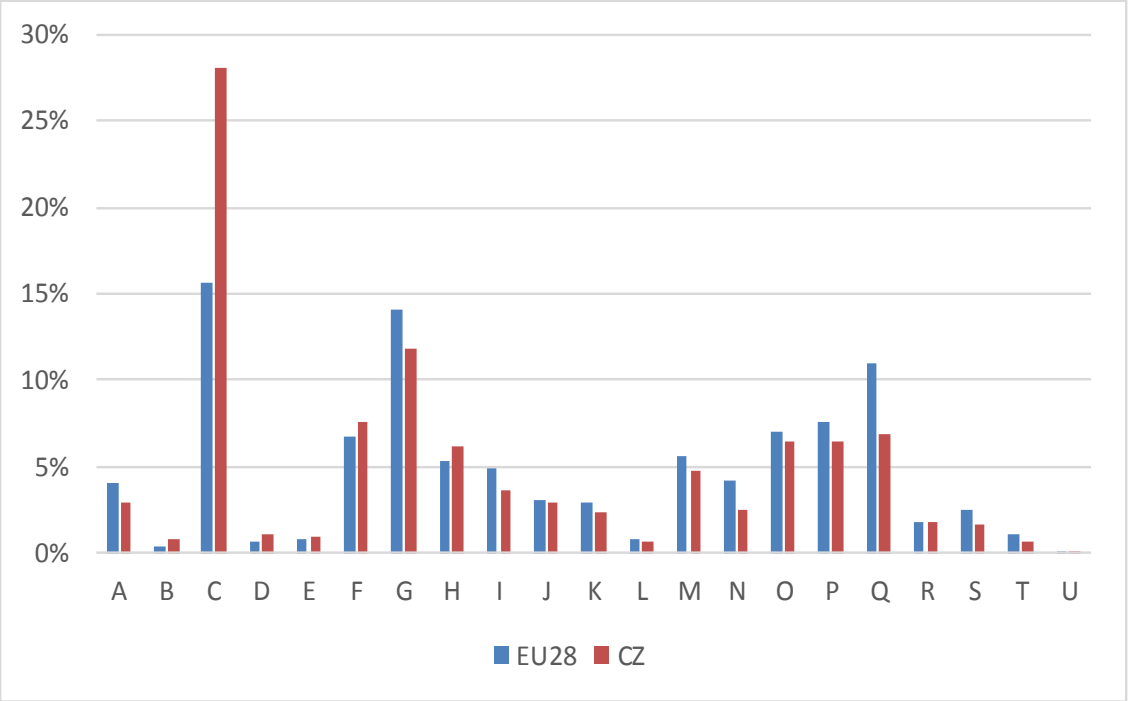
Figure 3.3: Unemployment Rate, Czech Republic, 2000-2016



Source: AMECO

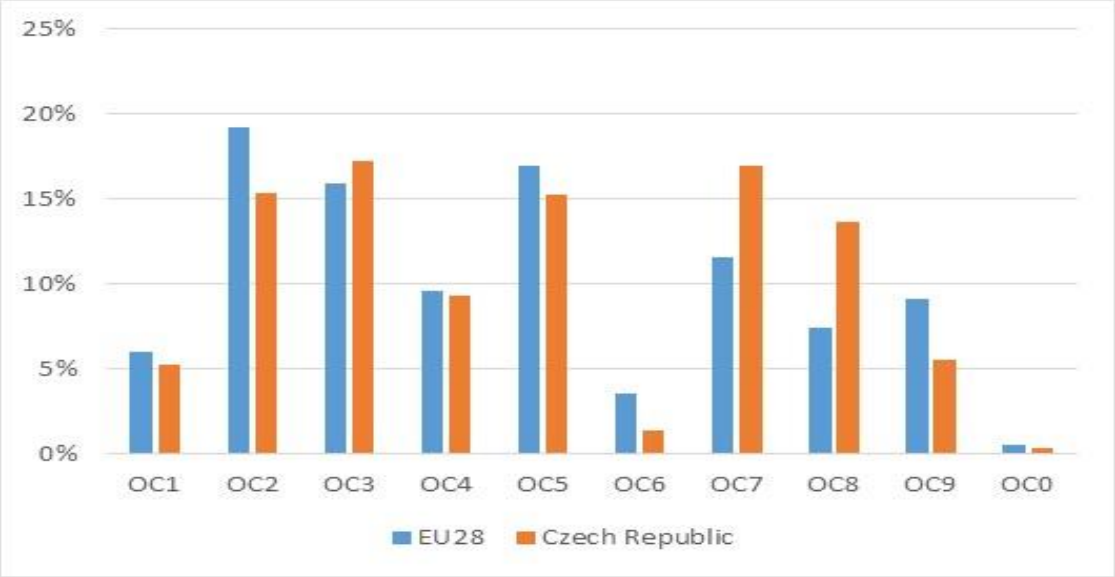
Figure 3.4 shows that Czech Republic has a higher concentration of employment in sector C (Manufacturing) than the EU28 average. This increased participation of manufacturing leads to the increased participation of occupations 7 (Craft and related trades workers) and 8 (Plant and machine operators and assemblers) in the country's employment structure (Figure 3.5).

Figure 3.4: Sectoral Structure of employment[169], Czech Republic, 2016



[169] A-Agriculture, forestry and fishing, B-Mining and quarrying, C-Manufacturing, D-Electricity, gas, steam and air conditioning supply, E-Water supply; sewerage, waste management and remediation activities, F-Construction, G-Wholesale and retail trade; repair of motor vehicles and motorcycles, H-Transportation and storage, I-Accommodation and food service activities, J-Information and communication, K-Financial and insurance activities, L-Real estate activities, M-Professional, scientific and technical activities, N-Administrative and support service activities, O-Public administration and defence, compulsory social security, P-Education, Q-Human health and social work activities, R-Arts, entertainment and recreation, S-Other service activities, T-Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use, U-Activities of extraterritorial organisations and bodies

Figure 3.5: Employment Structure by occupation[170], Czech Republic, 2016



3.2 Denmark

Table 3.2 the population of Denmark increased in the period 2000-2017 faster than the corresponding figure for EU28, while the percentage growth of the labour force was lower than the average of the EU28 economies. For the same period, the active population as a percentage of the population aged 15 or above was significantly higher in Denmark than the EU28 average, with slight deviations for the last years, as shown in Figure 3.6.

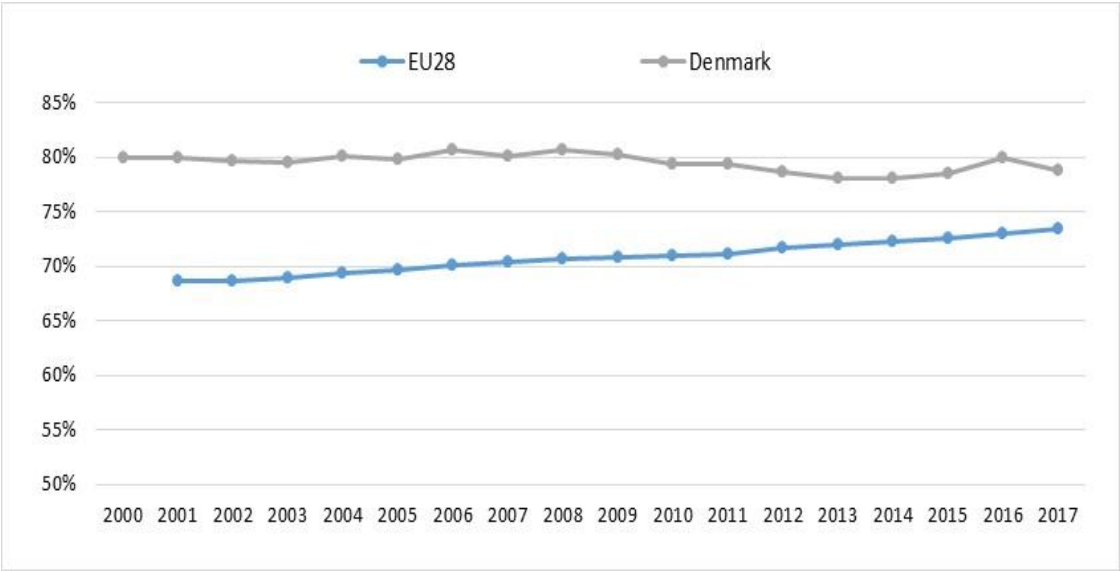
[170] OC1 – Managers, OC2 – Professionals, OC3 - Technicians and associate professionals, OC4 - Clerical support workers, OC5 - Service and sales workers, OC6 - Skilled agricultural, forestry and fishery workers, OC7 - Craft and related trades workers, OC8 - Plant and machine operators and assemblers, OC9 - Elementary occupations, OC0 - Armed forces occupations.

Table 3.2: Growth of Total Population, Population aged between 15-64 and Labour Force, Denmark

	Total Population	Population: 15 to 64	Labour Force
	2000-2017	**2000-2017**	**2000-2017**
EU28	4.84%	1.33%	8.50%
Denmark	7.99%	3.86%	6.21%

Source: AMECO

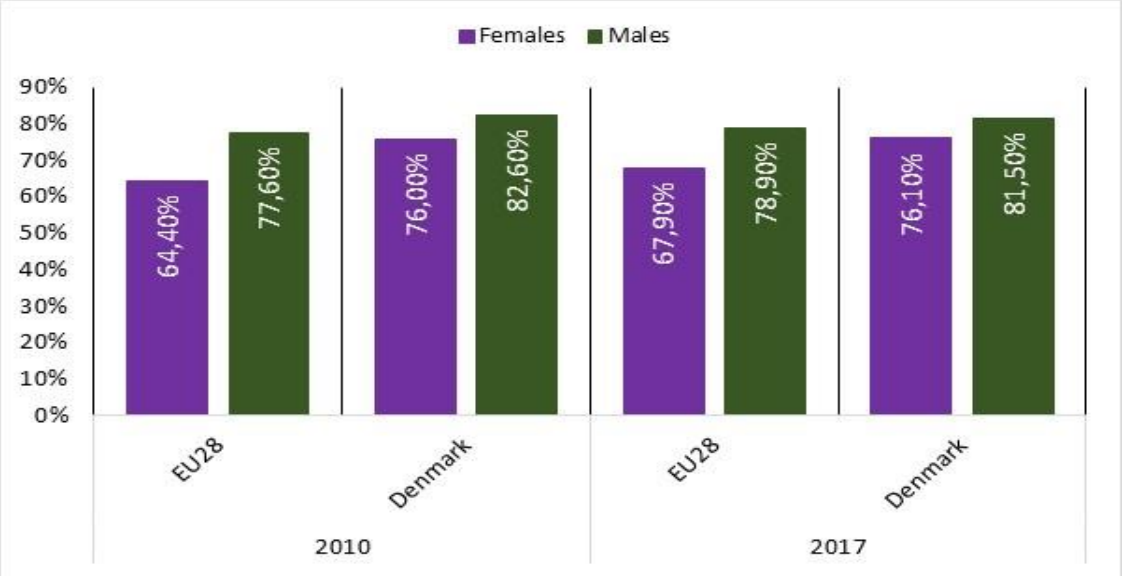
Figure 3.6: Active population as a percentage of the population aged 15 years or above, Denmark



Source: AMECO

According to Figure 3.7, the active population by gender as a percentage of the population aged 15 years or above is significantly higher in Denmark than the EU28 average, for both genders. In 2016, females participated in the active population at a rate of almost 9 percentage units higher than the EU28, while males accounted for 2.5 percentage units, respectively.

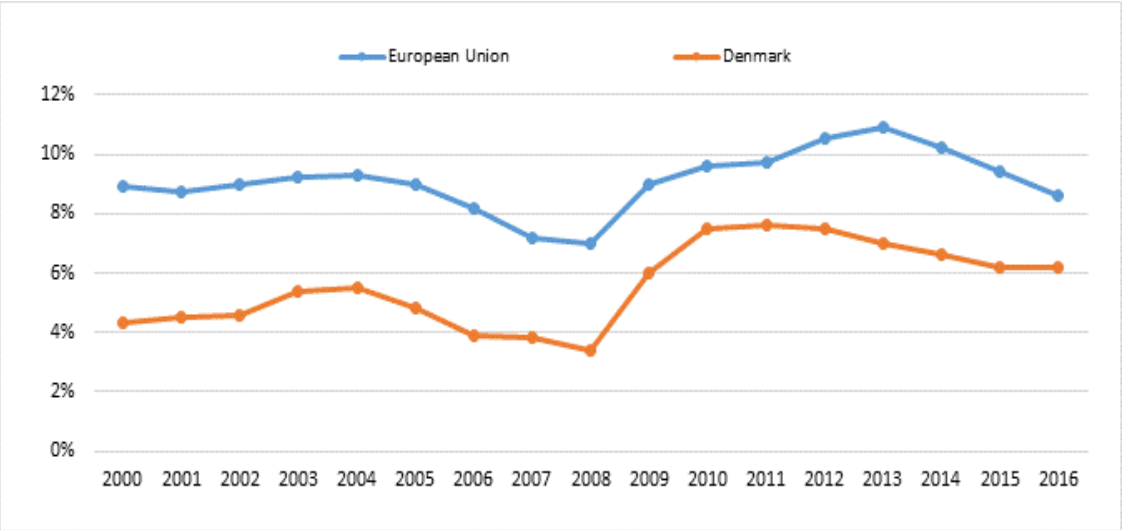
Figure 3.7: Active population by gender, as a percentage of the population aged 15 or above, Denmark



Source: AMECO

Figure 3.8 shows that the unemployment rate in Denmark is significantly lower than the EU28 average, but with a decreasing gap in the years after the beginning of the economic crisis.

Figure 3.8: Unemployment Rate, Denmark, 2000-2016



Source: AMECO

Figure 3.9 shows that Denmark has a higher concentration in sectors G (Construction) and Q (Human health and social work activities) than the EU28 average. This increased participation in these sectors leads to an increased participation in occupations 2 (Professionals) and 5 (Service and sales workers) in the country's employment structure (Figure 3.10).

Figure 3.9: Sectoral Structure of employment, Denmark, 2016

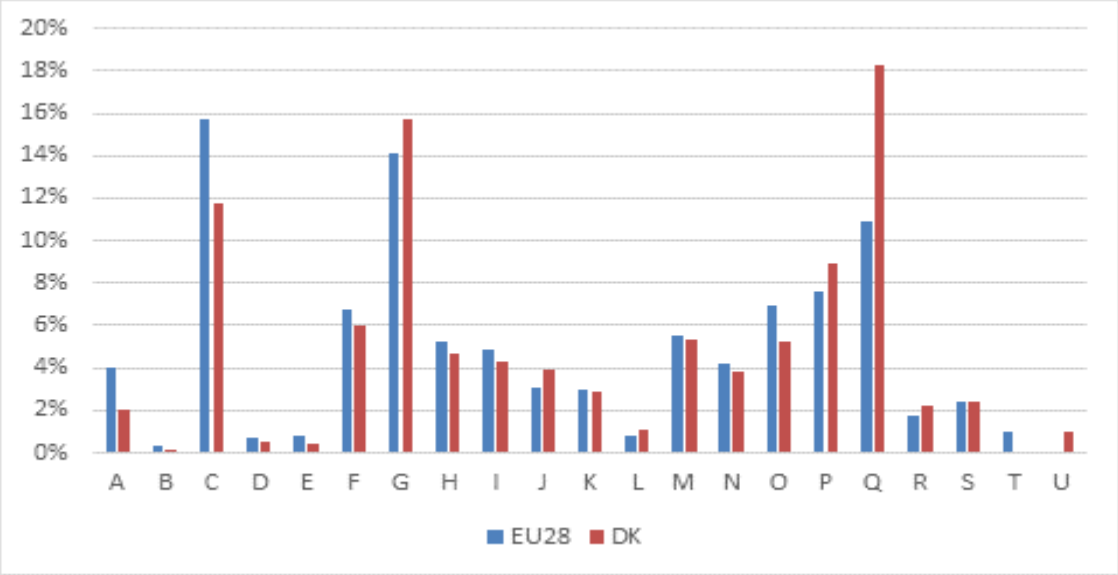
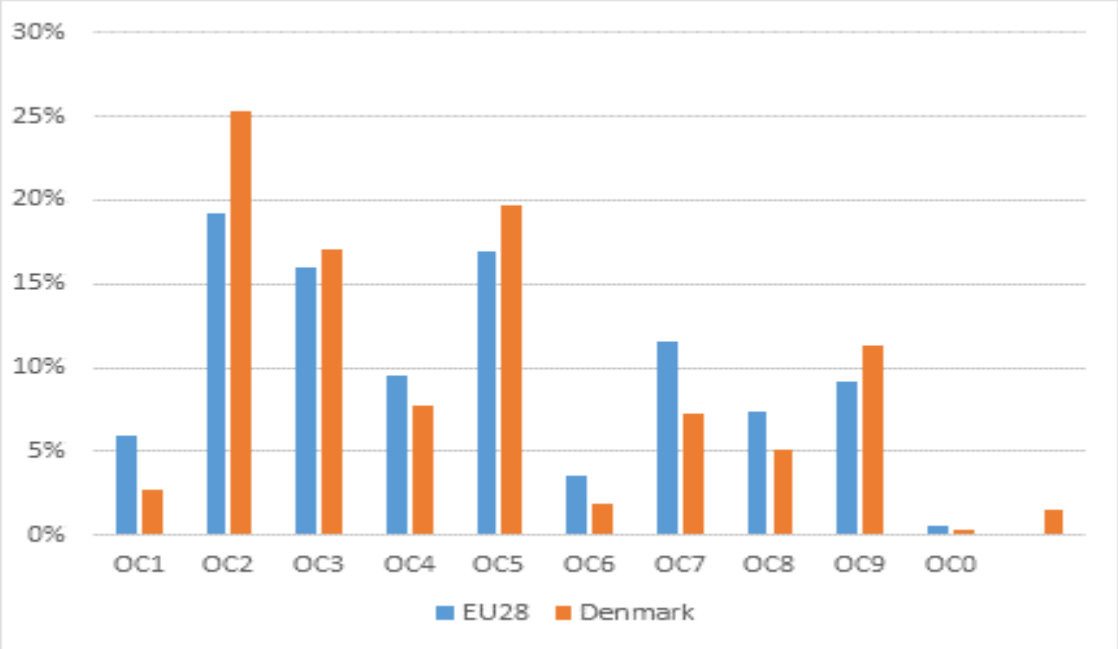


Figure 3.10: Employment Structure by occupation, Denmark, 2016



3.4 Greece

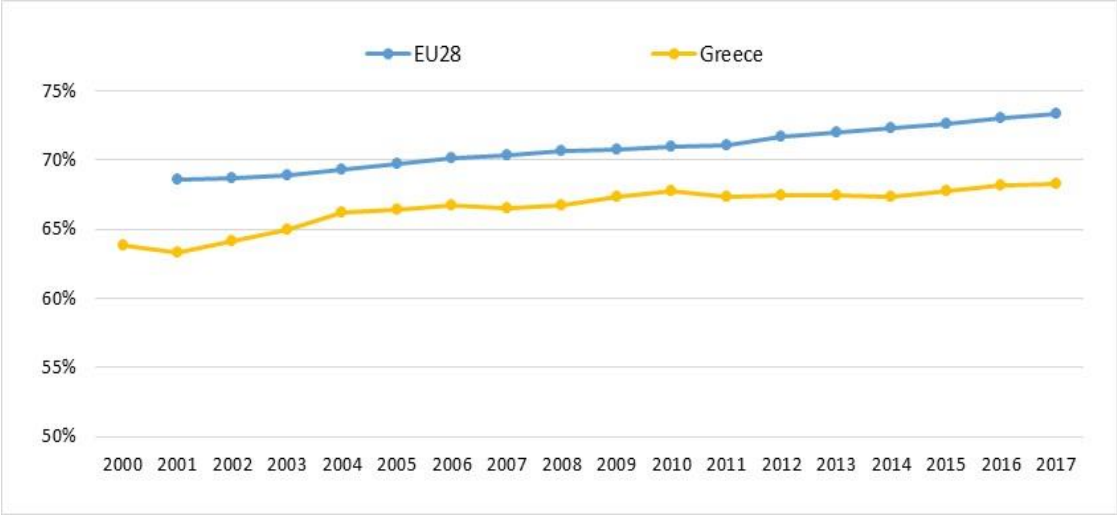
According to Table 3.3 the population of Greece decreased in the period 2000-2017. The decrease equals more than 6% of the population aged 15-64. For the same period, the labour force increase follows very closely the EU28 average growth rate. The active population as a percentage of the population aged 15 or above is lower in Greece than the EU28 average by approximately 5%, as shown in Figure 3.11.

Table 3.3: Growth of Total Population, Population aged between 15-64 and Labour Force, Greece

	Total Population	Population: aged 15 to 64	Labour Force
	2000-2017	**2000-2017**	**2000-2017**
EU28	4.84%	1.33%	8.50%
Greece	-0.77%	-6.27%	7.60%

Source: AMECO

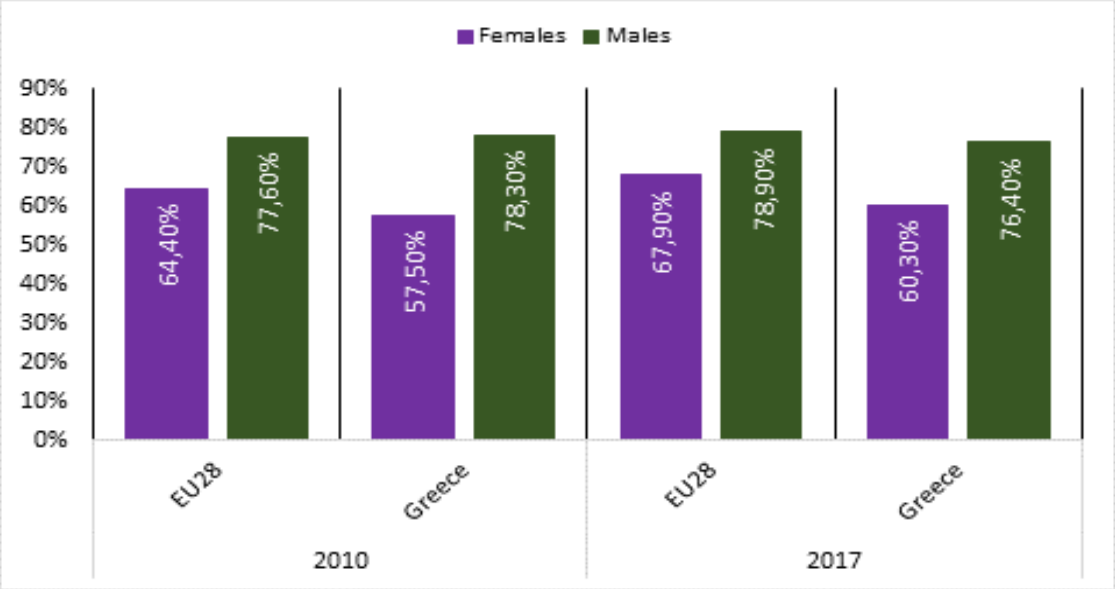
Figure 3.11: Active population as a percentage of the population aged 15 or above, Greece



Source: AMECO

According to Figure 3.12 the active population as a percentage of the population aged 15 or above in Greece is significantly lower than the EU28 average for females and close to the respective value for males, for 2016.

