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Population dynamics and education for a shared Mediterranean future

Overview and implications for the Pact for the Mediterranean

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Abstract

As the EU launches its Pact for the Mediterranean, this JRC report explores the interconnected areas of demography, migration, and education in the region, highlighting their significant implications for cooperation between the EU and Southern Mediterranean countries. The report provides a comprehensive analysis of the distinct demographic and migration trends in the Mediterranean region, as well as the challenges and opportunities in education, where investing in human capital is critical to developing competitiveness and unlocking the potential for growth and stability. A key finding is that the young and growing population in the Southern Mediterranean will continue to shape migration potential, but other factors such as economic conditions, conflicts and border policies will ultimately determine the eventual translation of such potential into actual migratory movements. The report highlights the potential win-win benefits of expanding education and labour migration pathways, which could help the EU alleviate labour shortages while generating benefits for Southern Mediterranean countries, including remittances, knowledge transfer, and reduced labour market pressure. Looking ahead, the report emphasizes the importance of the 2025-2035 period for decision-making and investments in education and human capital, with a focus on improving school attendance and enhancing competences. By providing evidence-based and actionable insights, this report aims to support the effective implementation of the Pact for the Mediterranean and foster a collaborative and sustainable EU-Southern Mediterranean partnership.

Executive summary

The European Union (EU) is introducing a **Pact for the Mediterranean** as a comprehensive initiative to enhance the partnerships with its Southern Neighbourhood. The Pact is planned to be structured around three pillars: **1) People: driving force for change, connections and innovation; 2) Stronger, more sustainable and integrated economies; 3) Security, preparedness and migration management**.

This report delves into the interconnected areas of demography, migration, and education, which have significant implications for cooperation between the EU and Southern Mediterranean countries (MED[1]). By analysing the relationships between these areas and their development and policy implications, the report seeks to provide actionable insights for the implementation of the Pact.

In terms of demography, the Southern Mediterranean region is experiencing distinct trends compared to the EU. **Over the next few decades, the MED region is projected to experience significant population growth, in contrast to the EU**, which will face challenges stemming from ageing of population and persistently low fertility rates.

Despite their current differences, **the EU and MED regions are undergoing demographic convergence** since projections suggest that fertility rates in the Mediterranean region will decrease. In the long term, this convergence will lead to similar demographic challenges and opportunities in both regions, benefiting from coordinated policy responses and the sharing of good practices.

Population projections indicate a continuation of the **migration potential linked to the young age structure in MED countries but actual migratory movements are ultimately determined by other factors** such as economic conditions, conflicts and border policies.

In both the EU and the MED, the number of international migrants has more than doubled since 1990. However, **migration flows from the Southern Mediterranean countries to the EU have remained relatively stable over the past decade**, with over 350 000 MED nationals acquiring EU residence permits each year. Moroccans, Syrians and Algerians are the top three nationalities, while France, Spain, Italy and Germany are the main receiving countries.

The existence of irregular migration flows from the MED to the EU, combined with the low acceptance rate of asylum applications from certain MED nationalities, suggests that **economic factors may play a role in motivating some of these movements.** On the one hand the current demographic situation in MED countries offers opportunities for economic growth and social development. On the other hand, it also presents challenges in providing decent employment to the large cohorts of young people entering the working age. **This context highlights the need to strengthen and expand labour migration channels to contribute to a more orderly and managed migration**.

Recent research[2] indicates that **migration has positive effects on the welfare of MED countries**, mostly through the remittances and productivity-innovation channels.

For the EU, while migration will not be able to solve Europe's demographic problems, foreign workers are already an integral and essential part of the economies of all Member States, and MED countries contribute substantially with **over a third of their migrants working in shortage occupations**.

MED workers appear to be more skilled than migrants originating from other third countries, with a growing number of both EU Blue Cards and permits for highly skilled remunerated activities

(1) Used throughout this report to denote Southern Mediterranean countries.
(2) Cha'ngom, N., Deuster, C., Docquier, F. and Machado, J. (2025), Selective Migration and Economic Development: A Generalized Approach. International Economic Review. https://doi.org/10.1111/iere.12779

issued to MED nationals over the past decade. However, **the share of permits for highly skilled workers is still lower than 10% of employment-related permits, and most migrant workers from the MED region are employed in low-skilled and low-wage sectors** (manufacturing, wholesale and retail trade, and construction). Potential integration challenges persist in relation to an important **difference in the labour force participation of women and men** from the MED region, with women being substantially less likely to be employed.

An increasingly important channel for labour migration is through education. Both the number of education permits and their conversions into employment permits are on the rise. This channel has the double benefit of increasing the share of skilled migrants and allowing their progressive integration in the receiving countries. The expansion of education partnership foreseen in the Pact may enhance these opportunities for the EU, while it can benefit MED countries with knowledge transfer and skill acquisition.

Educational attainment has clear and demonstrated impacts on development. Currently, a significant proportion of students in MED countries is exiting the formal educational system at an early stage and graduation rates are generally lower than the EU average. This **limits potential contributions to the economy**. Efforts should target attendance, especially for disadvantaged families, as well as measures to acquire actual competencies at school.

MED countries have a window of opportunity open until 2035 to make the right investments in education and human capital accumulation. During this period, the relatively large and young working-age population, together with a favourable balance between workers and dependents, provides ideal conditions to strengthen skills, raise productivity, and support economic and social development. After this window, more rapid population ageing will call for a shift of resources toward older generations, making it increasingly important to focus economic growth on enhancing human capital and labour productivity rather than relying on a continuously expanding workforce.