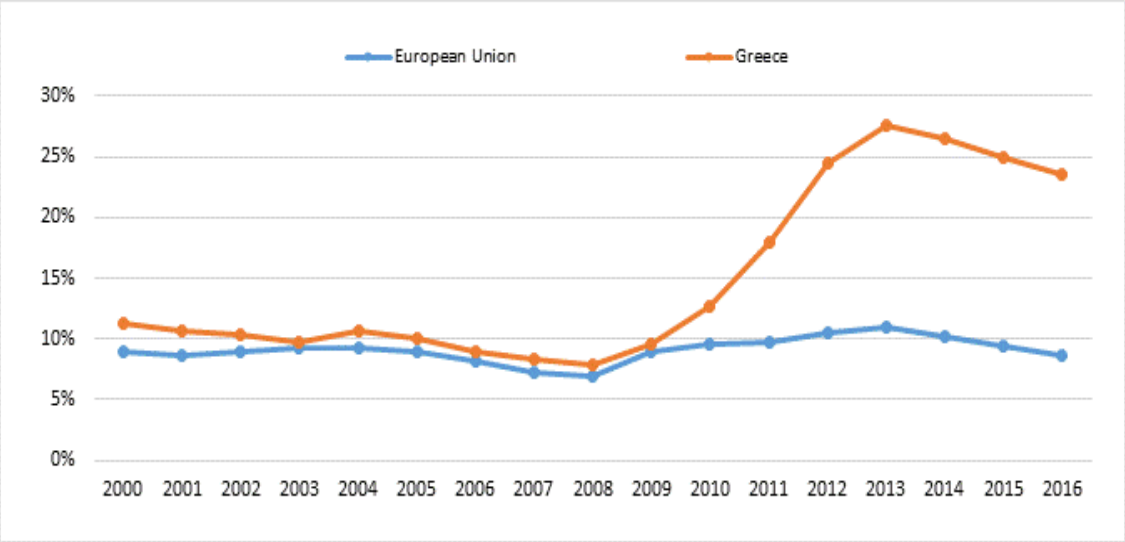
Figure 3.12: Active population by gender, as a percentage of the population aged 15 or above, Greece



Source: AMECO

Errore. L'origine riferimento non è stata trovata. shows that although the unemployment rate in Greece in general followed the EU28 average until 2008, in the years after the beginning of the economic crisis the unemployment rate in Greece climbed to 25% and continued to remain at levels higher than 20% until 2016.

Figure 3.13: Unemployment Rate, Greece, 2000-2016



Source: AMECO

Figure 3.14 shows that Greece has a higher concentration of employment, mainly in sectors A (Agriculture, forestry and fishing), G (Constructions) and I (Accommodation and food service activities) than the EU28 average. This increased

participation in these sectors leads to the increased participation of occupations 5 (Service and sales workers) and 6 (Skilled agricultural, forestry and fishery workers) in the country's employment structure (Figure 3.15).

Figure 3.14: Sectoral Structure of employment, Greece, 2016

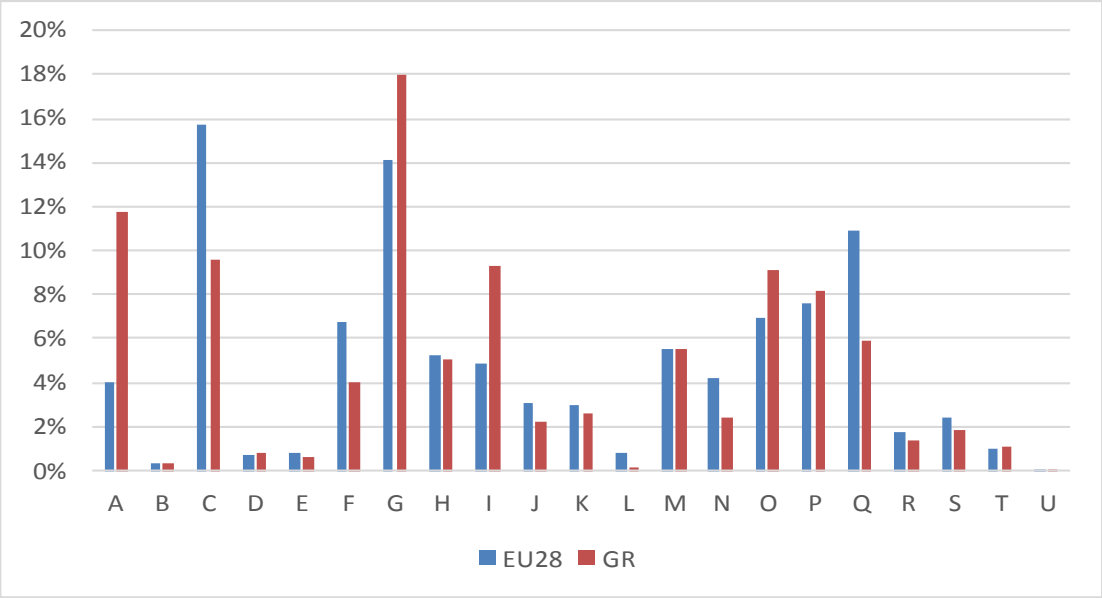
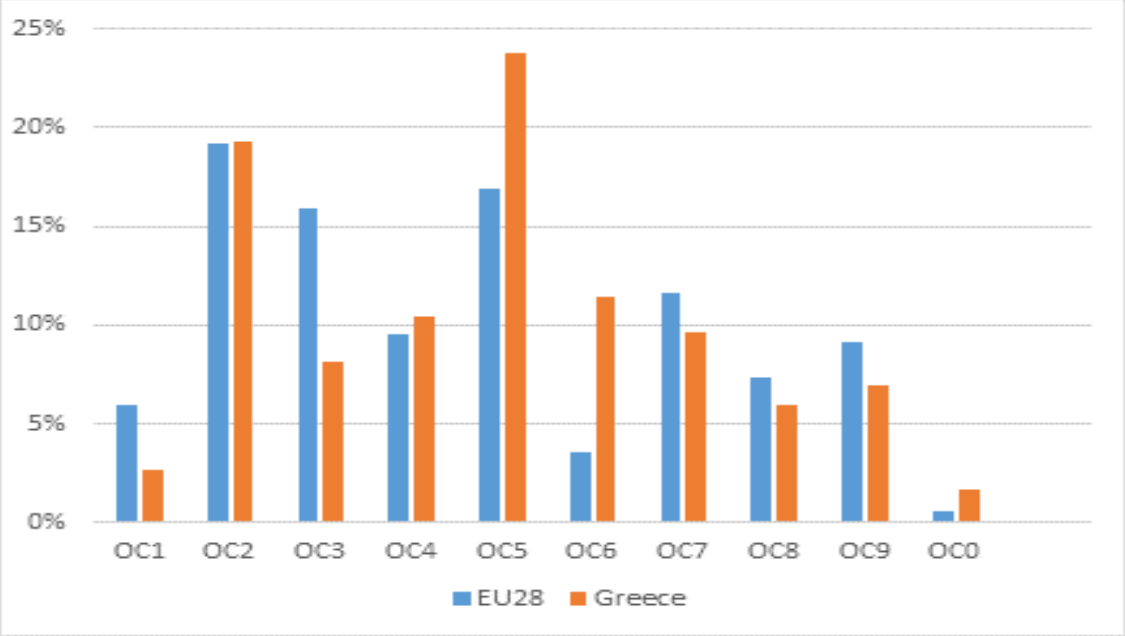


Figure 3.15: Employment Structure by occupation, Greece, 2016



3.5 Italy

According to Table 3.4, the population of Italy increased in the period 2000-2017, following the average EU28 increase, while the labour force of Italy shows a higher increase than the EU28 average. The active population as a percentage of the

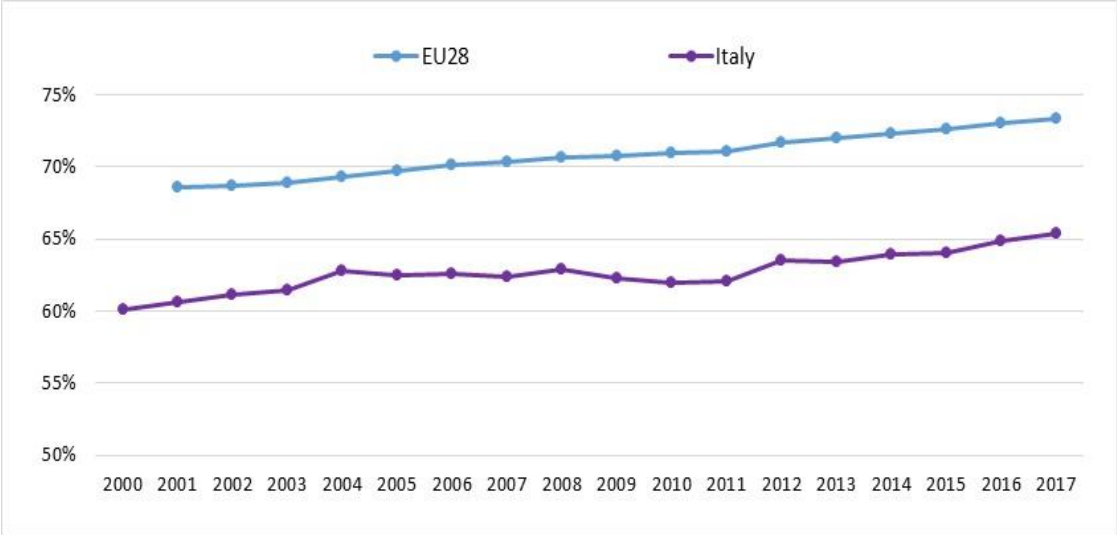
population aged 15 or above is lower in Italy than the EU28 average by approximately 5%, as shown in Figure 3.16.

Table 3.4: Growth of Total Population, Population aged between 15-64 and Labour Force, Italy

	Total Population	Population: aged 15 to 64	Labour Force
	2000-2017	**2000-2017**	**2000-2017**
EU28	4.84%	1.33%	8.50%
Italy	6.40%	1.14%	10.16%

Source: AMECO

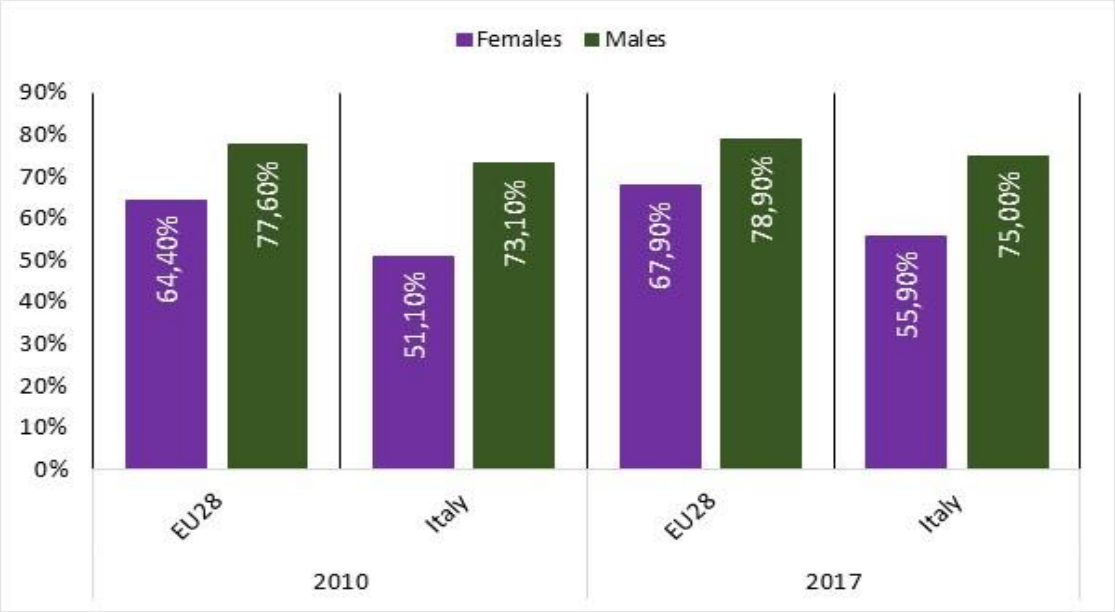
Figure 3.16: Active population as a percentage of the population aged 15 or above, Italy



Source: AMECO

According to Figure 3.17, the active population as a percentage of the population aged 15 or above for Italy is significantly lower than the EU28 average for females and close, but lower, to the respective value for males for 2016.

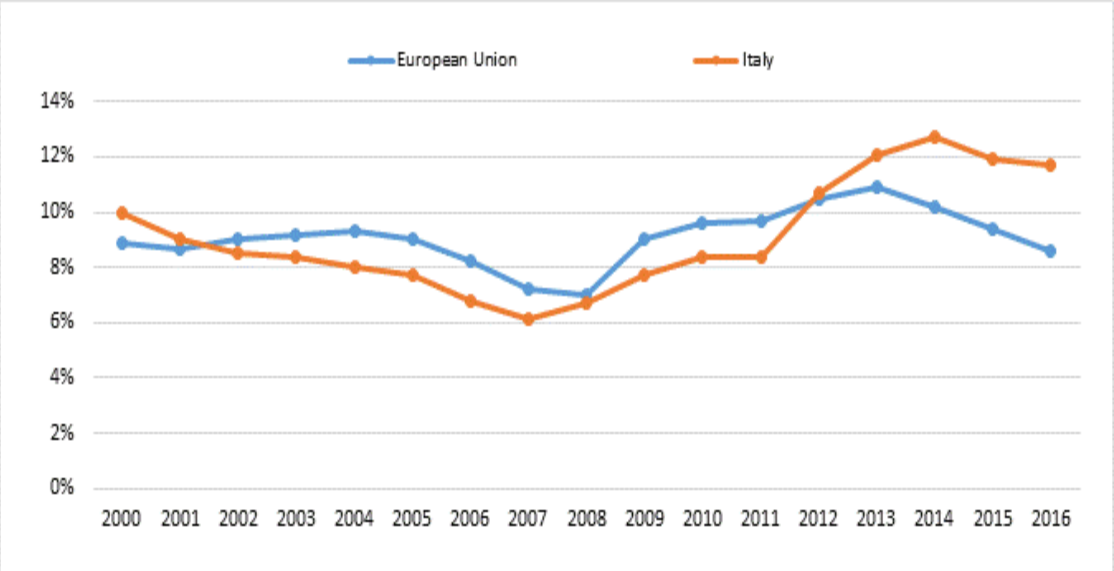
Figure 3.17: Active population by gender, as a percentage of the population aged 15 or above, Italy



Source: AMECO

Figure 3.18 shows that the unemployment rate in Italy was close to the EU28 average until 2012. It displays an important increase after 2012 and although the declining trend shown after 2014, unemployment rate is still over the EU28 average.

Figure 3.18: Unemployment Rate, 2000-2016, Italy



Source: AMECO

Figure 3.19 shows that Italy has a similar employment structure as the EU28 average, with a slight difference for sector C (Manufacturing), where the participation is higher for Italy. This increased participation in these specific sectors leads to the

increased participation of occupations 7 (Craft and related trades workers) and 9 (Elementary occupations) in the country's employment structure (Figure 3.20).

Figure 3.19: Sectoral Structure of employment, Italy, 2016

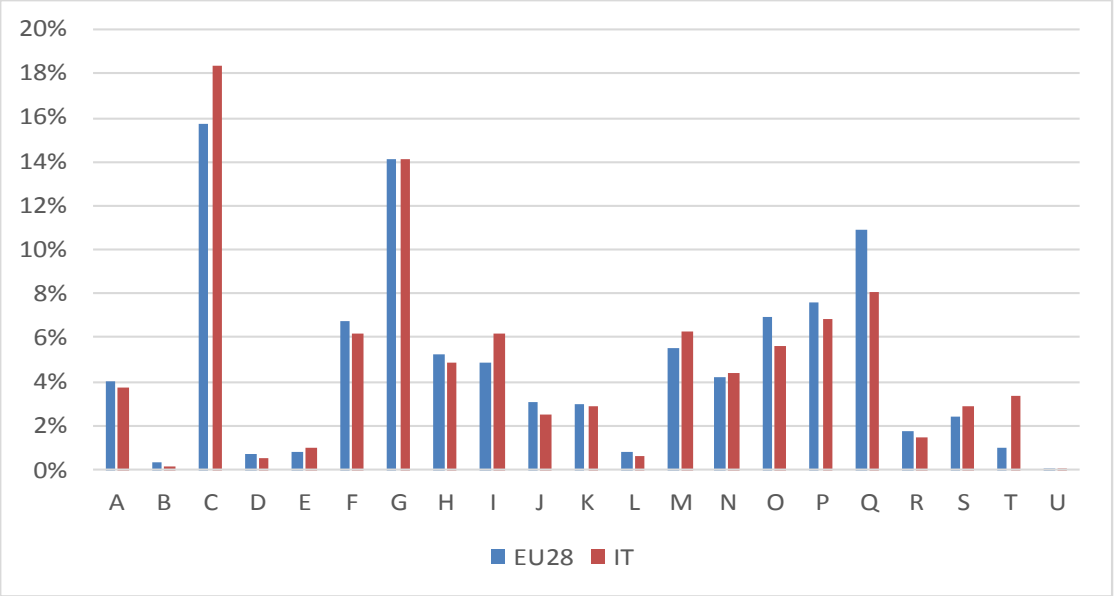
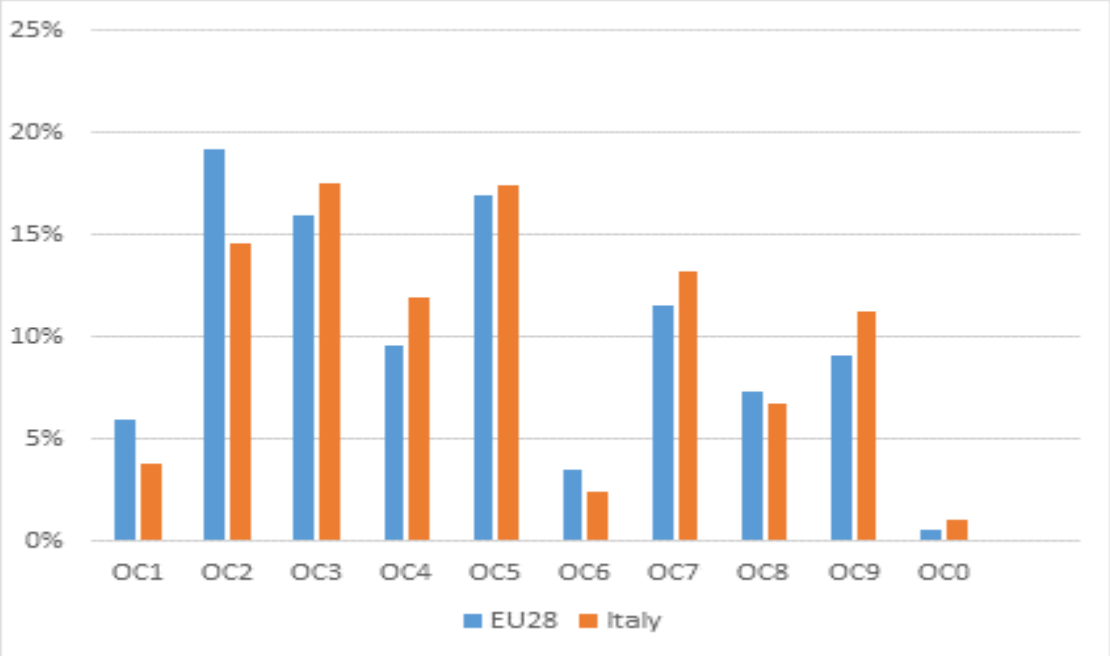


Figure 3.20: Employment Structure by occupation, Italy, 2016



3.5 Finland

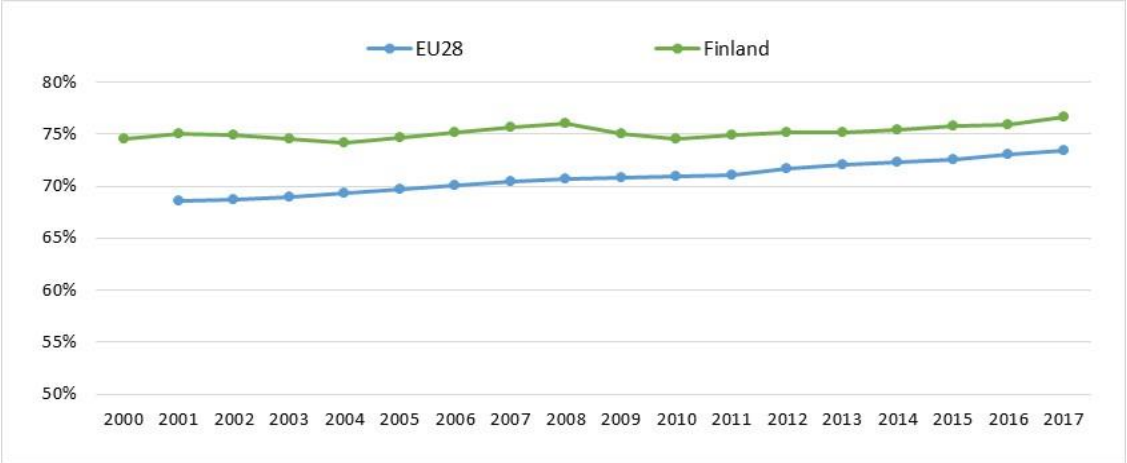
According to Table 3.5the population and the labour force of Finland increased in the period 2000-2017 at a rate greater than the corresponding one for the EU28, while the population aged 15 to 64 decreased by 0.37%. For the same period, the active population as a percentage of the population aged 15 or above is higher in Finland than in the EU28 average although the gap is decreasing lately, as shown in Figure 3.21.

Table 3.5: Growth of Total Population, Population aged between 15-64 and Labour Force, Finland

	Total Population	Population: aged 15 to 64	Labour Force
	2000-2017	**2000-2017**	**2000-2017**
EU28	4.84%	1.33%	8.50%
Finland	6.44%	-0.37%	8.69%

Source: AMECO

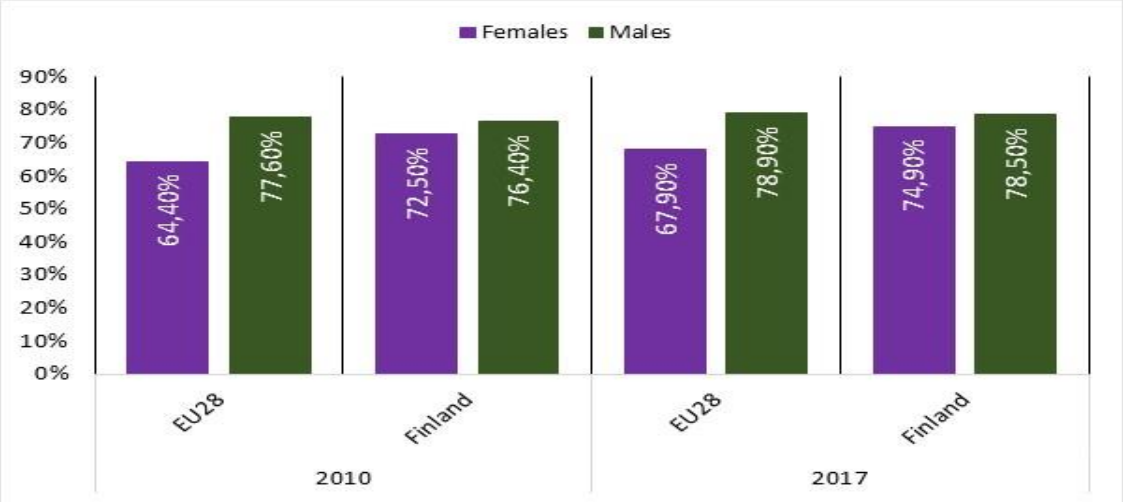
Figure 3.21: Active population as a percentage of the population aged 15 years or above, Finland



Source: AMECO

According to Figure 3.22 the active population as a percentage of the population aged 15 or above is higher in Finland than the EU28 average for females and very close to the respective value for males for 2016.

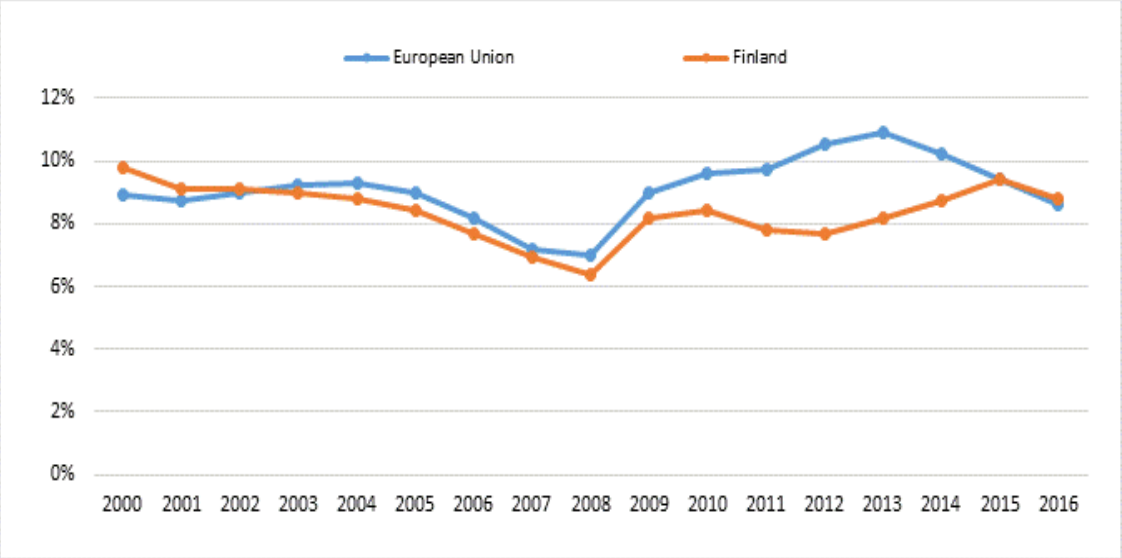
Figure 3.22: Active population by gender, as a percentage of the population aged 15 or above, Finland



Source: AMECO

Figure 3.23 shows that the unemployment rate follows, in general, the EU28 average, with the exception of the years 2009-2014, when it was significantly lower.

Figure 3.23: Unemployment Rate, Finland, 2000-2016



Source: AMECO

Figure 3.24 shows that Finland has a higher concentration of employment mainly in sectors C (Manufacturing) and G (Constructions) than the EU28 average. The increased participation in these sectors has led to an increased participation of occupations 2 (Professionals), 3 (Technicians and associate professionals) and 5 (Service and sales workers) in the country's employment structure (Figure 3. 25).

Figure 3.24: Sectoral Structure of employment, Finland, 2016

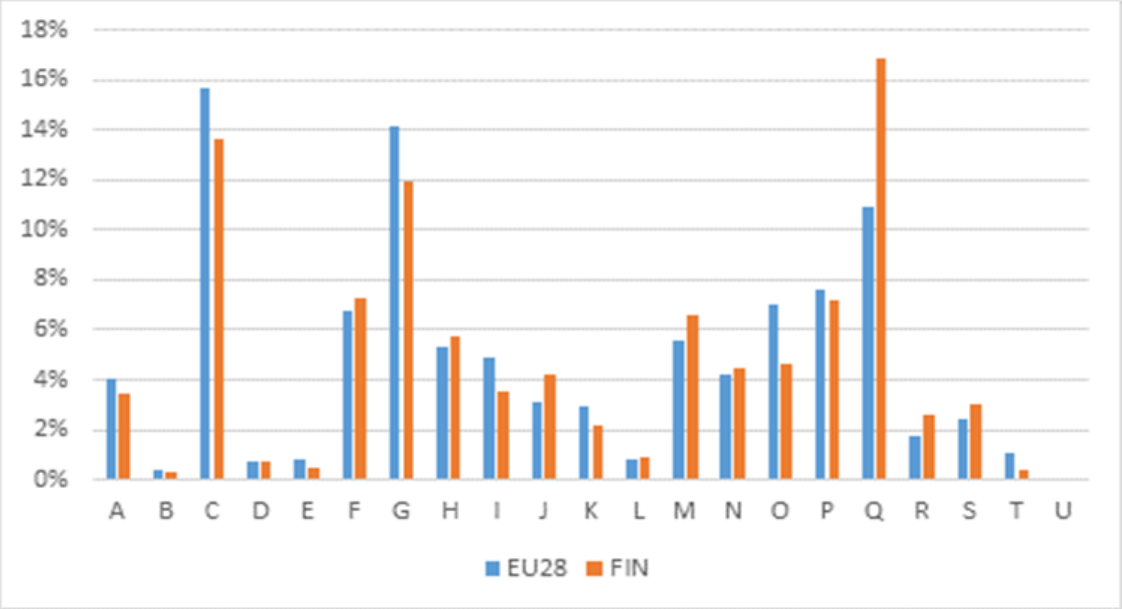
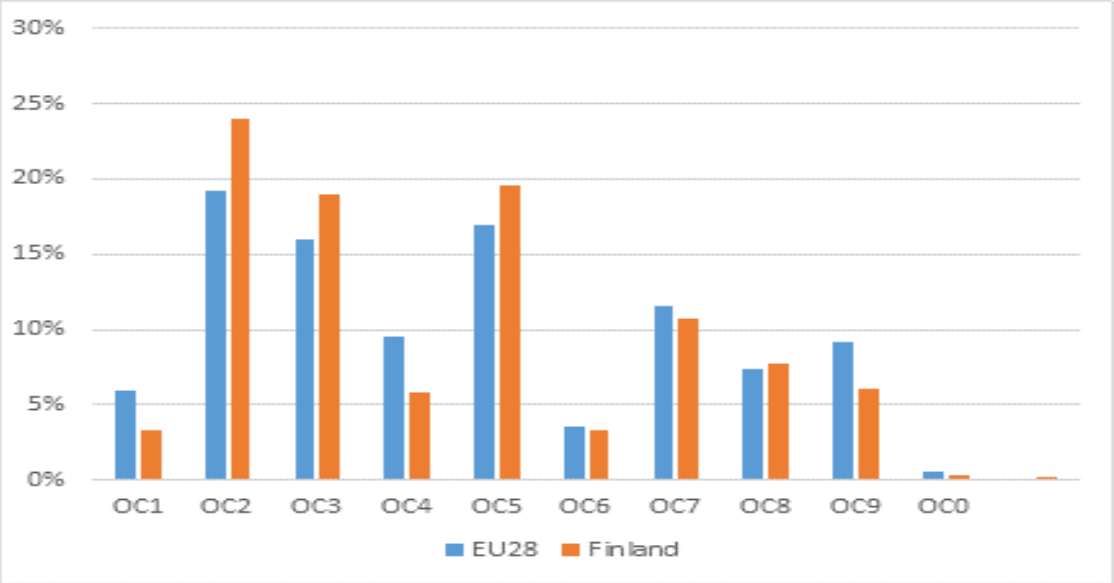


Figure 3. 25: Employment Structure by occupation, Finland, 2016



3.6 United Kingdom

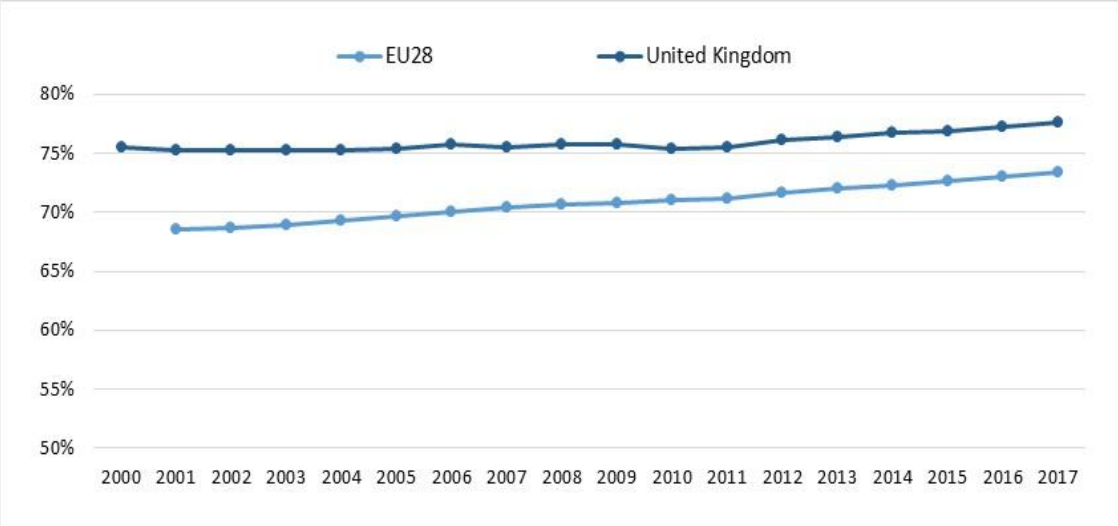
According to Table 3.6, the population and the labour force of the United Kingdom increased in the period 2000-2017, with a growth rate significantly higher than the corresponding figure for EU28, while the percentage growth of the labour force was even higher. The active population as a percentage of the population aged 15 or above is significantly higher in the United Kingdom than the EU28 average by almost 5% (Figure 3.26).

Table 3.6: Growth of Total Population, Population aged between 15-64 and Labour Force, United Kingdom

	Total Population	Population: aged 15 to 64	Labour Force
	2000-2017	**2000-2017**	**2000-2017**
EU28	4.84%	1.33%	8.50%
United Kingdom	13.36%	10.10%	15.39%

Source: AMECO

Figure 3.26: Active population as a percentage of the population aged 15 or above, United Kingdom



Source: AMECO

Figure 3.27 shows the active population by gender as a percentage of the population aged 15 or above is significantly higher in the United Kingdom than the EU28 average, for both genders. In 2016, female participation in the active population was almost 5% higher than in the EU28, and the respective male participation was 10% higher.

Figure 3.27: Active population by gender, as a percentage of the population aged 15 or above, United Kingdom

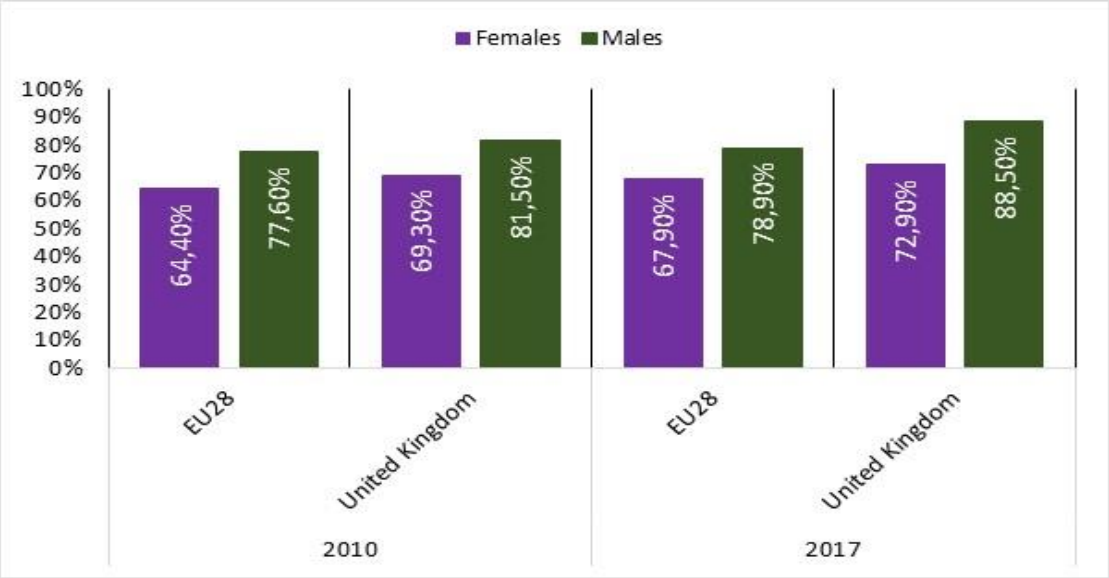


Figure 3.28 shows that the unemployment rate in the United Kingdom is significantly lower than the EU28 average.

Figure 3.28: Unemployment Rate, United Kingdom, 2000-2016

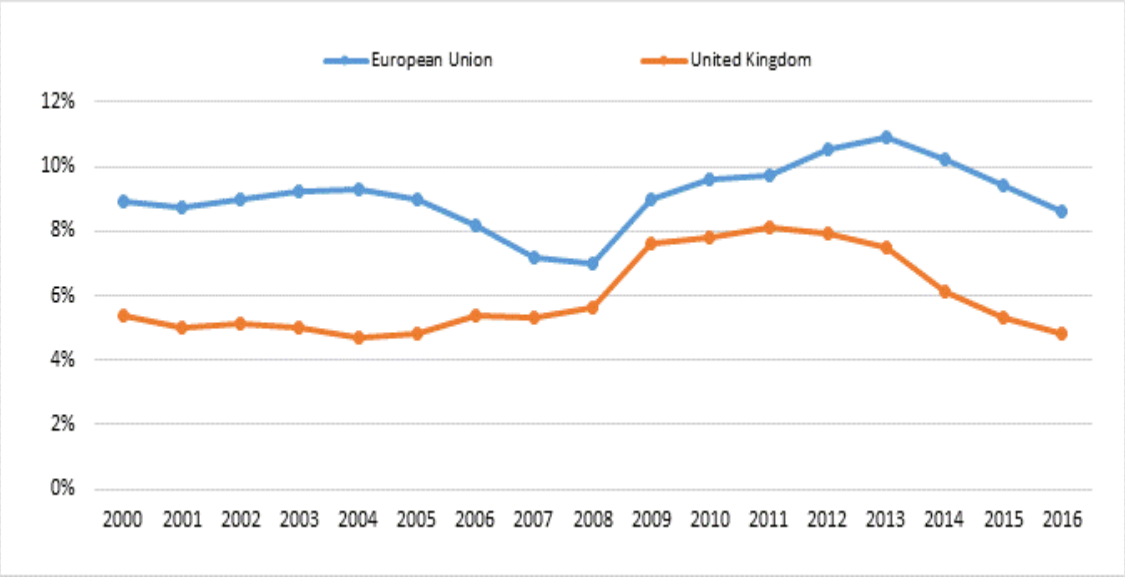


Figure 3.29 shows that the United Kingdom has a higher concentration of employment in tertiary sectors and particularly in sectors M (Professional, scientific

and technical activities), P (Education) and Q (Human health and social work activities) than the EU28 average. This increased participation in these sectors leads to an increased participation of occupations 1 (Managers), 2 (Professionals) and 5 (Service and sales workers) in the country's employment structure (Figure 3.30).

Figure 3.29: Sectoral Structure of employment, United Kingdom, 2016

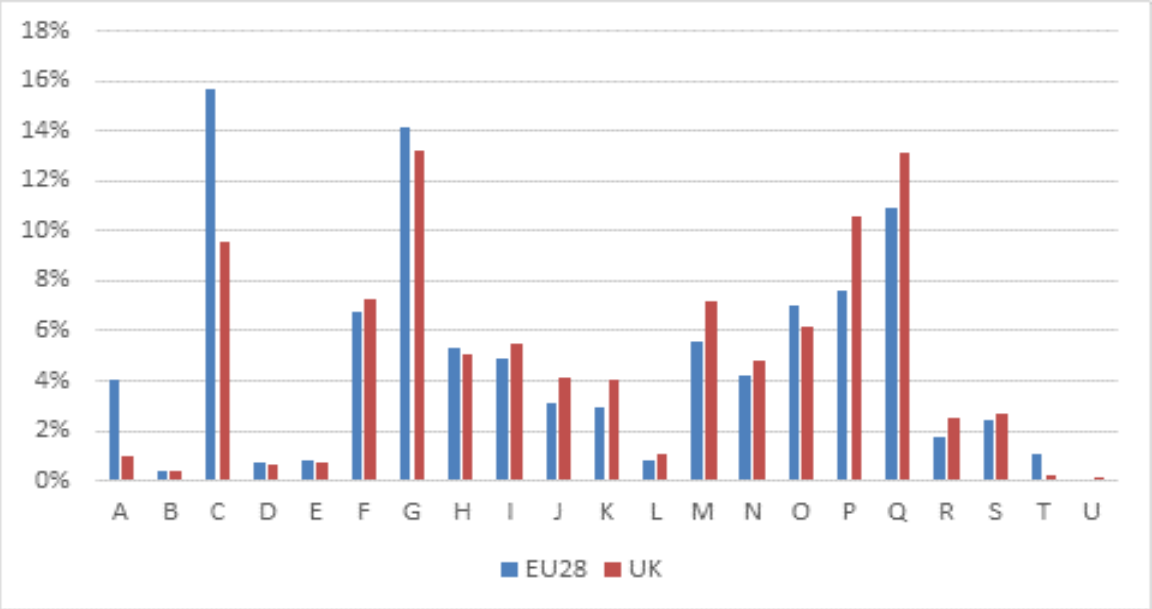
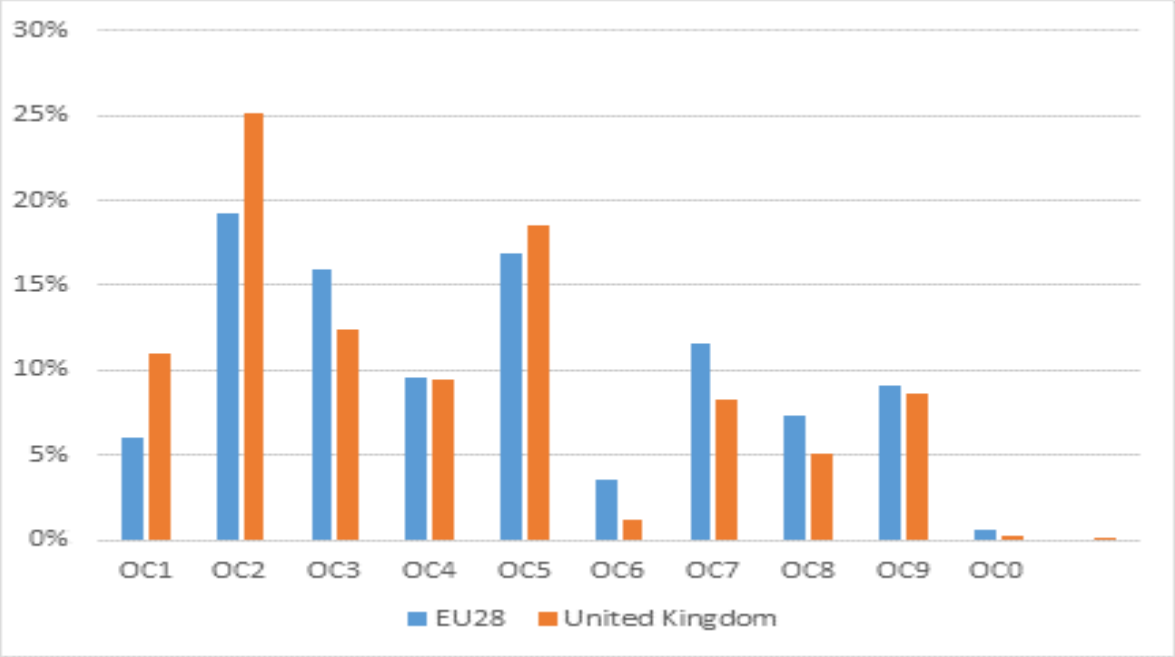


Figure 3.30: Employment Structure by occupation, United Kingdom , 2016



3.7 Switzerland

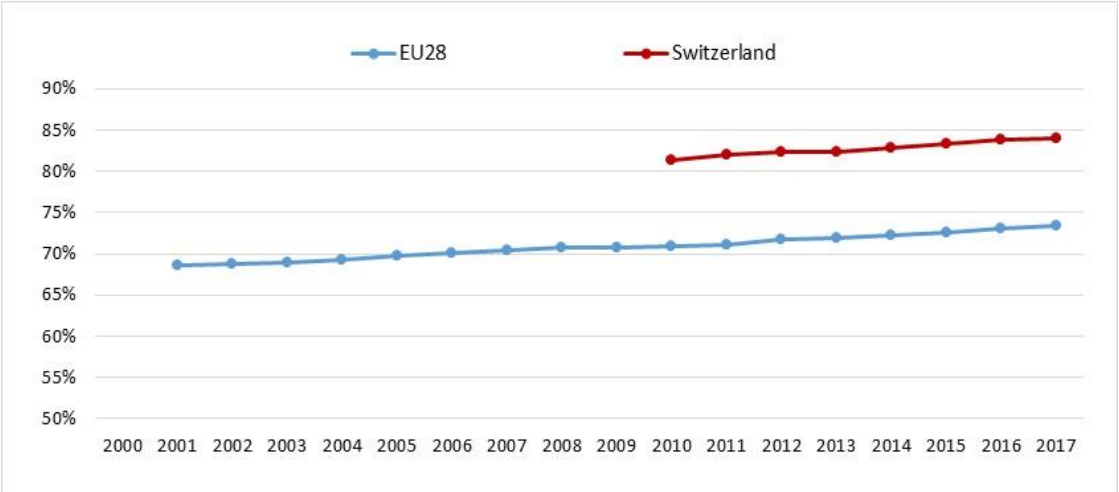
According to Table 3.7, the population of Switzerland increased in the period 2000-2017, with a growth rate significantly higher than the corresponding figure for the EU28, while the percentage growth of the labour force was even higher. The active population as a percentage of the population aged 15 or above is significantly higher in Switzerland than in the EU28 average by almost 15% (Figure 3.31).

Table 3.7: Growth of Total Population, Population aged between 15-64 and Labour Force, Switzerland

	Total Population	Population: aged 15 to 64	Labour Force
	2000-2017	**2000-2017**	**2000-2017**
EU28	4.84%	1.33%	8.50%
Switzerland	12.07%	17.55%	24.87%

Source: AMECO

Figure 3.31: Active population as a percentage of the population aged 15 or above, Switzerland

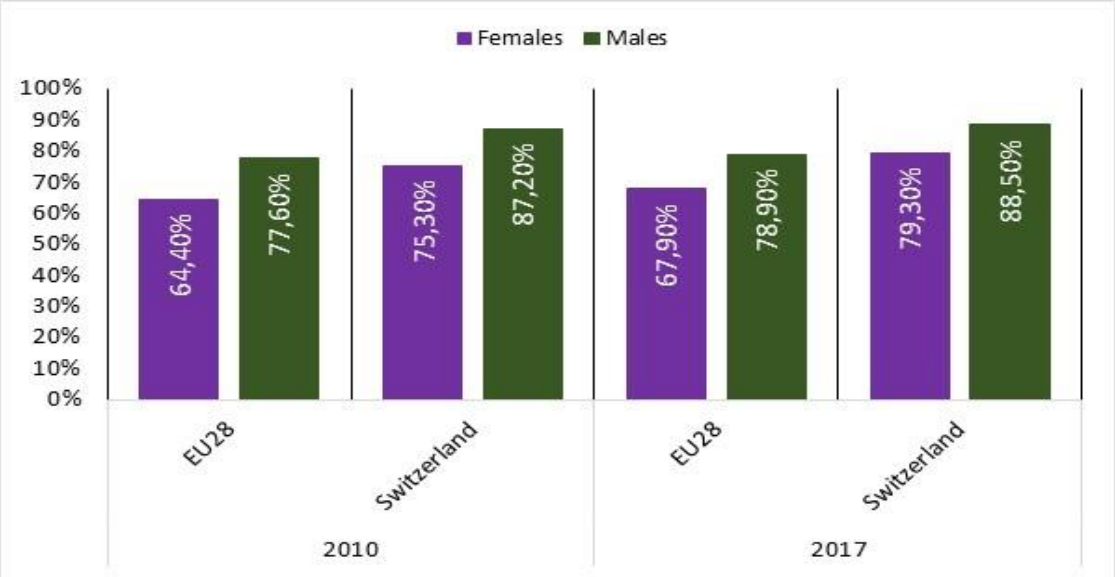


Source: AMECO

According to Figure 3.32, the active population by gender as a percentage of the population aged 15 or above is significantly higher in Switzerland than the EU28 average, for both genders. In 2016, female participation in the active population was

almost 12% higher than in the EU28, and the respective male participation was 10% higher.

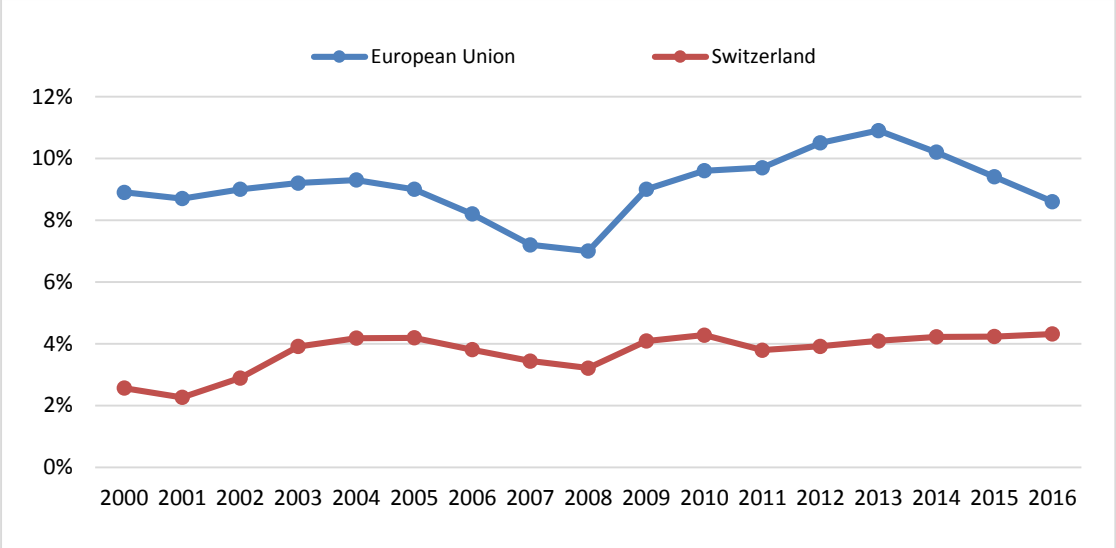
Figure 3.32: Active population by gender, as a percentage of the population aged 15 or above, Switzerland



Source: AMECO

Figure 3.33 shows that the unemployment rate in Switzerland is significantly lower than the EU28 average, and lower than 5% for all the examined years.

Figure 3.33: Unemployment Rate, Switzerland, 2000-2016



Source: AMECO

Figure 3.34 shows that Switzerland has a higher concentration of employment in tertiary sectors, and particularly in sectors M (Professional, scientific and technical activities) and Q (Human health and social work activities) than the EU28 average.

This increased participation in these specific sectors leads to an increased participation in occupations 2 (Professionals) and 3 (Technicians and associate professionals) in the country's employment structure (Figure 3.35).

Figure 3.34: Sectoral Structure of employment, Switzerland, 2016

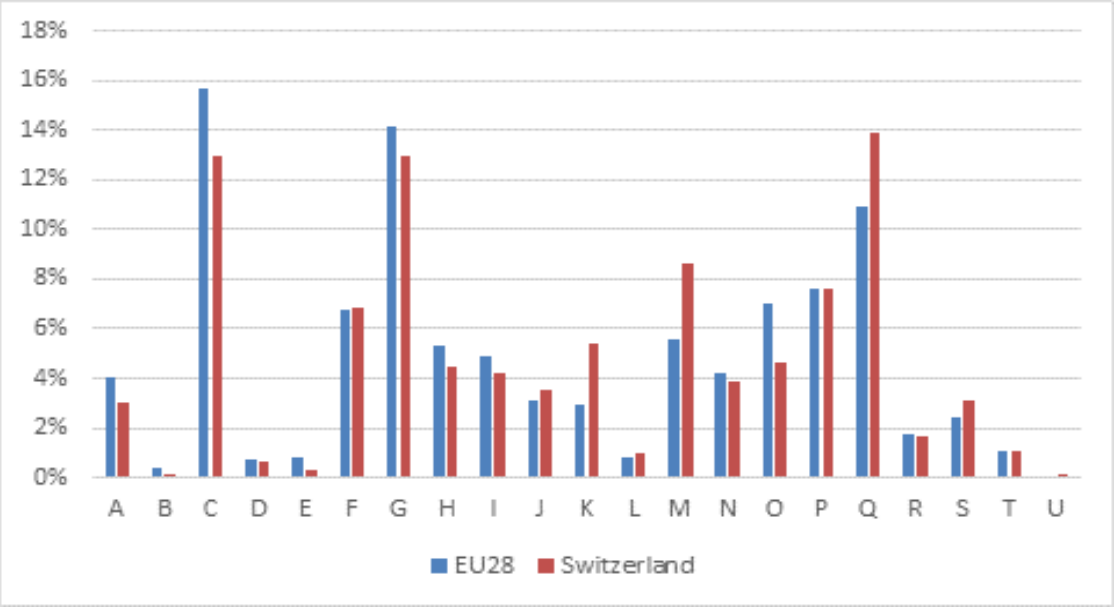
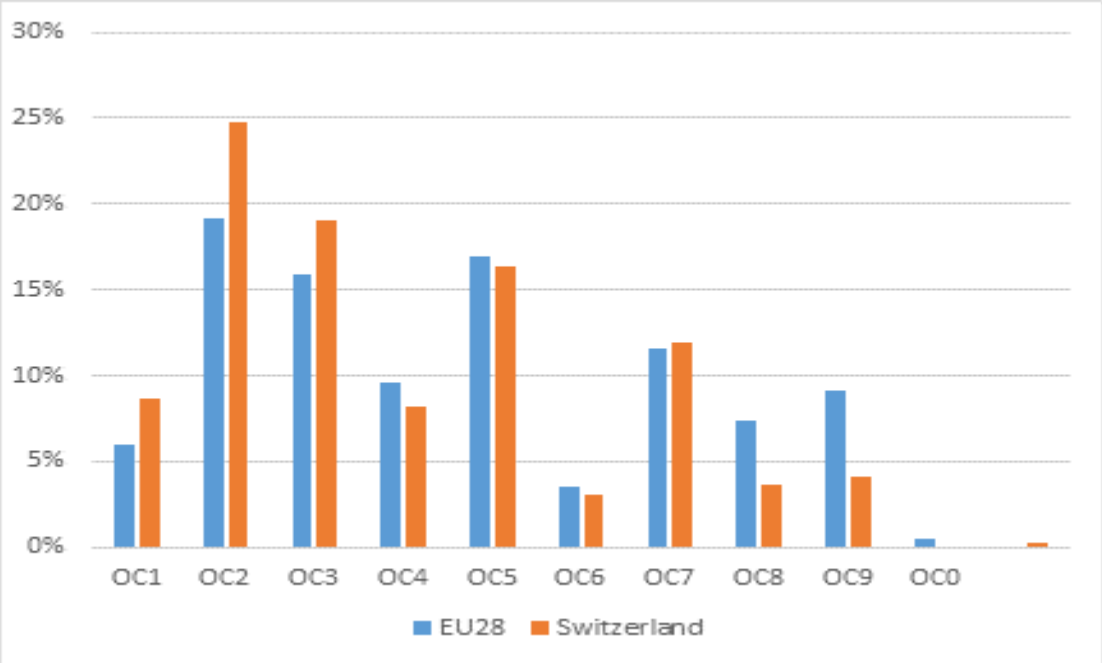


Figure 3.35: Employment Structure by occupation, Switzerland, 2016



4. Comparative Analysis of Labour Market in Sirius Economies

The purpose of this section is to determine the structural characteristics of the labour market and the employment of selected countries and to identify their specialization patterns with respect to sectors of economic activity and occupations.

The MRAs integration policies adopted by SIRIUS countries cannot be isolated from the specific context of national labour market conditions and all suggested measures must carefully consider the need to integrate both native and migrant workers. The understanding of the challenges and opportunities experienced by MRAs is connected with both, their skills and qualifications, and the labour market features of the host country.

The examination of the labour market characteristics at the country level is a crucial starting point for the integration process for migrants, refugees and asylum applicants. The documentation of their integration potential is related to the distribution of labour demand across the economic sectors and the occupations of different counties along with the socio-economic features of the national labour markets.

The forces affecting the employment structure can be found in various factors such as technological change, capital accumulation, demographic characteristics, climate change, migration, urbanization, government policies etc. The long-term process of the structural transformation of employment (both regarding the sectoral structure and the distribution of employment across occupations) in developed countries is characterized by a gradual shift from primary and traditional (such as food, textiles etc.) manufacturing sectors to tertiary activities and modern (high-technology) manufacturing sectors. But this process is significantly diverse in different countries, especially after the 2008 economic crisis (Cörvers & Dupuy, 2010; ILO, 2018; Marcolin, Miroudot, & Squicciarini, 2016).

The high level of heterogeneity across the labour markets of different European countries requires an in-depth approach to their economic and social environment (structural characteristics, sectoral composition, demographic issues and labour force structure), but also the analysis of the impact of the economic crisis on the various economies. We provide a first approach to the labour market characteristics of the Czech Republic, Denmark, Greece, Italy, Finland, United Kingdom and Switzerland, focusing on the main demographic characteristics, the sectoral structure of employment and occupations.

4.1 Main Characteristics of the Labour Force

According to Table 4.1, the total population of the EU28 countries increased with a growth rate equal to almost 5%, while the population growth rate of those aged 15-64 is significantly lower for the years 2000-2017. From the examined countries, the United Kingdom and Switzerland experience the highest growth rates in both measures, while Switzerland is the only country where the growth rate of the

population aged 15-64 is higher than the growth rate of the total population. From the remaining countries, we should note that Greece shows negative growth rates in both figures with a significant decrease in the population aged 15-64 and the Czech Republic a decrease of its population aged 15-64.

Furthermore, Table 4.1 shows an important increase (8.5%) in the EU28 labour force, but with high diversity among the examined countries. The highest increase of labour force is recorded in Switzerland, followed by the United Kingdom, Italy and Finland, while the remaining countries' labour forces increased but at a lower rate than the EU28 average.

Table 4.1: Growth of Total Population, Population aged between 15-64 and Total Labour Force, 2000-2017

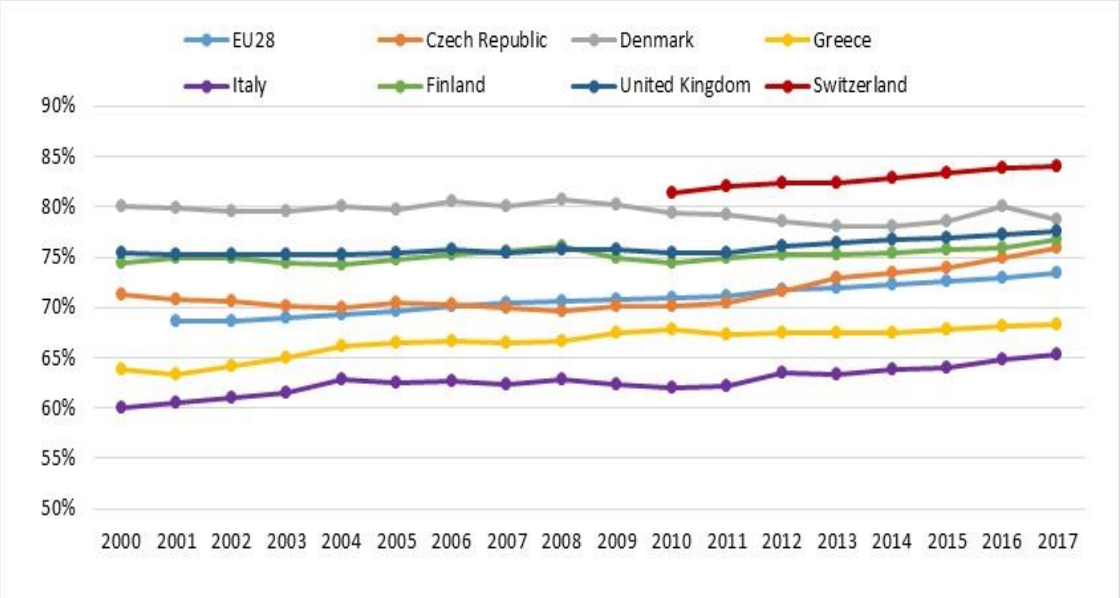
	Total Population	Population: aged 15 to 64	Labour force
EU28	4.84%	1.33%	8.50%
Czech Republic	3.26%	-3.28%	3.47%
Denmark	7.99%	3.86%	6.21%
Greece	-0.77%	-6.27%	7.60%
Italy	6.40%	1.14%	10.16%
Finland	6.44%	-0.37%	8.69%
United Kingdom	13.36%	10.10%	15.39%
Switzerland	12.07%	17.55%	24.87%

Source: AMECO

Figure 4.1 shows the active population as a percentage of the population aged 15 or above for the examined countries and for the EU28 average. The lower rates are recorded in Italy (8 percentage points lower than the EU28 average for 2016) and in Greece (5 percentage points lower than the EU28 average for 2016), followed by the Czech Republic, which is very close to the EU28 average. The highest rates are recorded in Switzerland (10.9 percentage points higher than the EU28 average for 2016), Denmark (7 percentage points higher than the EU28 average for 2016), UK

(4.3 percentage points higher than the EU28 average for 2016) and the Finland (2.9 percentage points higher than the EU28 average for 2016.

Figure 4.1: Active population as a percentage of the population aged 15 or above



Source: Eurostat

The active population by gender as a percentage of the population aged 15 or above for 2016 is presented in Figure 4.2.

The percentage rate of women's active population is lower than the EU28 average for Italy (by 12 percentage points) and Greece (by 8 percentage points and marginally higher for the Czech Republic (by 1 percentage points). The percentage rate of women's active population is higher than the EU28 average for the United Kingdom (by 5 percentage points), Finland (by 7 percentage points), Denmark (by 8 percentage points) and Switzerland (by 11 percentage points). The deviation exists but at a lower level for the male active population: -4% percentage points for Italy, -3 percentage points for Greece, +3 percentage points for Denmark and the United Kingdom, +4 percentage points for the Czech Republic, and +10 percentage points for Switzerland, while there is no deviation for Finland.

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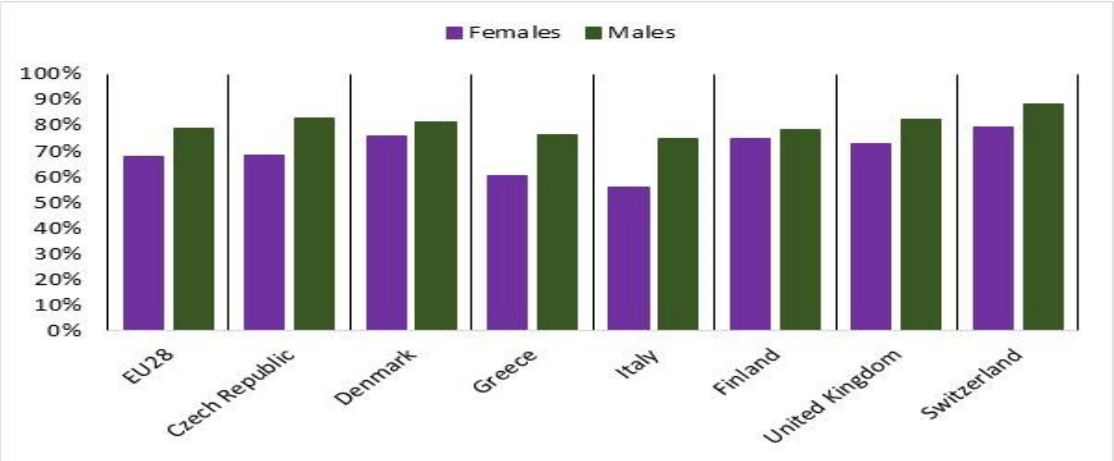
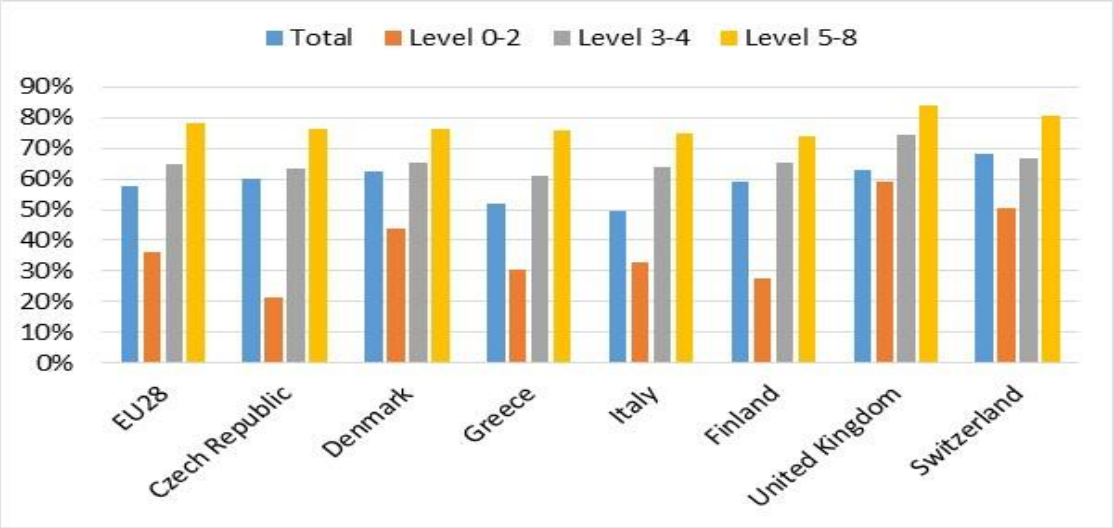
Figure 4.2: Active population by gender, as a percentage of the population aged 15 or above, 2016



Source: Eurostat

The activity rate by educational level as a percentage of the population aged 15 or above for the year 2016 is shown in Figure 4.3. From Figure 4.3 we may conclude that as educational attainment level increases, men and women show higher levels of labour force participation, for all the examined countries. The average activity rate for all EU28 countries equals 36.4% for primary education attainment level (Level 0-2), 64.8% for secondary education attainment level (Level 3-4) and 78.9% for tertiary education attainment level (Level 5-8).

Figure 4.3: Activity rate by education level, 2016

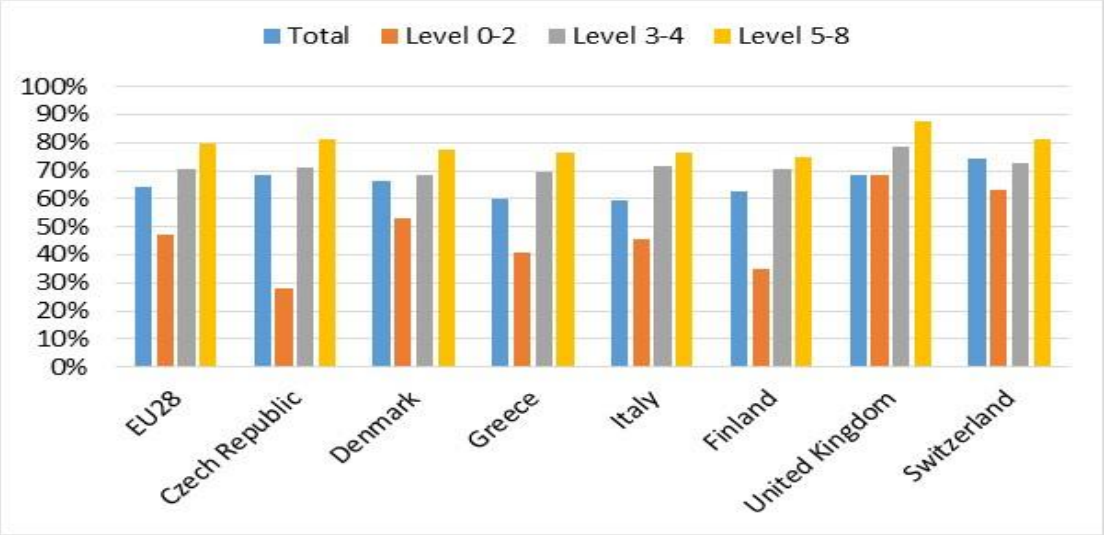


Source: Eurostat

Figure 4.4 and Figure 4.5 show the activity rate by educational level, as a percentage of the population aged 15 or above for 2016, for men and women respectively. The investigation of the activity rate by gender shows that men have higher labour force participation rates than women at every level of educational attainment. But, we may also conclude that the gap between men's and women's

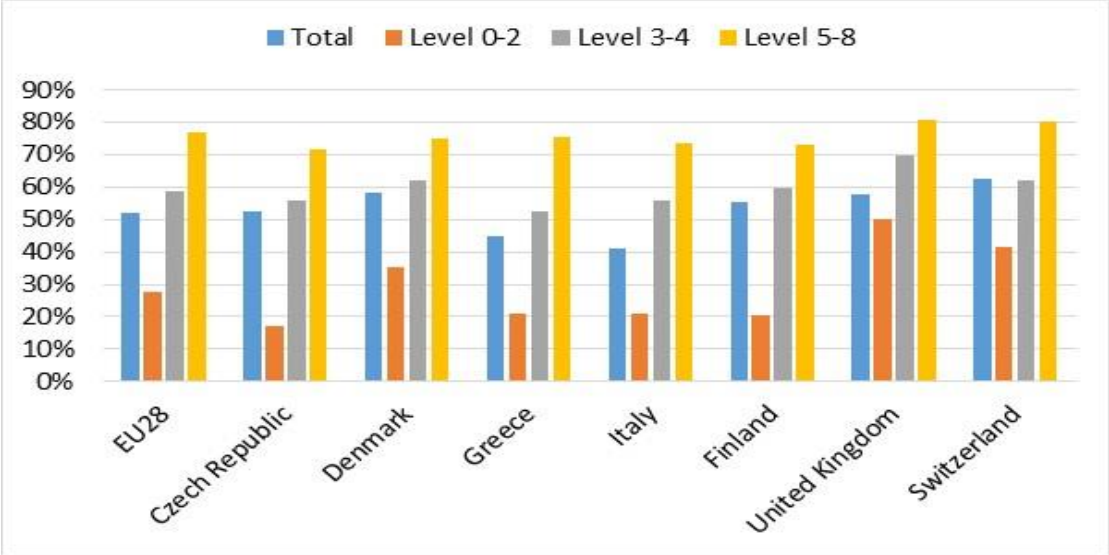
labour force participation rates becomes smaller as the educational attainment level increases, for all the examined countries.

Figure 4.4: Activity rate by education level, Males, 2016



Source: Eurostat

Figure 4.5: Activity rate by education level, Females, 2016



Source: Eurostat

4.2 Unemployment Rate

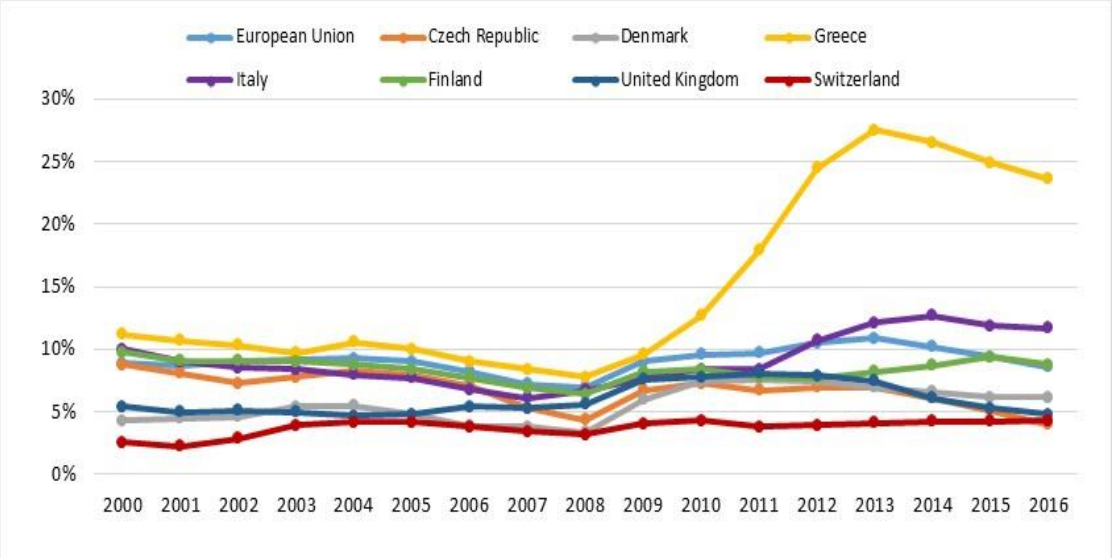
Figure 4. 6 depicts the unemployment rate for all the countries examined. The EU28 average unemployment rate increased after the beginning of the crisis but returned to its 2000 levels in 2016. Although all the examined countries were affected by the economic crisis, resulting in increased unemployment levels after 2008, the differences between the economies are quite substantial.

The unemployment rate in the Czech Republic, United Kingdom and Switzerland in 2016 was under 5%, well below the EU28 average of 8.6 percent, while Finland

had an unemployment level close to the EU28 average. For all these countries, the unemployment level rose during the economic crisis, but then returned to its approximate pre-crisis level.

The situation differs for Italy and Greece. The unemployment rate in Italy was 6.7% in 2008 and rose during the economic crisis to 12.1% in 2013 and ends at 11.7% in 2016. In the case of Greece, the unemployment rate increased rapidly from 7.8% in 2008 to 27.5% in 2013 to set at 23.60% in 2016. The unemployment rate of the Greek economy is the highest in the EU28.

Figure 4. 6: Unemployment Rate



Source: Eurostat

4.3 Employment Structure by Educational Level

In Figure 4.7, Figure 4.8 and Figure 4.9 the evolution of employment by educational attainment level is represented. Figure 4.7 shows the evolution of employment with primary educational attainment level share, Figure 4.8 shows that for secondary and Figure 4.9 for tertiary education. From these figures we can come to some important conclusions.

Firstly, Figure 4.7 shows the decline of 0-2 level employment share in all countries. In EU28, the share of the primary educational attainment level employment declined by 5.7%. The relative decline was higher in Greece (10.9%), Denmark (7.1%), Italy (6.2%) and Finland (6.1%), and lower in the Czech Republic (1.7%), Switzerland (1.8%) and the United Kingdom (4.7%).

It is important to note that, Italy, Greece and Denmark record higher shares of primary educational attainment level employment than the EU28 average. The rest of the countries report lower shares in this specific figure. In fact, lately, the majority of the countries tend to reach the EU28 average, with the exception of Italy (with a significantly higher share) and the Czech Republic (with a significantly lower share).

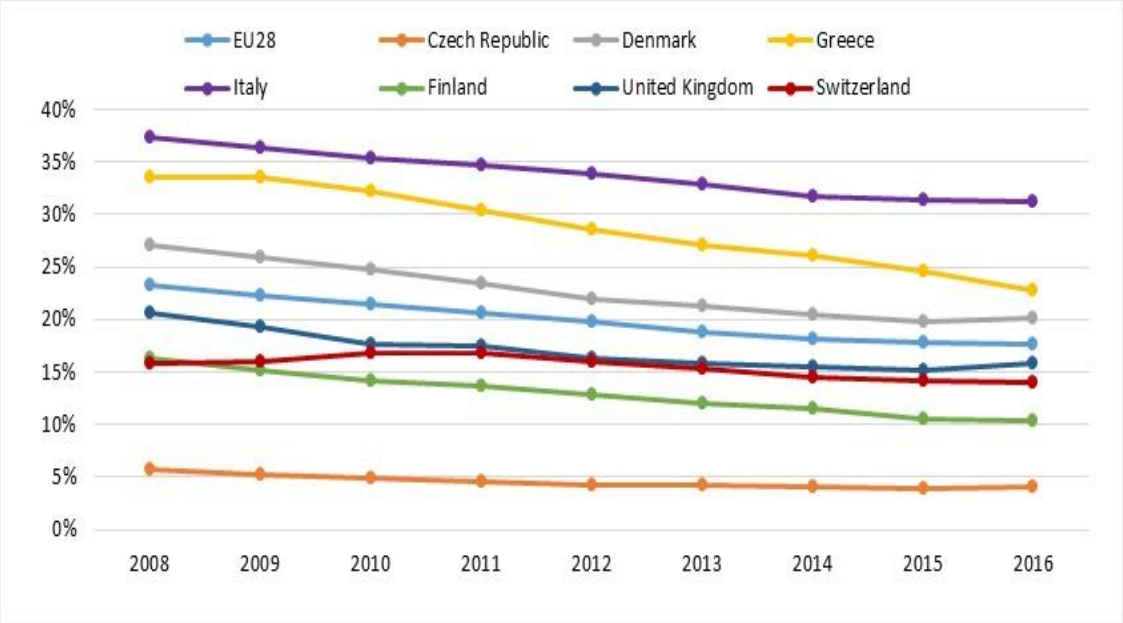
Secondly, Figure 4.8 demonstrates the differentiated picture of the evolution of 3-4 level employment share in all countries. In the EU28, the share of the secondary educational attainment level employment declined by 1.4%. A higher decline is documented in the Czech Republic (6.6%) and Switzerland, with a limited decline in Finland (0.6%). For the rest of the countries, the specific figure increased by 2% in Greece, 1.9% in Italy and 0.5% in Denmark.

From the same figure, we can see that the share of 3-4 level employment shows low diversity for the examined countries and the recorded diversity tends to vanish with the exception of the Czech Republic, a country with a significantly higher share of the secondary educational level in employment.

Finally, Figure 4.9 demonstrates the significant increase of the 5-8 level employment share in all countries. In the EU28, the share of the tertiary educational attainment level employment increased by 7.1%. The relative increase was higher in the United Kingdom (10%), Greece (8.9%) and the Czech Republic (8.3%), and lower in Italy (4.2%), Denmark (5.2%), Finland (6.7%) and Switzerland (7%).

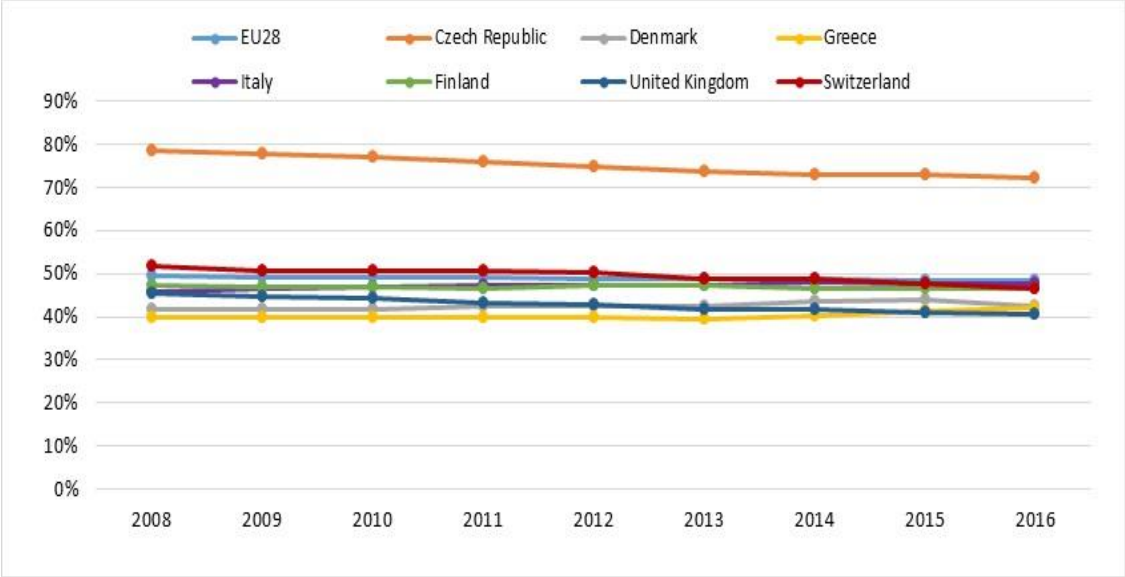
It is important to note that, Italy and the Czech Republic record lower shares of a tertiary educational attainment level employment than the EU28 average, whereas Finland, the United Kingdom and Switzerland record higher shares, for all the examined years. The remaining countries report shares close to the EU28 average.

Figure 4.7: Share of employment with educational attainment level 0-2, 2008-2016



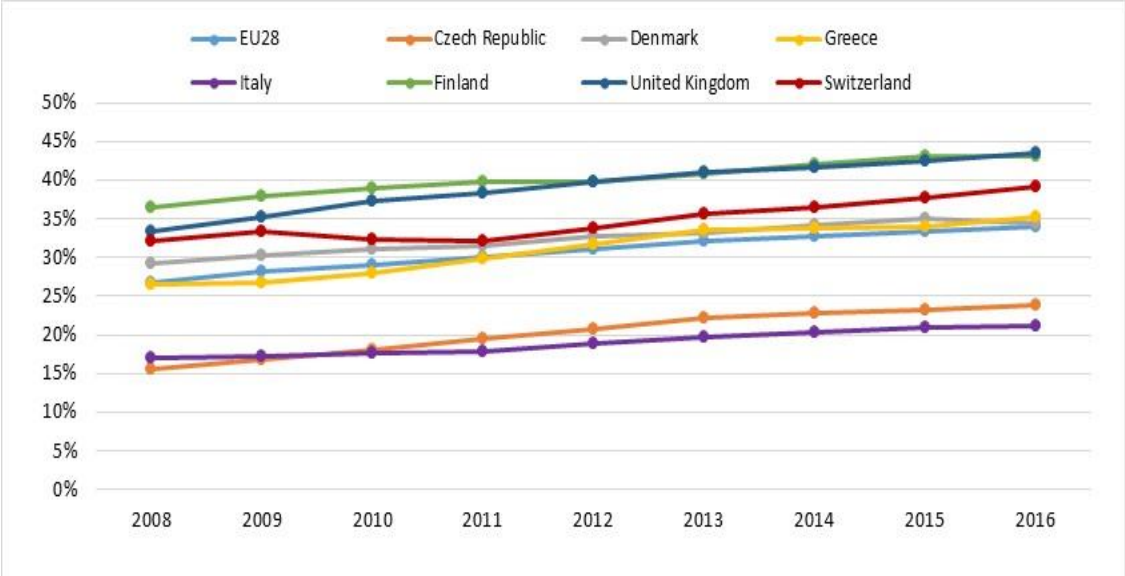
Source: Eurostat

Figure 4.8: Share of employment with educational attainment level 3-4, 2008-2016



Source: Eurostat

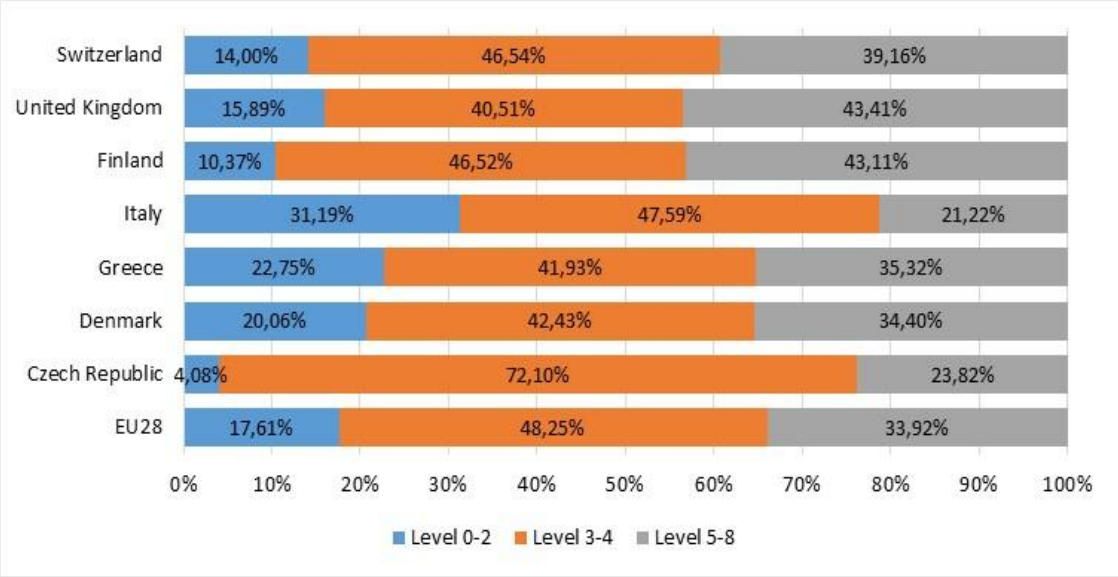
Figure 4.9: Share of employment with educational attainment level 5-8, 2008-2016



Source: Eurostat

Figure 4.10 depicts employment by educational attainment level for the EU28 and the examined countries for 2016. As can be seen, there is a high differentiation among the examined countries. The Czech Republic demonstrates a very low share of the primary educational attainment level, a significant high level of secondary and a relatively low share of the tertiary level. Also, Italy records a relatively high share of primary educational attainment level, an average share of secondary and a relatively low share of the tertiary level. For Greece and Denmark, although the share of the primary educational attainment level is relatively high and the secondary relatively lower, the share of the tertiary level is very close to the EU28 average. The United Kingdom, Switzerland and Finland show relatively low shares of primary and secondary educational attainment level, but significantly higher shares of tertiary.

Figure 4.10: Employment by educational attainment level, 2016



Source: Eurostat

4.4 Employment Structure by Economic Sector

The employment structure of a country shows how the employment is divided between the different sectors of economic activity. In the previous section the employment structure of EU28 and the examined countries is analyzed on a sector-by-sector basis. This approach has two important advantages: First, each individual sector is investigated in connection with the wider context of the whole economy, and, second, the detailed breakdown of employment provides a view of each country's specialization characteristics.

The analysis below is based on the classification of sectors of economic activity from the World Input-Output Database–WIOD (Timmer, Dietzenbacher, Los, Stehrer, & Vries, 2015; Timmer, Los, Stehrer, de Vries, & others, 2016) and covers 54 sectors of economic activity according to ISIC Rev. 4 (or equivalently NACE Rev. 2, digit 2) listed in Table A.III (Appendix). For an overview of the results we also use the NACE Rev. 2, digit 1 classification described in Table A.II (Appendix).

The specialization characteristics of the examined economies are studied based on two different indexes: The Sectoral Specialization Index and the Krugman Specialisation Index.

Sectoral Specialization Index (SSI) or location quotient (European Commission, 2009) is used to measure how concentrated is a sector of a country compared with a reference group, i.e. the EU28 in this study. The index is defined as the ratio of two shares. The numerator is the share of a country's employment of the sector of interest in its total employment and the denominator is the employment share of EU28 same sector in the total EU28 employment. In mathematical notation the Sectoral Specialization Index is described below:

$$S_{i,j} = \frac{L_{i,j} / \Sigma L_{i,j}}{L_{i,EU28} / \Sigma L_{i,EU28}}$$

where L denotes employment, i is the sector and j the country of interest

The Sectoral Specialization Index takes a value between 0 and +∞. If the SSI of the sector of interest for a country exceeds unity, the examined country is specialized in the production of the specific sector.

The Krugman Specialization Index (KSI) is a widely-used measure of a country's specialization (Krugman, 1991). The index measures the distance between the economic structure of the examined country and a reference group.

$$KSI = \sum \left| S_{i,k} - S_{i,EU28} \right|$$

Where $S_{i,k}$ i is the employment share of sector i of the country k and $S_{i,EU28}$ is the employment share of sector i of EU28. KSI measures the absolute distance between a sector's relative share between a country and the EU28, and then sums all sectors to create an index. If KSI is equal to zero then the examined country has an industrial structure identical to the EU28 (the country is not specialized). A high value of the index indicates a country with strong sectoral specialization. We should note that the index can only be evaluated at a comparative basis, in comparison with a group of countries.

In **Figure 3. 36**, the employment by sector of economic activity for the examined countries in 2016 is represented. The classification of the sectors is based on Table A. II (Appendix). The aforementioned Figure shows a highly heterogeneous picture for the examined countries.

The share of the primary sector (A) in total employment is equal to 4% in EU28 countries. The figure varies from only 1% to 11.7% among the examined economies. United Kingdom reports the lower share of sector A. Denmark, Czech Republic, Switzerland, Finland and Italy have shares lower but close to the EU28 average (2.3%, 2.9%, 3%, 3.5% and 3,7%, respectively). Greece shows the higher share of primary sector among the examined countries, equal to 11.7% of total employment.

The employment in the manufacturing sectors (B-E) is equal to 17.5% of total employment in EU28. The corresponding figure varies from 11.3% to 30.9% in the examined countries. The lower share of manufacturing sectors is shown in the United Kingdom and Greece (11.3% and 11.4% respectively). For Denmark, Switzerland and Finland the corresponding figure is close to EU28 average (13.2%, 14%, 15,1%, respectively), while in Italy the employment share of sectors B-E in total employment is higher that the EU28 average (20.1%). Czech Republic shows the higher share of secondary sector among the examined countries, equal to 30.9% of total employment.

The employment in the construction industry (F) is equal to the 6.8% of total employment in EU28. The corresponding figure varies from 4% to 7.3%, in the examined countries. The lower share of construction sector is in Greece (4%) and

the higher in the Czech Republic (7.6%). For the rest of the examined counties, the corresponding figure is close to the EU28 average. In fact, the employment share of sector F shows the lowest heterogeneity among the examined economies in comparison to the other sectors in 76.1% and 80.5%, respectively).

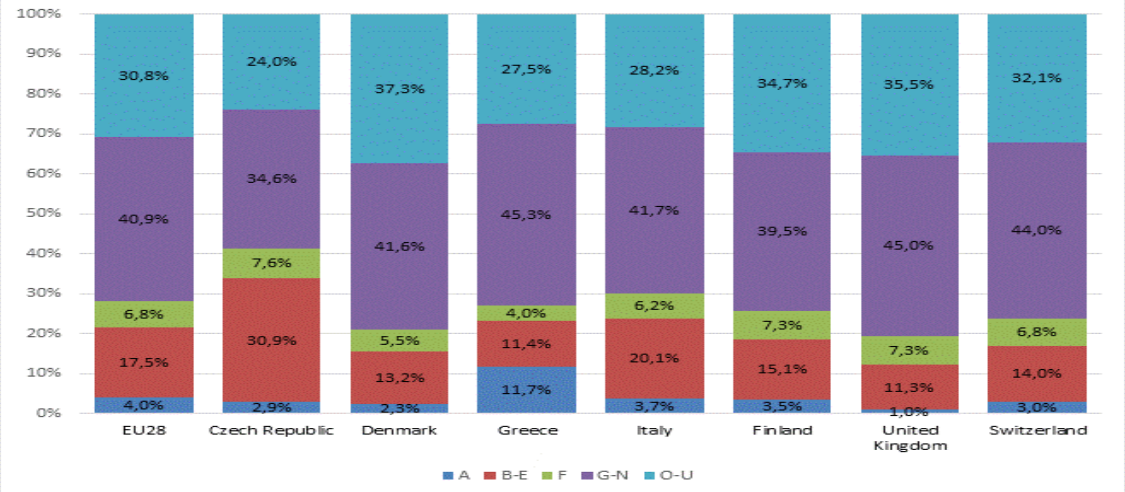
Figure 3. 36.

The employment in market services (G-N) is equal to 40.9% of total employment in EU28. The corresponding figure varies from 34.6% to 45.3% in the examined countries. The lower share of market services sectors is in the Czech Republic (34.6%). For Denmark, Italy and Finland the corresponding figure is close to the EU28 average (41.6%, 41.7%, 39.5%, respectively), while Switzerland, United Kingdom and Greece have the higher shares of market services employment in total employment (44%, 45% and 45,3%, respectively).

The employment in non-market services (O-U) is the 30.8% of total employment in EU28. The corresponding figure varies from 24% to 37.3% in the examined countries. The lower share of non-market services sectors is shown in the Czech Republic (24%). For Greece and Italy, the corresponding figure is close but lower than the EU28 average (27.5% and 28.2%, respectively). The employment share in sectors O-U is higher than the EU28 average in Switzerland, Finland, the United Kingdom and Denmark (32.1%, 34.7%, 35.5% and 37.3%, respectively).

We should note here that the average share of employment in all tertiary sector (G-U) equals 71.7% in EU28. The corresponding figure is significant lower than the EU28 in the Czech Republic (58.6%), close to the EU28 average in Italy, Greece and Finland (69.6%, 72.8% and 74.2%, respectively) and higher than the EU28 average in Switzerland, Denmark and the United Kingdom (74.2%, 76.1% and 80.5%, respectively).

Figure 3. 36: Employment by sector of economic activity, NACE Rev. 2, 1-digit, 2016



Source: Eurostat

Note: A: Primary Sector, B-E: Manufacturing Sectors, F: Construction, G-N: Market Services, O-U: Non-Market Services

Table 4.2 shows the percentage change of employment for the whole economy and by sector of economic activity for the years 2008 and 2016.

Total employment in EU28 records a marginal decline equal to 0.28% in the 2008-2016 period. The corresponding figure varies from -20.18% (Greece) to 13.2% (Switzerland) in the examined countries.

The economic crisis in the case of Greece has affected the employment in all sectors of economic activity. The higher decline is experienced in manufacturing and construction, followed by the tertiary (market and non-market) and primary sectors. The decline of employment affected mainly the primary and manufacturing sectors in the case of Finland, manufacturing and construction in the case of Denmark and Italy. In the Czech Republic, the United Kingdom and Switzerland the total employment increased. In the Czech Republic, the increase involves mainly non-market services, in the United Kingdom the tertiary sector (market and non-market services) and in Switzerland all the sectors except manufacturing.

Table 4.2: Percentage Change of employment by sector of economic activity, 2008-2016

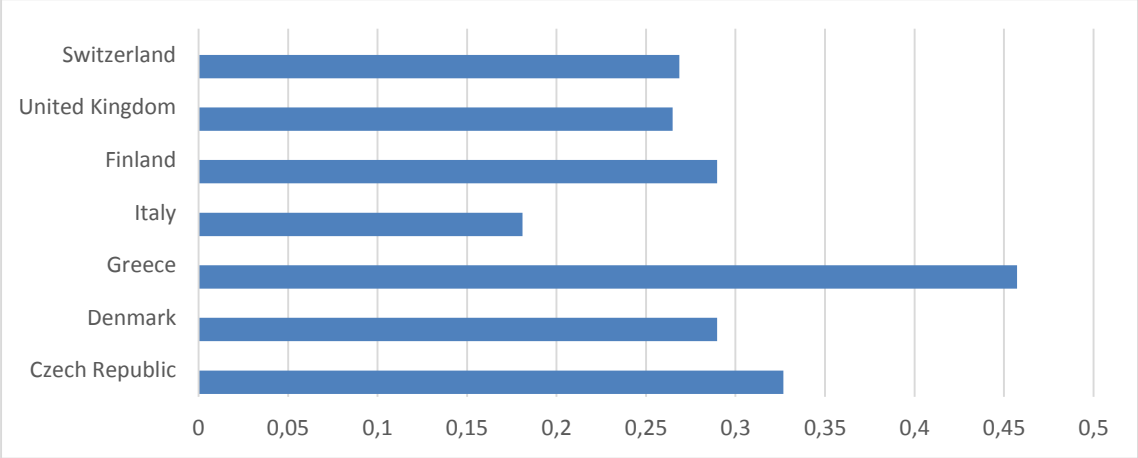
	EU28	Czech Republic	Denmark	Greece	Italy	Finland	United Kingdom	Switzerland
A	-15,0%	-7,8%	-6,0%	-10,7%	3,1%	-21,6%	2,8%	5,2%
B-E	-8,9%	1,0%	-21,4%	-33,9%	-8,1%	-19,7%	-9,8%	-4,5%
F	-20,1%	-20,3%	-22,0%	-63,0%	-28,2%	-6,1%	-14,4%	19,9%
G-N	5,3%	2,6%	3,4%	-12,6%	2,2%	-2,5%	10,3%	17,0%
O-U	6,1%	12,2%	1,8%	-14,4%	4,3%	4,0%	10,2%	17,0%
Total	-0,3%	1,7%	-3,2%	-20,2%	-2,0%	-4,6%	5,3%	13,2%

Source: Eurostat

In Figure 3.37, the Krugman Specialization Index is shown for the examined countries for year 2016. The calculation of the index is based on the NACE Rev.2 2-digit aggregation (Table A.III, Appendix). As shown in Figure 3.37, the country with the highest specialization is Greece, followed by the Czech Republic, and the one with the lowest is Italy. This leads to the conclusion that, from the examined countries, Italy is the country with the most similar employment structure to EU28, and Greece the most diverse one (for similar conclusions see Mongelli, Reinhold, & Papadopoulos, 2016). We can conclude that the labour market features of the countries with higher Krugman Specialization Index (Greece and Czech Republic in

our study) is expected to show greater unevenness than the average of all the other examined countries.

Figure 3.37: Krugman Specialization Index, 2016 (base on NACE Rev. 2, 2-digit analysis)



Source: Eurostat

In Table A.V (Appendix), the sectoral specialization index for the examined countries is shown, based on the NACE Rev.2 2-digit aggregation (Table A.III, Appendix).

From A.V (Appendix), we can see the unevenness of the examined economies regarding their employment structure. Czech Republic and Italy demonstrate specialization in manufacturing sectors and the rest of the countries in a mix of primary, manufacturing and services sectors.

Analytically, the top five sectors of each economy, based on the sectoral specialization index are:

- For the Czech Republic: C29 (Manufacture of motor vehicles, trailers and semi-trailers), C27 (Manufacture of electrical equipment), C23 (Manufacture of other non-metallic mineral products), C25 (Manufacture of fabricated metal products, except machinery and equipment) and C24 (Manufacture of basic metals)
- For Denmark: C21 (Manufacture of basic pharmaceutical products and pharmaceutical preparations), H50 (Water transport), Q (Human health and social work activities), J62_J63 (Computer programming, consultancy and related activities; information service activities), C28 (Manufacture of machinery and equipment n.e.c.).
- For Greece: H50 (Water transport), A03 (Fishing and aquaculture), A01 (Crop and animal production, hunting and related service activities), I (Accommodation and food service activities), J61 (Telecommunications).
- For Italy: C13-C15 (Manufacture of textiles, wearing apparel and leather products), E37-E39 (Sewerage; waste collection, treatment and disposal

activities; materials recovery; remediation activities and other waste management services), C24 (Manufacture of basic metals), C28 (Manufacture of machinery and equipment n.e.c.), C25 (Manufacture of fabricated metal products, except machinery and equipment)

- For Finland: A02 (Forestry and logging), C17 (Manufacture of paper and paper products), M72 (Scientific research and development), C16 (Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials, H50 (Water transport).
- For the United Kingdom: K66 (Activities auxiliary to financial services and insurance activities), J59_J60 (Motion picture, video and television program production, sound recording and music publishing activities; programming and broadcasting activities), M74_M75 (Other professional, scientific and technical activities; veterinary activities), P85 (Education), J62_J63 (Computer programming, consultancy and related activities; information service activities)
- For Switzerland: C26 (Manufacture of computer, electronic and optical products), K65 (Insurance, reinsurance and pension funding, except compulsory social security), M71 (Architectural and engineering activities; technical testing and analysis), C16 (Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials), C21 (Manufacture of basic pharmaceutical products and pharmaceutical preparations).

4.5 Employment Structure by Occupations

For the examination of a country's employment structure, we used the classification of occupations described in A.IV (Appendix). In this section, the employment structure of EU28 and of the examined countries is analyzed by occupation. This approach is supplementary to the sectoral approach of the previous section, since the distribution of occupation in employment is connected with the sectoral distribution. The specialization characteristics regarding the occupations of the examined economies are examined, based on the same indexes used in the previous section, with the suitable modification: The Occupation's Specialization Index and the Krugman Specialization Index.

In this case, the Occupation's Specialization Index (European Commission, 2009) is used to measure how concentrated an occupation of a country is, compared with a reference group, i.e. the EU28 in this study. The index is defined as the ratio of two shares. The numerator is the share of a country's employment of the occupation of interest in its total employment and the denominator is the employment share of EU28's same occupation in the total EU28 employment. In mathematical notation, the Occupation's Specialization Index is described below:

$$S_{OCi,j} = \frac{OC_{i,j} \Big/ \Sigma OC_{i,j}}{OC_{i,EU28} \Big/ \Sigma OC_{i,EU28}}$$

where OC denotes employment, i is the occupation and j the country of interest.

The Occupation's Specialization Index takes a value between 0 and +∞. If the index of the occupation of interest for a country exceeds unity, the examined country is specialized in production with relatively high demand for the specific occupation.

The Krugman Specialization Index for Occupations measures the distance between the employment structure by occupation of the examined country and a reference group.

$$KSI_{OC} = \sum \left| S_{OCi,k} - S_{OCi,EU28} \right|$$

where $S_{OCi,k}$ i is the employment share of occupation i of the country k and $S_{OCi,EU28}$ is the employment share of sector i of EU28. KSI_{oc} measures the absolute distance between an occupation's relative share between a country and the EU28, and then sums all occupations to create an index. If KSI is equal to zero, then the examined country has an employment structure identical to the EU28 (the country is not specialized). A high value of the index indicates a country with strong specialization of occupations. We should note that the index can only be evaluated comparatively, i.e. compared with a group of countries.

Figure 4.11 depicts the structure of employment by occupation for EU28 and the examined countries for 2016. The unevenness of employment by economic sector leads to the unevenness of employment by occupation, since the high share of an economic sector to total employment leads to high shares of employment of the occupations connected with the specific sector.

The share of Managers (OC1) in employment equals 6% for the EU28 countries. The corresponding share is higher than the EU28 average in the United Kingdom (11%) and Switzerland (8.7%), and lower in the rest of the countries, with the lowest shares reported in Denmark (2.8%) and in Greece (2.7%).

The share of Professionals (OC2) in total employment equals 19.2% in average for the EU28 countries. The corresponding shares are higher than the EU28 average in Denmark (25.7%), the United Kingdom (25.2%), Switzerland (24.8%) and Finland (24%), and lower in the rest of the countries, with the lowest share reported in Italy (14.6%) and Czech (15.3%).

The share of Technicians and associate professionals (OC3) in total employment equals 16% in average for EU28. The corresponding shares are higher than the EU28 average in Switzerland (19.1%), Finland (19%), Italy (17.5%), Demark (17.3%) and the Czech Republic (17.2%), and lower in the rest of the countries, with the lowest share reported in Greece (8.1%).

The share of Clerical support workers (OC4) in total employment equals 9.6% in average for the EU28 countries. The corresponding shares are higher than the EU28 average in Italy (12%) and Greece (10.4%), and lower in the rest of the countries, with the lowest share reported in Finland (5.8%).

The share of Service and sales workers (OC5) in total employment equals 17% on average for the EU28 countries. The corresponding shares are higher than the

EU28 average in Greece (23.8%), Denmark (20%), Finland (19.1%), the United Kingdom (18.6%) and Italy (17.5%), and lower in the rest of the countries, with the lower share reported in the Czech Republic (15.2%).

The share of Skilled agricultural, forestry and fishery workers (OC6) in total employment equals 3.6% on average for the EU28 countries. The corresponding shares are higher than the EU28 average in Greece (11.4%), and lower in the rest of the countries, with the lowest share reported in the United Kingdom (1.2%).

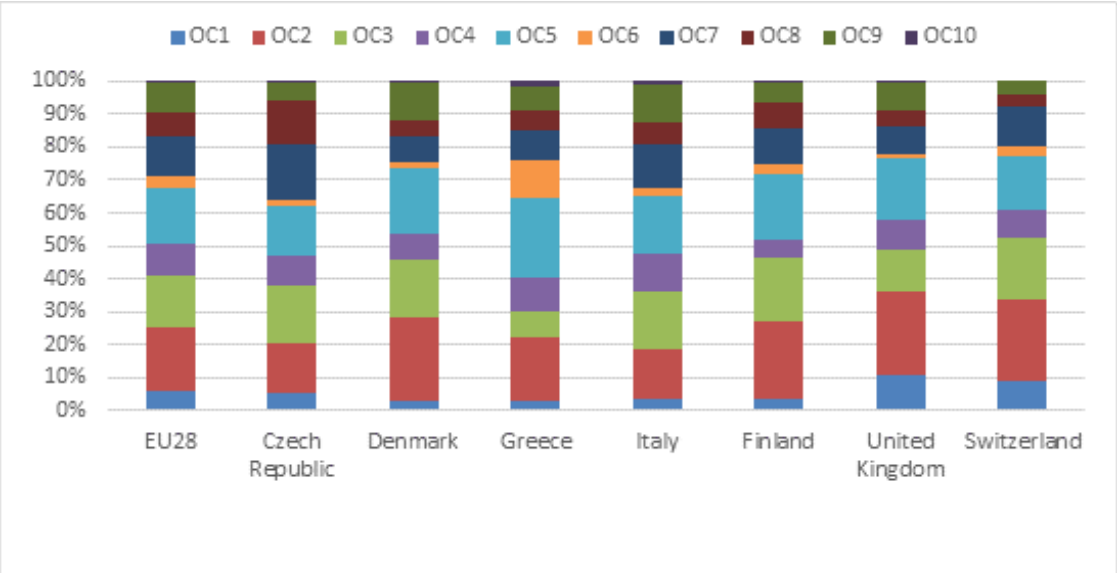
The share of Craft and related trades workers (OC7) in total employment equals 11.6% on average for the EU28 countries. The corresponding shares are higher than the EU28 average in the Czech Republic (16.9%) Italy (13.2%) and Switzerland (11.9%), and lower in the rest of the countries, with the lowest share reported in Denmark (7.4%).

The share of Plant and machine operators and assemblers (OC8) in total employment equals 7.4% on average for the EU28 countries. The corresponding shares are higher than the EU28 average in the Czech Republic (13.7%) and Finland (7%), and lower in the rest of the countries, with the lowest share reported in Switzerland (3.7%).

The share of Elementary occupations (OC9) in total employment equals 9.1% on average for the EU28 countries. The corresponding shares are higher than the EU28 average in Italy (11.5%) and Denmark (7%), and lower in the rest of the countries, with the lowest share reported in Switzerland (4.1%).

The share of Armed forces occupations (OC0) in total employment equals 0.6% on average for the EU28 countries. The corresponding shares are higher than the EU28 average in Greece (1.7%) and Italy (1%), and lower in the rest of the countries, with the lowest share reported in Switzerland (0%).

Figure 4.11: Employment by occupation, 2016



Source: Eurostat

In Table 4.3, the percentage change of employment by occupation between 2008 and 2016, for all examined countries and the EU28 average, is listed.

Table 4.3 shows a significant decline of: Managers (OC1) in all the examined economies with the exception of Switzerland, and of Craft and related trades workers (OC7), and Plant and machine operators and assemblers (OC8), in all the examined countries.

The employment in Professionals (OC2) and Service and sales workers (OC5) has increased in all the examined countries, even in Greece despite the reported high level of unemployment.

In the rest of the occupations the picture is mixed due to the differences in the production structure analyzed in the earlier section.

Table 4.3: Percentage change of employment by occupation, 2008-2016

	EU28	Czech Republic	Denmark	Greece	Italy	Finland	United Kingdom	Switzerland
OC1	-27,32%	-19,33%	-53,44%	-79,28%	-54,52%	-67,91%	-23,56%	43,44%
OC2	40,23%	42,29%	66,52%	3,83%	38,39%	28,16%	89,37%	43,79%
OC3	-1,12%	-22,34%	-23,83%	-24,62%	-18,39%	13,34%	2,24%	-4,93%
OC4	-9,77%	34,85%	-16,97%	-28,54%	2,39%	-15,21%	-21,77%	-17,91%
OC5	24,58%	35,26%	16,98%	30,93%	51,46%	20,19%	16,83%	34,52%
OC6	-17,56%	2,20%	-13,19%	-14,82%	9,56%	-23,25%	20,53%	-18,80%
OC7	-15,87%	-7,11%	-28,58%	-46,33%	-20,40%	-14,90%	-3,31%	-7,98%
OC8	-13,17%	-7,09%	-25,07%	-33,85%	-20,98%	-11,44%	-13,43%	-10,39%
OC9	-5,67%	5,22%	0,50%	-18,03%	18,43%	-25,86%	-12,35%	-19,15%
OC0	-9,99%	-10,56%	-9,32%	12,54%	-2,80%	5,81%	2,44%	-100,00%
Total	-0,3%	1,7%	-3,2%	-20,2%	-2,0%	-4,6%	5,3%	13,2%

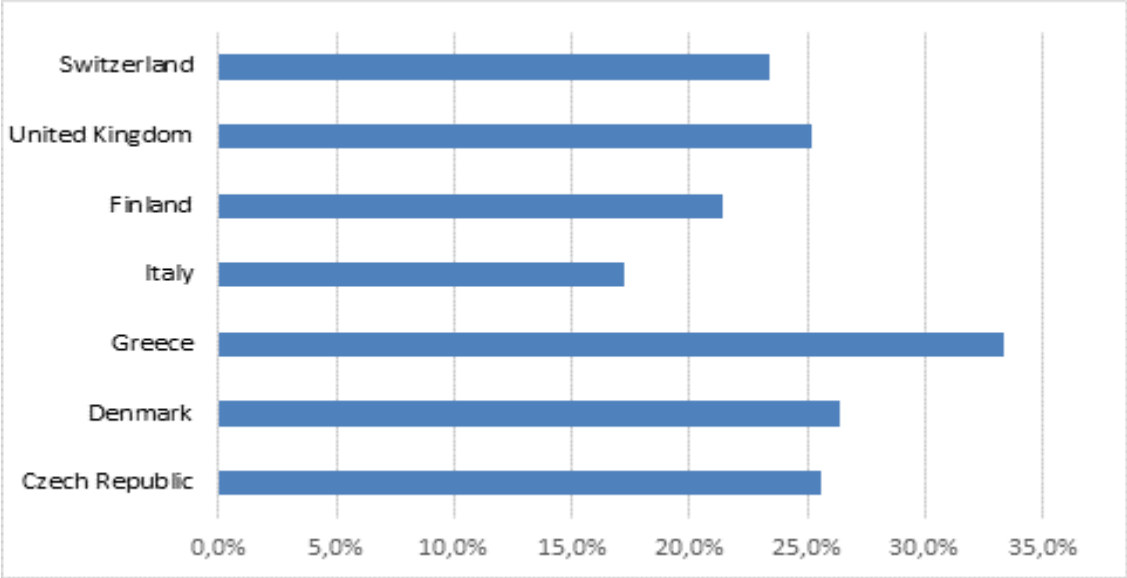
Source: Eurostat

The main conclusion regarding the trends of employment by occupation is the significant decline of employment in the occupations directly connected with manufacturing (OC7 and OC8), and the significant increase of occupations directly connected with the service sector (OC2 and OC5).

In Figure 4.12, the Krugman Specialization Index for Occupations is shown for the examined countries, for 2016. As shown in Figure 4.12, the country with the highest specialization regarding occupations is Greece and the one with the lowest is Italy. This leads to the conclusion that, from the examined countries, Italy is the country with the most similar occupational structure to EU28 and Greece the one with the most diverse one. This finding is similar to the corresponding finding based on the Krugman Specialization Index for sectors, where Greece was again the most specialized country and Italy the least one. But, an important difference between the results should be noted. At first, KSI_{oc} shows less diversity among the countries than KSI and secondly, the relatively high figure of KSI for the Czech Republic is not present in the results of KSI_{oc}.

We can see that the uneven sectoral structure of countries expressed by a high KSI level, is not necessary connected with high level of KSI_{oc}. This finding means that the structure of occupations is less diverse than the structure of sectors, among the examined countries. Or, in other words, it seems that the uneven distribution of occupations among different sectors of economic activity tends to lead to a more “normalized” structure of occupation than of sectors.

Figure 4.12: Krugman Specialization Index for occupations, 2016



Source: Eurostat

In Table 4.4, the occupation’s specialization index for the examined countries is demonstrated. From Figure 4.4 we can see the unevenness of the examined economies regarding their employment structure by occupation. The Czech Republic demonstrates specialization in occupations connected with the manufacturing sectors and the rest of the countries in a mix of occupations.

Table 4.4: Specialization index of Occupations, 2016

	Czech Republic	Denmark	Greece	Italy	Finland	United Kingdom	Switzerland
OC1	0.877	0.459	0.452	0.633	0.555	1.833	1.459
OC2	0.797	1.318	0.994	0.761	1.246	1.313	1.288
OC3	1.080	1.070	0.511	0.995	1.187	0.775	1.193
OC4	0.969	0.812	1.089	1.251	0.609	0.982	0.861
OC5	0.901	1.166	1.406	1.032	1.157	1.095	0.964
OC6	0.382	0.515	3.199	0.680	0.933	0.339	0.857
OC7	1.459	0.632	0.831	1.140	0.929	0.712	0.998
OC8	1.853	0.686	0.810	0.917	1.047	0.690	0.496
OC9	0.606	1.235	0.766	1.233	0.667	0.942	0.453
OC0	0.509	0.684	3.104	1.881	0.675	0.506	0.000

Source: Eurostat

In details, the examined countries are specialized in the following occupations:

- The Czech Republic in OC8 (Plant and machine operators and assemblers), OC7 (Craft and related trades workers) and OC3 (Technicians and associate professionals).
- Denmark in OC2 (Professionals), OC9 (Elementary occupations), OC5 (Service and sales workers) and OC4 (Technicians and associate professionals).
- Greece in OC6 (Skilled agricultural, forestry and fishery workers), OC0 (Armed forces occupations), OC5 (Service and sales workers) and OC4 (Clerical support workers).

- Italy in OC0 (Armed forces occupations), OC9 (Elementary occupations), OC4 (Clerical support workers), C7 (Craft and related trades workers) and OC5 (Service and sales workers).
- Finland in OC2 (Professionals), OC3 (Technicians and associate professionals), OC5 (Service and sales workers) and OC8 (Plant and machine operators and assemblers).
- The United Kingdom in Managers (OC1), Professionals (OC2) and Service and sales workers (OC5).
- Switzerland in OC1 (Managers), OC2 (Professionals) and Technicians and associate professionals (OC3).

4.6 Comparative Econometric Analysis

In this section, we conduct a comparative analysis for the labour dynamics of each SIRIUS economy. More specifically, we investigate the labour determinants of each economy in SIRIUS, taking into consideration the sectoral output, the sectoral R&D investment, the sectoral education attainment level and, of course, the sectoral labour cost index, i.e. the wage index. All the data come from Eurostat. In this context, in order to take into consideration the sectoral characteristics of each economy we employ panel data techniques, and in order to overcome the endogeneity bias, a series of dynamic panel data models are also employed. More specifically, the following equation is estimated:

$$Y_{it} = a_i + \boldsymbol{BX_{it}} + v_{it} + \varepsilon_t,\ \varepsilon_t \sim N(0, \sigma_\varepsilon^2) \text{ and } v_{it} \sim NID(0, \sigma_v^2),\ i = 1, \dots, N,\ t \in T$$

where: *i =1,..,N* represent the SIRIUS economies, , $t \in T$ is the time dimension of the panel, Y_{it} is the sectoral labour of each economy i.e. the number of employees in each sector of the SIRIUS economies, a_i are the panel varying intercepts (note that when necessary these intercepts were also held constant in the fixed effects specification), X_{it} is a vector which incorporates all the potential sectoral characteristics in each labour market i.e. level of education, labour cost index, R&D investments, output, and - in case of dynamic panels - lagged values of labour are also included in the models.

For estimation purposes, following standard econometric literature, both static (fixed and/or random effects) and dynamic (dynamic OLS, Arellano, Arellano-Bover) panel data models are employed. See, among others, Wooldridge (2013).

Our analysis begins with the investigation of the sectoral labour determinants for the economy of the Czech Republic. The estimation results for all the models employed are presented in Table 4.5.

Table 4.5: Panel Regressions, CZ

	Fixed	Random	Dynamic OLS	Arellano	Arellano-Bover
	Labour	**labour**	**labour**	**Labour**	**labour**
Labourmed	1.131***	1.093***	1.077***	1.057***	1.011***
	(84.93)	(157.86)	(183.76)	(80.44)	(84.63)
Labourhigh	0.946***	0.905***	0.817***	0.871***	0.819***
	(52.64)	(60.41)	(55.88)	(49.45)	(80.93)
Output	-0.000304***	-0.000185**	-0.000273***	-0.000217**	-0.0000741
	(-4.34)	(-3.05)	(-4.70)	(-2.69)	(-1.53)
r_d	-0.0157**	-0.00430	0.0293***	0.00161	0.0164***
	(-3.11)	(-0.95)	(7.18)	(0.36)	(5.46)
wages_index	0.0214	0.00789	0.0296	-0.0102	0.00599
	(0.83)	(0.29)	(0.68)	(-0.63)	(0.34)
L.labour				0.0213	0.0482***
				(1.34)	(5.88)
_cons	-9.594*	-2.232	1.291	2.612	1.398
	(-2.54)	(-0.73)	(0.29)	(0.62)	(0.76)
N	161	161	161	124	143
adj. R^2	0.989				

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Based on our findings, the sectoral determinants of labour in Czech Republic are the secondary and tertiary educational attainment level of employees which are found to have a positive and statistically significant effect, in the sense that an increase in the employees that have either secondary or tertiary education level will increase the

total sectoral labour of the economy. In addition, an increase in the sectoral R&D investments will also cause an increase in the sectoral labour, whereas an increase in the sectoral output seems to have a negative and statistically significant effect on labour, since the sectoral labour decreases for a unit increase in output. More precisely, an increase in the R&D investments of the Czech Republic will lead to the creation of new jobs which, in turn, will lead to a rise in the overall employment rate of the economy. It is worth noticing that based on our analysis, the overall employment rate of the economy is negatively dependent on the economy's output. This could be attributed to the fact that the economy of the Czech Republic probably aims at the quality improvement of its sectoral output, and not its mere maximization through employment increase. Finally, sectoral labour is not statistically significantly affected by the overall labour cost index of each sector.

Next, we turn to the economy of Denmark, Table 4.6 summarises the estimation results of the various models employed.

Table 4.6: Panel Regressions, DK

	Fixed	**Random**	**(Dynamic OLS)**	**Arellano**	**Arellano-Bover**
	Labour	**labour**	**labour**	**labour**	**labour**
Labourmed	1.895***	1.709***	1.884***	1.107***	0.830***
	(16.58)	(31.94)	(29.05)	(10.16)	(11.32)
Labourhigh	0.981***	0.878***	0.727***	0.523***	0.441***
	(14.24)	(19.02)	(17.16)	(7.59)	(13.80)
Output	-0.00189***	-0.000521**	-0.00143***	-0.000152	-0.000136
	(-6.72)	(-2.86)	(-6.31)	(-0.41)	(-1.02)
r_d	-0.00804	0.0000668	0.0238***	-0.0126**	0.000239
	(-1.93)	(0.02)	(5.23)	(-2.72)	(0.09)
wages_index	-0.251	-0.235	-0.453*	-0.0712	0.0338
	(-1.93)	(-1.56)	(-2.06)	(-0.84)	(0.43)
L.labour				0.497***	0.472***
				(6.88)	(14.80)

_cons	54.37**	30.55*	61.96**	-9.235	1.997
	(3.31)	(1.96)	(2.90)	(-0.50)	(0.25)
N	120	120	120	86	105
adj. R^2	0.741				

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Based on our findings, the sectoral labour of the Danish economy is positively and statistically significantly affected by the secondary and tertiary educational attainment level of the employees. In other words, the Danish economy seeks for workers that exhibit a high educational attainment level. The rest of the determinants do not seem to play any statistically significant role in the evolution of the sectoral labour in the economy of Denmark. This, in turn, implies that the sectoral employment in the Danish economy does not critically depend on the level of wages and on the sectoral output.

We continue our analysis by turning to the estimation results of the Finish economy, see Table 4.7.

Table 4.7: Panel Regression, FI

	Fixed	**Random**	**Dynamic OLS**	**Arellano**	**Arellano-Bover**
	Labour	**Labour**	**Labour**	**Labour**	**Labour**
Labourmed	1.133***	1.334***	1.470***	1.065***	0.998***
	(10.62)	(76.37)	(48.70)	(12.63)	(21.00)
Labourhigh	0.697***	0.849***	0.760***	0.550***	0.609***
	(12.51)	(47.79)	(27.92)	(11.07)	(21.80)
Output	-0.000157	-0.000209***	-0.000689***	-0.0000662	-0.000326***
	(-1.16)	(-3.89)	(-12.75)	(-0.50)	(-7.46)
r_d	0.0173***	0.00819***	0.0164***	0.0124***	0.00834***
	(6.64)	(6.73)	(14.20)	(4.78)	(8.04)
wages_index	-0.0512	-0.0630	-0.138*	-0.0717*	-0.0857***
	(-1.22)	(-1.39)	(-2.21)	(-2.56)	(-3.35)
L.labour				0.277***	0.276***
				(3.91)	(9.67)

_cons	26.76***	12.47**	23.54***	4.600	13.60***
	(3.69)	(2.73)	(3.89)	(0.48)	(5.37)
N	162	162	162	126	144
adj. R^2	0.828				

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Based on our findings, the sectoral labour of the Finish economy is statistically significantly affected by the past labour dynamics, the sectoral R&D investments and the secondary and tertiary educational attainment level of employees. In this context, an increase in the R&D sectoral investments will generate the needed vacancies that are capable of increasing the overall level of sectoral employment. In addition, as is the case for most economies, the educational attainment level increases the overall sectoral labour. On the other hand, the sectoral output, as well as the sectoral labour cost, seems to have a negative and statistically significant negative effect on the evolution of labour. In other words, the cost index, does not play a critical role for the sectoral labour in Finland, which in turn implies that the sectoral economy of Finland is capable of absorbing both low-waged and high-waged workers

Now, we turn to the estimation results regarding the Greek economy. See Table 4.8.

Table 4.8: Panel Regression, EL

	Fixed	**Random**	**Dynamic OLS**	**Arellano**	**Arellano - Bover**
	Labour	**Labour**	**Labour**	**Labour**	**labour**
labourmed	1.806***	1.591***	1.349***	1.361***	1.091***
	(17.66)	(21.71)	(18.92)	(22.73)	(22.31)
labourhigh	0.776***	0.764***	0.303***	0.741***	0.281***
	(4.87)	(9.31)	(3.62)	(7.98)	(6.11)
output	0.00238***	0.00237***	0.00376***	0.00173***	0.00116***
	(5.27)	(6.56)	(9.59)	(5.98)	(4.38)
wages_index	0.0217	0.0399	0.386***	-0.00240	0.0857*
	(0.34)	(0.58)	(3.75)	(-0.09)	(2.56)
L.labour				0.223***	0.293***
				(8.59)	(11.30)

_cons	-48.63*** (-3.92)	-32.77** (-2.98)	-41.59** (-3.05)	-40.87*** (-6.11)	-2.327 (-0.47)
N	161	161	161	125	143
adj. R^2	0.914				

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

According to our findings, the Greek sectoral labour is statistically significantly and positively affected by all the determinants in the sense that a unit increase in either the educational attainment level of employees, sectoral output, labour cost or in the past dynamics of sectoral labour will lead to an increase in the Greek sectoral labour. In this context, based on our analysis, sectoral labour in Greece is capable of absorbing highly educated workers, despite the fact that the unemployment rate is very high. Additionally, the positive sign of the labour index implies that a potential increase in the Greek sectoral wages will lead to an increase of the sectoral employment in Greece.

Next, we turn to the estimation results for the Italian economy. See Table 4.9.

Table 4.9: Panel Regressions, IT

	Fixed	**Random**	**Dynamic OLS**	**Arellano**	**Arellano-Bover**
	Labour	**Labour**	**Labour**	**Labour**	**Labour**
labourmed	1.271*** (7.26)	1.541*** (17.72)	1.683*** (25.10)	1.017*** (7.50)	0.662*** (10.86)
labourhigh	0.570** (3.08)	0.619*** (5.28)	0.231** (2.69)	0.815*** (5.66)	0.306*** (5.93)
output	0.00146*** (4.80)	0.00131*** (6.03)	0.00144*** (6.28)	0.00105*** (4.16)	0.000435*** (3.37)
r_d	-0.0344* (-1.98)	-0.0259* (-2.05)	-0.0368*** (-3.67)	-0.00704 (-0.58)	-0.0154** (-2.66)
wages_index	-0.196 (-0.18)	-0.130 (-0.12)	-1.594 (-1.04)	-0.104 (-0.18)	-0.400 (-0.81)
L.labour				0.932*** (13.35)	0.603*** (21.74)

_cons	125.8 (0.76)	-26.98 (-0.23)	120.2 (0.80)	-843.5*** (-5.25)	-4.585 (-0.09)
N	144	144	144	108	126
adj. R^2	0.402				

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Based on our findings, the sectoral labour of Italy seems to be positively and statistically significantly affected by unit increases in either the sectoral educational attainment level or the sectoral output. On the other hand, a unit increase in the sectoral R&D investments seems to have an adverse effect on the sectoral labour of Italy, since it will lead to decreases in employment.

We continue by presenting the estimation results of all models employed regarding the economy of the UK. See Table 4.10.

Table 4.10: Panel Regression, UK

	Fixed	**Random**	**Dynamic OLS**	**Arellano**	**Arellano Bover**
	Labour	**labour**	**labour**	**labour**	**labour**
labourmed	1.394*** (28.81)	1.444*** (80.09)	1.456*** (68.64)	1.452*** (18.00)	1.394*** (26.64)
labourhigh	0.730*** (24.86)	0.729*** (32.93)	0.699*** (34.27)	0.567*** (10.50)	0.680*** (25.75)
Output	-0.0000324 (-0.99)	-0.0000501* (-2.30)	-0.000110*** (-4.61)	0.0000356 (0.59)	-0.000101*** (-4.39)
r_d	0.000156 (0.20)	0.00119** (2.70)	0.00204*** (4.75)	-0.00106 (-0.79)	0.00171*** (4.00)
wages_index	-0.0626 (-0.81)	-0.0352 (-0.47)	-0.246 (-1.73)	-0.0416 (-0.47)	-0.111 (-1.31)
L.labour				0.120 (1.00)	0.0359 (1.15)

_cons	15.82 (1.53)	6.475 (0.84)	30.43* (2.06)	-7.675 (-0.31)	17.98* (1.99)
N	154	154	154	117	135
adj. R^2	0.949				

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Based on our findings, the sectoral labour of the UK is positively affected by unit increases in the sectoral educational level of employees as well as by increases in the sectoral R&D investments. On the other hand, increases in the sectoral output of UK seem to have a negative and statistically significant effect on the sectoral labour dynamics. In other words, the sectoral economy of the UK is capable of absorbing highly educated workers, whereas increase in the sectoral R&D investments seems to generate new job vacancies that would increase the overall sectoral employment. Nonetheless, the sectoral labour in the UK seems to be directed towards increasing the quality of the produced goods and not their quantity.

Lastly, we present the estimation results regarding the sectoral labour dynamics for the economy of Switzerland. See Table 4.11. According to our findings, the sectoral labour in Switzerland is positively and statistically significantly affected by the unit increases in the sectoral educational attainment level of employees.

Table 4.11: Panel Regression, CH

	Fixed	**Random**	**Dynamic OLS**	**Arellano**	**Arellano-Bover**
	Labour	**Labour**	**labour**	**labour**	**labour**
Labourmed	1.642*** (49.99)	0.944*** (46.38)	1.532*** (86.82)	1.146*** (9.53)	0.961*** (10.73)
Labourhigh	0.702*** (31.44)	0.949*** (104.60)	0.856*** (104.66)	0.624*** (12.65)	0.622*** (16.29)
Output	-0.000130 (-1.97)	-0.0000800*** (-3.98)	-0.000375*** (-10.06)	-0.0000856 (-0.77)	-0.000106 (-1.62)
Labourlow					
L.labour				0.263*** (4.06)	0.320*** (6.60)

_cons	0.797 (0.03)	4.526 (0.76)	26.54** (2.98)	-22.80 (-0.31)	18.17 (1.40)
N	160	160	160	120	140
adj. R^2	0.963				

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

In order to unveil the overall dynamics of sectoral labour in all the SIRIUS economies, we estimated relevant panel data models for all the economies and all the sectors, simultaneously. The estimation results are presented in **Table 4.1**.

Table 4. 12: Panel Regression, All economies

	Fixed	**Random**	**Dynamic OLS**	**Arellano**	**Arellano-Bover**
	Labour	**Labour**	**labour**	**labour**	**labour**
labourmed	1.253*** (15.41)	1.310*** (19.04)	0.220* (2.25)	1.057*** (20.49)	0.00151 (0.07)
labourhigh	0.560*** (7.01)	0.586*** (7.79)	5.657*** (21.12)	0.683*** (14.35)	0.754*** (13.66)
Output	0.00101*** (7.28)	0.00104*** (7.69)	0.00350*** (11.48)	0.000525*** (5.33)	-0.0000550 (-0.82)
r_d	-0.0151*** (-3.40)	-0.0148*** (-3.40)	-0.279*** (-16.15)	-0.0102*** (-3.40)	-0.0130*** (-3.80)
wages_index	-0.167 (-0.74)	-0.149 (-0.67)	-0.530 (-0.18)	-0.104 (-1.09)	-0.188 (-1.22)
L.labour				0.657*** (20.28)	0.928*** (125.23)
_cons	83.42** (2.74)	79.08 (1.67)	-84.19 (-0.29)	-145.0*** (-6.55)	-10.70 (-0.69)
N	741	741	741	561	653
adj. R^2	0.310				

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Based on our findings, sectoral labour in the SIRIUS economies is positively and statistically significantly affected by the educational attainment level of sectoral employment. A fact that coincides with the findings of the country-by-country models, in the sense that, all economies in SIRIUS are capable to absorb highly educated workers. On the other hand, sectoral R&D investments have a negative and statistical significant effect on sectoral labour. In other words, when all economies and sectors are taken into consideration, an increase in the R&D sectoral investments will decrease the overall sectoral employment, a fact which suggests that many manual activities in these economies will be replaced by automated processes, implying therefore a decrease in the overall sectoral employment.

4.7 Discussion

So far, we presented the main characteristics of the labour markets in the following countries: Czech Republic, Denmark, Greece, Italy, Finland, United Kingdom and Switzerland (compared with the EU28), focusing on the structural characteristic of employment with reference to skills (expressed by the educational attainment level), sectors of economic activities and occupations.

The section's point of departure is that the labour market features evolve very differently across the examined countries.

The population growth, for the period 2000-2017, varies from a marginal negative change in Greece to a relatively high positive change (12%) in Switzerland, while labour force records a relatively slow growth rate in the Czech Republic (3.47%) and a fast one in Switzerland (24.87%). Also, it should be noted that, with the exception of Denmark, the growth of labour force is faster than the growth of population, something to consider as it could imply the availability of job opportunities for foreign nationals.

The active population as a percentage of the population aged 15 or above records high figures in Switzerland and relatively low in Italy and Greece, a fact that is not affected by the gender. In general, the activity rate is higher in men compared to women, but the gap is relatively small in Denmark, Finland and Switzerland, and large in Italy and Greece.

The activity rate as a percentage of the population aged 15 or above is highly affected by the educational attainment level. Primary attainment level is connected with low participation rate, with the exception of the United Kingdom were the figure is relatively high. The participation rate of individuals with secondary attainment level is higher than of those with primary one, and lower than those with tertiary.

The investigation of the activity rate by gender shows that men have higher labour force participation rates than women at every level of educational attainment. But, we can also conclude that the gap between men's and women's labor force participation rates becomes smaller as the educational attainment level increases, for all the examined countries.

Although the average unemployment rate of the EU28 countries has returned to its 2000's levels after an important increase in all the examined countries, the

difference between the economies are quite substantial. The Czech Republic, the United Kingdom and Switzerland record in 2016 very low unemployment rates, the unemployment rate in Greece stays persistently above 20% (the highest in EU28) and in Italy above 10%.

The evolution of employment by educational attainment level shows some similarities among the countries: the employment with primary educational attainment level declines over time, the secondary educational attainment level declines also but at a slower rate, and the tertiary educational attainment level shows a high growth rate.

Furthermore, the employment structure by educational attainment level has a different profile among the examined countries. Italy and Greece, report high shares of primary educational attainment level and the Czech Republic and Finland low ones. The Czech Republic shows very high shares of secondary educational attainment level, but also very low shares of tertiary level, like Italy. Finland, the United Kingdom and Switzerland are the countries with significantly high shares of tertiary educational attainment level in the total employment.

The approach of employment by sector of economic activity and by occupation shows even more the differentiation among the countries. The Krugman Specialization Index shows that the country which deviates most from the examined group is Greece, while Italy is the country with the most similar employment structure to the average of EU28 countries. Although the specialization index is higher with respect to sectors than occupations, the corresponding results strength the findings of implied heterogeneity among the examined counties.

The Czech Republic demonstrates a high share of employment of manufacturing sectors with specialization in sectors: C29 (Manufacture of motor vehicles, trailers and semi-trailers), C27 (Manufacture of electrical equipment), C23 (Manufacture of other non-metallic mineral products), C25 (Manufacture of fabricated metal products, except machinery and equipment) and C24 (Manufacture of basic metals) and the occupations OC8 (Plant and machine operators and assemblers), OC7 (Craft and related trades workers) and OC3 (Technicians and associate professionals).

Denmark demonstrates a relatively low share of employment in manufacturing and primary sectors and a high share in market services, with specialization in sectors: C21 (Manufacture of basic pharmaceutical products and pharmaceutical preparations), H50 (Water transport), Q (Human health and social work activities), J62_J63 (Computer programming, consultancy and related activities; information service activities), C28 (Manufacture of machinery and equipment n.e.c.) and the occupations: OC2 (Professionals), OC9 (Elementary occupations), OC5 (Service and sales workers) and OC4 (Technicians and associate professionals).

Greece demonstrates the lowest share of employment in the manufacturing sectors and the highest in primary sectors among the examined countries, with specialization in sectors: H50 (Water transport), A03 (Fishing and aquaculture), A01 (Crop and animal production, hunting and related service activities), I (Accommodation and food service activities), J61 (Telecommunications) and the

occupations OC6 (Skilled agricultural, forestry and fishery workers), OC0 (Armed forces occupations), OC5 (Service and sales workers) and OC4 (Clerical support workers).

Italy demonstrates a relatively high share of manufacturing and market services, with specialization in sectors: C13-C15 (Manufacture of textiles, wearing apparel and leather products), E37-E39 (Sewerage; waste collection, treatment and disposal activities; materials recovery; remediation activities and other waste management services), C24 (Manufacture of basic metals), C28 (Manufacture of machinery and equipment n.e.c.), C25 (Manufacture of fabricated metal products, except machinery and equipment) and the occupations OC0 (Armed forces occupations), OC9 (Elementary occupations), OC4 (Clerical support workers), C7 (Craft and related trades workers) and OC5 (Service and sales workers).

Finland demonstrates an employment structure close to EU28, with specialization in sectors: A02 (Forestry and logging), C17 (Manufacture of paper and paper products), M72 (Scientific research and development), C16 (Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials, H50 (Water transport) and the occupations OC2 (Professionals), OC3 (Technicians and associate professionals), OC5 (Service and sales workers) and OC8 (Plant and machine operators and assemblers).

The United Kingdom demonstrates a higher share of services sectors (market and non-market) with comparison to the EU28 average, with specialization in sectors: K66 (Activities auxiliary to financial services and insurance activities), J59_J60 (Motion picture, video and television program production, sound recording and music publishing activities; programming and broadcasting activities), M74_M75 (Other professional, scientific and technical activities; veterinary activities), P85 (Education), J62_J63 (Computer programming, consultancy and related activities; information service activities) and the occupations Managers (OC1), Professionals (OC2) and Service and sales workers (OC5).

Switzerland demonstrates a higher share of services sectors, with specialization in sectors: C26 (Manufacture of computer, electronic and optical products), K65 (Insurance, reinsurance and pension funding, except compulsory social security), M71 (Architectural and engineering activities; technical testing and analysis), C16 (Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials), C21 (Manufacture of basic pharmaceutical products and pharmaceutical preparations) and the occupations: OC1 (Managers), OC2 (Professionals) and Technicians and associate professionals (OC3).

The differentiation of the employment structure at the sectoral level among the examined economies stresses the necessity of an in-depth analysis of their individual characteristics, applying suitable methodologies. In the following report (to be delivered in month 14) of the SIRIUS project, we will employ input-output analysis and the GVAR model to identify the dynamic sectors and occupations of each country.

A key result of our analyses is that in all economies' sectoral labour depends statistically significantly and positively by the educational attainment level of employees, and more specifically, unit increases in the number of employees with secondary or tertiary education tend to increase sectoral labour in all the economies. This finding is consistent with economic theory and the related literature (see among others, Ridell and Song, 2011; Obiols-Homs and Sanchez-Marcos; 2018; Boroeczyk-Martins et al., 2018) since higher education yields increased labour productivity on the long-run and therefore increased employment opportunities since employers have the incentive to hire more educated personnel.

Moreover, another finding of our analysis is the mixed effect of sectoral output on the sectoral labour of the various economies. More specifically, according to our findings, sectoral output has a positive effect only in the economies of Greece and Italy. Such a positive effect of output on labour implies that these economies are driven by labour supply, which is notably the case of Italy and Greece. It is worth noticing that, based on standard economic theory, a labour demand driven economy is characterised by increased wages and low level of unemployment. In contrast, a labour supply driven economy is characterized by high level of unemployment and relatively low wages.

Another interesting finding of our analysis is the fact that R&D investments have a positive effect on sectoral labour in the economies of Czech Republic, Finland and UK, in the sense that R&D activities create employment opportunities in the labour market of these countries (Dawid et al., 2017). But sectoral labour in Italy decreases as R&D increases, a fact that could be attributed to the replacement of labour by innovative schemes such as patents, new production plans, machinery etc. (Mandelman and Zanetti, 2014).

It is worth noticing that the sectoral labour cost does not play any significant role in the sectoral labour dynamics for the majority of the SIRIUS economies, with the exception of Greece and Finland. This in turn implies that for most economies employment does not critically depend on labour cost but on other factors like labour quality and labour productivity. The positive effect of labour cost on labour in Greece validates the fact that Greece is an economy with excess supply in labour, whereas the negative effect of labour cost on the Finish labour implies that the Finish economy is characterized by excess labour demand (Ioannides and Pissarides, 2015).

Our analysis is mitigated by the limitation that the sectoral wages index and R&D investments are unavailable for the economy of Switzerland. However, the fact that we employed both dynamic panel data models, such as Arellano (2003) as well as standard fixed and random effects models and the estimates did not change significantly implies that our approach is robust and free of misspecification errors (Baltagi 2008).

Part 3: Conclusions

This report, in line with the Grant Agreement of the SIRIUS project, involves a comparative statistical analysis of the SIRIUS database to determine the position of post-2104 migrants, refugees and asylum seekers (MRAs) in the labour market of their host country as well as features of the labour market with a focus on skills and occupation shortages. In this context, attention is paid also to gender and age effects. In addition, a comparative analysis of sectoral employment and skills is also undertaken, to provide insights into the reasons behind rates of unemployment and inactivity.

Based on the Migration Observatory report (2015) the present work acknowledged the significance of: (a) the educational attainment and skills of MRAs; (b) the educational attainment and skills of existing workers; and, (c) the idiosyncratic characteristics of the host economy. In this vein, the particular goals of this report were the investigation of: (a) the MRA flows of Sirius countriest; (b) the economic drivers of Sirius economies in terms of their economic structure in general and the labour market characteristics in the specific; and (c) the labour market determinants, both individually and comparatively, in order to study labour demand/ labour supply characteristics.

To provide a thorough and comprehensive analysis of all the goals, a number of relevant quantitative and econometric techniques have been employed. In particular, based on descriptive statistics, we assessed the position of post-2014 MRA flows in the labour market, at the same time acknowledging the flows of irregularly present MRAs in each economy. In addition, we descriptively analysed the characteristics of the MRA stock for the period 2008-2016 on the basis of origin, gender, age group, educational attainment level, activity rate and unemployment rate. Next, we made use of index analysis in order to investigate both distribution and specialisation (Krugman's Index and Sectoral Index, respectively) for each labour market in the SIRIUS economies, both individually and comparatively. Finally, we employed Panel Data and Probabilistic Panel Data models in order to investigate econometrically how the flows of MRAs affect their employment opportunities in the labour market, while we also employed Panel Data and Dynamic Panel Data analysis in order to investigate the determinants of the labour market dynamics for each economy, both individually and comparatively.

The analyses of labour markets and economic infrastructure in the selected eight countries in the SIRIUS project highlight the relevance of three main factors that should be considered when developing strategies for the labour market integration of migrants, refugees, and asylum seekers. Firstly, there is the unevenness of types of economies and labour markets among European countries, secondly they host MRAs with different educational attainments and capacities, and, thirdly the asymmetric effect of the 2008 global financial crisis and its consequences for each of the eight countries that are the focus of our research.

Concerning the first aspect, SIRIUS countries reflect the diversity of economic traditions and labour market structures typical of Europe: while all European countries converge towards the tertiarisation of their economies, they do so at different paces. In other words, some countries are clearly more in tune with the 'knowledge and innovation based' economy-society preconized by the EU post-Lisbon strategy and its revisions inspiring the Industry 4.0 society, while others remain in a transitionary phase in which they display elements of tertiarisation, whilst retaining strong connotations of earlier economic models.

In fact, the analyses we have undertaken in the SIRIUS project reveals that the total employment in the tertiary sector (G-U) equates to 71.7% in the EU28. The corresponding figure in the Czech Republic (58.6%) is significantly lower than the

EU28, closer to the EU28 average in Italy, Greece and Finland (69.6%, 72.8% and 74.2%, respectively) and higher than the EU28 average in Switzerland, Denmark and the United Kingdom (74.2%, 76.1% and 80.5%, respectively). Moreover, our analysis shows that R&D investments have a positive effect on sectoral labour in the economies of Czech Republic, Finland and UK, in the sense that R&D activities create employment opportunities in the labour market (Dawid et al., 2017). But sectoral labour in Italy decreases as R&D increases, a fact that could be attributed to the replacement of labour by innovative schemes such as patents, new production plans and machinery, etc.

Such a different 'degree' of tertiarisation and potential for innovation mean that our countries demand, and perhaps attract, foreign workers with different educational attainments and skills, our second main finding. In fact, when we consider the level of education of migrants, refugees and asylum seekers across the SIRIUS countries we see that those with higher levels of education tend to be concentrated in the most tertiarized economies. For example, while in the UK eight out of ten migrants have reached a post-secondary education or tertiary education level, in Italy the figure is only five in ten. Given the role that education has proved to play for our countries' economic and employment growth (we have shown here that education is the stronger predictor of economic development) such a higher educated MRA workforce potential contributes for our European most-advanced economies to remain such. While countries that lag behind should consider how to develop a more education-based economy, how to enhance the level of education for their nationals, and how to attract further educated MRAs.

Our results show also that the educational attainment is the strongest predictor of employment for migrants, refugees, and asylum seekers across all economies. Therefore, even in poorly tertiarised countries the more a migrant, refugee or asylum seeker is educated, the prospects of him or her being employed increase. This, therefore, suggests that a higher level of education provides MRAs with competences and skills that allow them to integrate into any type of economic context: having been educated at an advanced level facilitates their learning of a new language, eases their capacity to read and interpret the social and economic environment, as well as to use IT instruments to gain information about jobs, but also to join useful networks, etc.

The diversification of European economies in terms of their degree of post-modernization or tertiarisation is reflected also by the gender gap that characterizes most of the SIRIUS countries. Apart from a few exceptions (namely Denmark and Finland) the labour markets of the SIRIUS countries remain dominated by the male breadwinner model: this means that MRA women face a far more challenging environment than men when searching for an occupation (gender inequality in terms of access to the labour market is stronger in Greece, Italy and the Czech Republic, therefore in these countries integration policies should be further targeted to MRA women). Another important fact here is that as regards the labour characteristics of foreign nationals, females aged 20-29 and with educational attainment levels 0-2 clearly lag behind, both in terms of activity and employment rates, males aged 35-39 and with educational attainment levels 5-8.

However, such a gender gap is mitigated by higher levels of education, hence, MRA women should be supported by policies that on one hand facilitate educational attainment recognition, and on the other hand, promote more opportunities in higher education for women in the national education systems of the SIRIUS countries.

Concerning the third main factor that was captured by our analyses, that is the effect of the economic and financial crisis on European economies and societies, we provide evidence corroborating earlier findings about the uneven impact of the crisis

across Europe. Our analyses confirm that the crisis has left a damaging legacy in some of the countries, namely in Greece and Italy that still struggle against double-digit unemployment rates, while other countries have almost been left untouched, namely Switzerland and the Czech Republic, or, even if hit by the crisis, other countries, such as Finland and the UK, have managed to reduce their unemployment rates to pre-crisis levels.

Hence, when considering employment opportunities for MRAs, such a heterogeneous context must be kept in consideration. Moreover, we should also recognise that those economies that have managed to overcome the crisis or to remain sheltered against it are those that emerge from our analysis as the more tertiarised and knowledge-based among our pool of countries (although each of them having been specialising on particular sectors of the economy as we illustrate in the report).

Furthermore, our analyses provides evidence that MRAs already represent an important share of the European labour market and economic production: among the countries analysed, Switzerland stands out for the level of openness of its economy to migrants and refugees given that they represent one in four of its workforce, followed by Italy, the United Kingdom and Greece where around one in every ten of their workforce are an MRA. An interesting point to note is that across all of the SIRIUS countries, the share of foreign national employees in the country's labour markets equals or exceeds the countries' overall share of foreign national in each country. This finding suggests that MRAs are very active components of their host country's economies rather than being passive recipients of benefits or support.

Public discourses often link labour migration with a lowering in production and labour costs. Our analysis unveils that the sectoral labour cost does not play any significant role in the sectoral labour dynamics for the majority of the SIRIUS economies, with the exception of Greece and Finland. This in turn implies that for most economies employment does not critically depend on labour cost but on other factors like labour quality and labour productivity. The positive effect of labour cost on labour in Greece validates the fact that Greece is an economy with excess supply in labour, whereas the negative effect of labour cost on the Finish labour implies that the Finish economy is characterized by excess labour demand.

Of course, due to the high diversity of the labour markets and the economic structure of the SIRIUS countries, different sectors and occupation are expected to effectively absorb the MRAs. In this context, our next report on the labour market integration of MRAs (due at month 14) will present a more fine-grained sectorial-occupational analysis with models analysing the employability of MRAs (also differentiating between migrants and refugees) across the SIRIUS countries and sectors, including an analysis of the issue of the quality of work versus the cost of work as being a relevant factor.

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Appendix

Table A.I: ISCED Aggregation of Educational Attainment Level

Level	ISCED 2011	Description
0	Early childhood Education (01 Early childhood educational development)	Education designed to support early development in preparation for participation in school and society. Programmes designed for children below the age of 3.
0	Early childhood Education (02 Pre-primary education)	Education designed to support early development in preparation for participation in school and society. Programmes designed for children from age 3 to the start of primary education.
1	Primary education	Programmes typically designed to provide students with fundamental skills in reading, writing and mathematics and to establish a solid foundation for learning.
2	Lower secondary education	First stage of secondary education building on primary education, typically with a more subject-oriented curriculum
3	Upper secondary education	Second/final stage of secondary education preparing for tertiary education and/or providing skills relevant to employment. Usually with an increased range of subject options and streams.
4	Post-secondary non-tertiary education	Programmes providing learning experiences that build on secondary education and prepare for labour market entry and/or tertiary education. The content is broader than secondary but not as complex as tertiary education.
5	Short-cycle tertiary education	Short first tertiary programmes that are typically practically-based, occupationally-specific and prepare for labour market entry. These programmes may also provide a pathway to other tertiary programmes.
6	Bachelor or equivalent	Programmes designed to provide intermediate academic and/or professional knowledge, skills and competencies leading to a first tertiary degree or equivalent qualification.

7	Master or equivalent	Programmes designed to provide advanced academic and/or professional knowledge, skills and competencies leading to a second tertiary degree or equivalent
8	Doctoral or equivalent	Programmes designed primarily to lead to an advanced research qualification, usually concluding with the submission and defense of a substantive dissertation of publishable quality based on original research.

Source: UNESCO

Table A.II: Classification of sectors of economic activity, NACE Rev. 2, 1-dig

A	Agriculture, forestry and fishing
B	Mining and quarrying
C	Manufacturing
D	Electricity, gas, steam and air conditioning supply
E	Water supply; sewerage, waste management and remediation activities
F	Construction
G	Wholesale and retail trade; repair of motor vehicles and motorcycles
H	Transportation and storage
I	Accommodation and food service activities
J	Information and communication
K	Financial and insurance activities
L	Real estate activities
M	Professional, scientific and technical activities
N	Administrative and support service activities
O	Public administration and defence; compulsory social security
P	Education
Q	Human health and social work activities
R	Arts, entertainment and recreation
S	Other service activities
T	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
U	Activities of extraterritorial organisations and bodies

Source: Eurostat

Table A.III: Classification of sectors of economic activity, NACE Rev. 2, 2-dig

	Description
A01	Crop and animal production, hunting and related service activities
A02	Forestry and logging
A03	Fishing and aquaculture
B	Mining and quarrying
C10-C12	Manufacture of food products, beverages and tobacco products
C13-C15	Manufacture of textiles, wearing apparel and leather products
C16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
C17	Manufacture of paper and paper products
C18	Printing and reproduction of recorded media
C19	Manufacture of coke and refined petroleum products
C20	Manufacture of chemicals and chemical products
C21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
C22	Manufacture of rubber and plastic products
C23	Manufacture of other non-metallic mineral products
C24	Manufacture of basic metals
C25	Manufacture of fabricated metal products, except machinery and equipment
C26	Manufacture of computer, electronic and optical products
C27	Manufacture of electrical equipment
C28	Manufacture of machinery and equipment n.e.c.
C29	Manufacture of motor vehicles, trailers and semi-trailers
C30	Manufacture of other transport equipment
C31_C32	Manufacture of furniture; other manufacturing
C33	Repair and installation of machinery and equipment
D35	Electricity, gas, steam and air conditioning supply
E36	Water collection, treatment and supply
E37-E39	Sewerage; waste collection, treatment and disposal activities; materials recovery; remediation activities and other waste management services
F	Construction
G45	Wholesale and retail trade and repair of motor vehicles and motorcycles
G46	Wholesale trade, except of motor vehicles and motorcycles

G47	Retail trade, except of motor vehicles and motorcycles
H49	Land transport and transport via pipelines
H50	Water transport
H51	Air transport
H52	Warehousing and support activities for transportation
H53	Postal and courier activities
I	Accommodation and food service activities
J58	Publishing activities
J59_ J60	Motion picture, video and television program production, sound recording and music publishing activities; programming and broadcasting activities
J61	Telecommunications
J62_ J63	Computer programming, consultancy and related activities; information service activities
K64	Financial service activities, except insurance and pension funding
K65	Insurance, reinsurance and pension funding, except compulsory social security
K66	Activities auxiliary to financial services and insurance activities
L68	Real estate activities
M69_ M70	Legal and accounting activities; activities of head offices; management consultancy activities
M71	Architectural and engineering activities; technical testing and analysis
M72	Scientific research and development
M73	Advertising and market research
M74_ M75	Other professional, scientific and technical activities; veterinary activities
N	Administrative and support service activities
O84	Public administration and defense; compulsory social security
P85	Education
Q	Human health and social work activities
R_S, T, U	Other service activities, Activities of households as employers, Activities of extraterritorial organizations and bodies

Source: Eurostat and WIOD

Table A.IV: Classification of Occupations – ISCO-08, 1-digit

OC1 – Managers
OC2 – Professionals
OC3 - Technicians and associate professionals
OC4 - Clerical support workers
OC5 - Service and sales workers
OC6 - Skilled agricultural, forestry and fishery workers
OC7 - Craft and related trades workers
OC8 - Plant and machine operators and assemblers
OC9 - Elementary occupations
OC0 - Armed forces occupations

Source: Eurostat

Table A.V: Sectoral Specialization index, 2016

	Czech Republic	Denmark	Greece	Italy	Finland	United Kingdom	Switzerland
A01	0,61	0,58	3,04	0,92	0,71	0,23	0,75
A02	2,27	0,47	0,39	0,99	3,25	0,28	1,00
A03	0,72	0,00	5,60	1,19	0,00	0,62	0,00
B	2,20	0,36	1,03	0,41	0,41	1,01	0,29
C10-C12	1,10	0,94	1,52	0,94	0,66	0,58	0,76
C13-C15	1,23	0,28	0,84	1,77	0,26	0,43	0,23
C16	1,92	0,73	0,63	1,04	2,10	0,48	1,98
C17	1,65	0,57	0,70	1,30	2,56	0,63	0,59
C18	1,37	0,56	1,13	1,07	1,01	0,96	1,19
C19	1,07	0,00	1,39	1,25	1,73	1,11	0,00
C20	1,24	0,74	0,44	1,00	0,87	0,59	0,93
C21	0,78	2,92	1,20	1,09	0,49	1,12	1,94
C22	2,30	0,67	0,44	1,08	0,64	0,56	0,57
C23	2,34	0,90	0,52	1,26	1,03	0,51	0,61
C24	2,31	0,28	0,54	1,50	1,02	0,55	0,39
C25	2,31	0,78	0,59	1,46	1,04	0,50	0,96
C26	1,99	0,77	0,15	0,79	1,41	0,76	2,71
C27	2,53	0,68	0,46	1,33	1,18	0,37	1,06
C28	1,50	1,46	0,10	1,46	1,21	0,54	1,02
C29	3,02	0,08	0,03	0,64	0,20	0,43	0,06
C30	1,29	0,32	0,26	0,99	0,60	1,33	0,53
C31_C32	1,57	0,71	0,53	1,27	0,50	0,59	0,66
C33	1,33	0,62	0,33	1,13	1,20	1,25	0,56
D35	1,44	0,74	1,10	0,79	1,01	0,85	0,86
E36	1,34	0,52	1,02	0,87	0,56	1,07	0,18
E37-E39	1,22	0,77	0,74	1,53	0,56	0,87	0,53
F	1,12	0,82	0,60	0,92	1,08	1,08	1,01
G45	1,04	0,90	0,94	1,03	0,92	0,83	0,98
G46	0,79	1,35	0,90	1,01	1,05	0,70	1,33
G47	0,82	1,01	1,49	0,99	0,75	1,06	0,75
H49	1,47	0,75	0,90	0,88	1,14	0,89	0,81
H50	0,37	2,38	7,18	1,07	2,08	0,90	0,35
H51	0,64	0,89	1,19	0,53	1,13	1,19	1,47

H52	0,78	0,84	0,67	0,93	0,94	0,85	0,74
H53	1,07	0,98	0,54	1,07	1,01	1,35	1,09
I	0,73	0,89	1,92	1,27	0,73	1,13	0,87
J58	0,56	1,44	0,82	0,56	1,11	1,11	0,69
J59_J60	0,95	1,45	0,78	0,70	0,94	1,65	0,95
J61	1,05	0,89	1,54	0,98	0,93	1,17	1,18
J62_J63	1,04	1,56	0,43	0,87	1,69	1,38	1,31
K64	0,69	1,08	0,99	1,05	0,74	1,07	1,65
K65	0,70	1,12	1,08	0,92	0,78	1,34	2,22
K66	1,05	0,41	0,39	0,80	0,59	2,10	1,92
L68	0,89	1,38	0,19	0,75	1,15	1,37	1,24
M69_M70	0,60	0,75	1,16	1,22	0,76	1,29	1,57
M71	0,95	1,25	1,26	1,26	1,80	1,23	2,02
M72	1,06	1,00	0,34	0,70	2,29	0,98	1,37
M73	1,39	1,12	0,80	0,66	1,06	1,38	1,04
M74_M75	1,01	1,21	0,49	1,15	0,95	1,58	1,08
N	0,58	0,91	0,57	1,04	1,05	1,13	0,91
O84	0,93	0,79	1,31	0,81	0,66	0,88	0,67
P85	0,85	1,19	1,06	0,89	0,94	1,39	1,00
Q	0,63	1,61	0,54	0,74	1,54	1,20	1,27
R_S_T_U	0,81	1,23	0,76	1,04	1,36	1,26	1,14

Source: Eurostat

Table A.VI: ISCED Aggregation of Educational Attainment Level

Level	ISCED 2011	Description
0	Early childhood Education (01 Early childhood educational	Education designed to support early development in preparation for participation in school and society. Programmes designed for children below the age of 3.
0	Early childhood Education (02 Pre-primary education)	Education designed to support early development in preparation for participation in school and society. Programmes designed for children from age 3 to the start of primary education.
1	Primary education	Programmes typically designed to provide students with fundamental skills in reading, writing and mathematics and to establish a solid foundation for learning.
2	Lower secondary education	First stage of secondary education building on primary education, typically with a more subject-oriented
3	Upper secondary education	Second/final stage of secondary education preparing for tertiary education and/or providing skills relevant to employment. Usually with an increased range of subject options and streams.
4	Post-secondary non-tertiary education	Programmes providing learning experiences that build on secondary education and prepare for labour market entry and/or tertiary education. The content is broader than secondary but not as complex as tertiary education.
5	Short-cycle tertiary education	Short first tertiary programmes that are typically practically-based, occupationally-specific and prepare for labour market entry. These programmes may also provide a pathway to other tertiary programmes.
6	Bachelor or equivalent	Programmes designed to provide intermediate academic and/or professional knowledge, skills and competencies leading to a first tertiary degree or equivalent qualification.
7	Master or equivalent	Programmes designed to provide advanced academic and/or professional knowledge, skills and competencies leading to a second tertiary degree or equivalent
8	Doctoral or equivalent	Programmes designed primarily to lead to an advanced research qualification, usually concluding with the submission and defense of a substantive dissertation of publishable quality based on original research.

Source: UNESCO