1. Introduction

Thirty years after the launch of the Barcelona process, the EU is committed to bringing the relationship with the Southern Neighbourhood partner countries to a new level. A key focus of this effort is the preparation of the **Pact for the Mediterranean** (hereinafter referred to as "Pact") aimed at fostering closer ties and steering these relationships towards shared objectives that will have lasting impact on the people and societies of the region. The Pact was first mentioned in the political guidelines for the European Commission 2024–2029, together with the appointment of an EU Commissioner for the Mediterranean "to focus on investment and partnerships, economic stability, job creation, energy, security, migration and other areas of mutual interests".

Following an extensive consultation process, involving input from EU Member States, partner countries, and diverse stakeholders from various societal sectors, Commission services identified three pillars for the Pact: **1) People: driving force for change, connections and innovation; 2) Stronger, more sustainable and integrated economies; 3) Security, preparedness and migration management**.

This JRC Science for Policy Report explores the population dynamics – including migration – and human capital creation opportunities in the Mediterranean as well as in relation to the EU. These factors bear important implications for both human and economic development of both regions and as such are relevant inputs for EU cooperation under the Pact.

In Chapter 1, we examine the population dynamics in the Mediterranean region, with a focus on the contrasting trends between the European Union and selected countries in the Southern Neighbourhood. We analyse the demographic differences between the two regions, including fertility rates, population growth and age structures, and discuss the implications of these trends for the region's economy, social security and migration patterns.

In Chapter 2, we explore migration landscape in the Mediterranean region, both in terms of origin and destination of mixed migration flows. Using data from different sources[3], we provide insights into key migration trends to and within MED and EU, including analysis on the type of mobility, and the demographic and socioeconomic characteristics of migrants, such as their age, gender, education level, and labour market outcomes, as well as the impact of migration on the economies and societies of both origin and destination countries. Additionally, we explore the potential of education as an alternative pathway to attract and integrate migrants into the EU labour market.

Chapter 3 delves into the education sector, analysing the current state of formal education in MED countries and its (projected) future evolution in relation to population dynamics, as well as identifying areas where policy interventions can have the greatest impact. We examine the enrolment rates, completion rates, and literacy rates in the region, and discuss the challenges faced by Mediterranean countries in improving cognitive skills, a prerequisite for competitiveness and economic growth. We also look at the tertiary education graduation rates and the field of study composition and discuss the implications of these trends for the labour market and economic development. This approach aligns with the European Union's Strategy for a Union of Skills, which emphasises the importance of foundational skills, quality education for all, and the development of expertise in Science, Technology, Engineering and Mathematics (STEM) fields.

Conclusions summarise the key findings and discuss the linkages between demography, migration and education, as well as their implications for human and economic development. We emphasise the need for a comprehensive approach that takes into account the complex relationships between population trends, migration patterns and education, and that prioritises the development of human capital and the promotion of mutually beneficial partnerships between the EU and Mediterranean countries.

(3) UNDESA migration stock data, Eurostat data on residence permits and asylum applications, and FRONTEX data on irregular border crossings.

2. Demography

The Mediterranean region is characterised by distinct population dynamics on its two shores, with a pronounced demographic divide between the EU and the MED countries[4]. The EU has an ageing population with low fertility rates and slow growth, while the MED has a younger population with higher fertility rates and faster population growth. This difference has significant implications for the region's economy, social security, and migration.

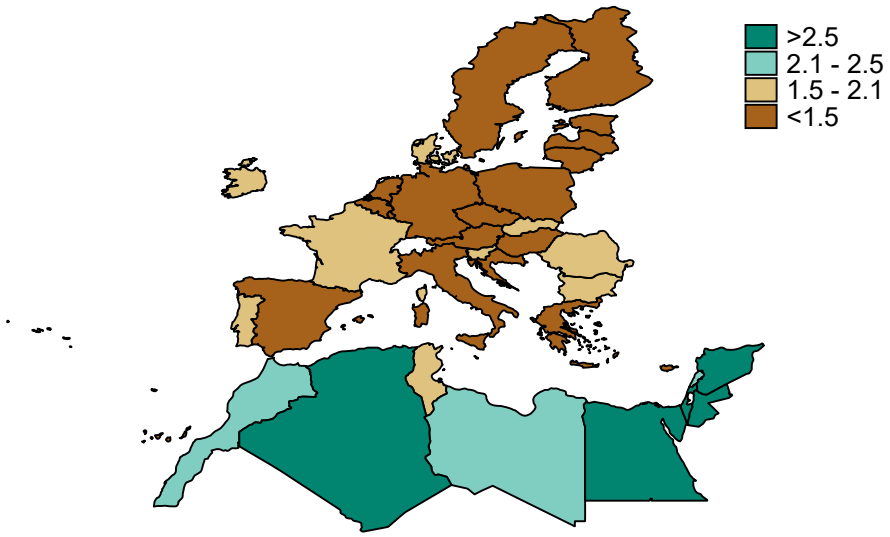
Indicators such as fertility rates, population growth, and age distribution help to understand the demographic structure of the region and to identify areas for cooperation and development to address the region's demographic challenges.

2.1. Demographic trends in the region

An analysis of recent data[5] shows that countries in the MED are in different stages of their demographic transition towards low levels of fertility[6]. In the most recent estimates, all countries in the MED had a total fertility rate (TFR) above the population replacement level of 2.1, with the sole exception of Tunisia (Figure 1). A TFR above the replacement level means that the population will grow (with new generations replacing the old) if factors such as mortality and migration remain stable.

In half of these countries, the TFR was even higher than 2.7. By contrast, none of the EU Member States had a TFR above replacement level. The TFR was extremely low in several European countries, reaching levels of even below 1.3 in Finland, Lithuania, Spain, Italy, and Malta.

FIGURE 1. Total fertility rate (live births per woman), 2024.



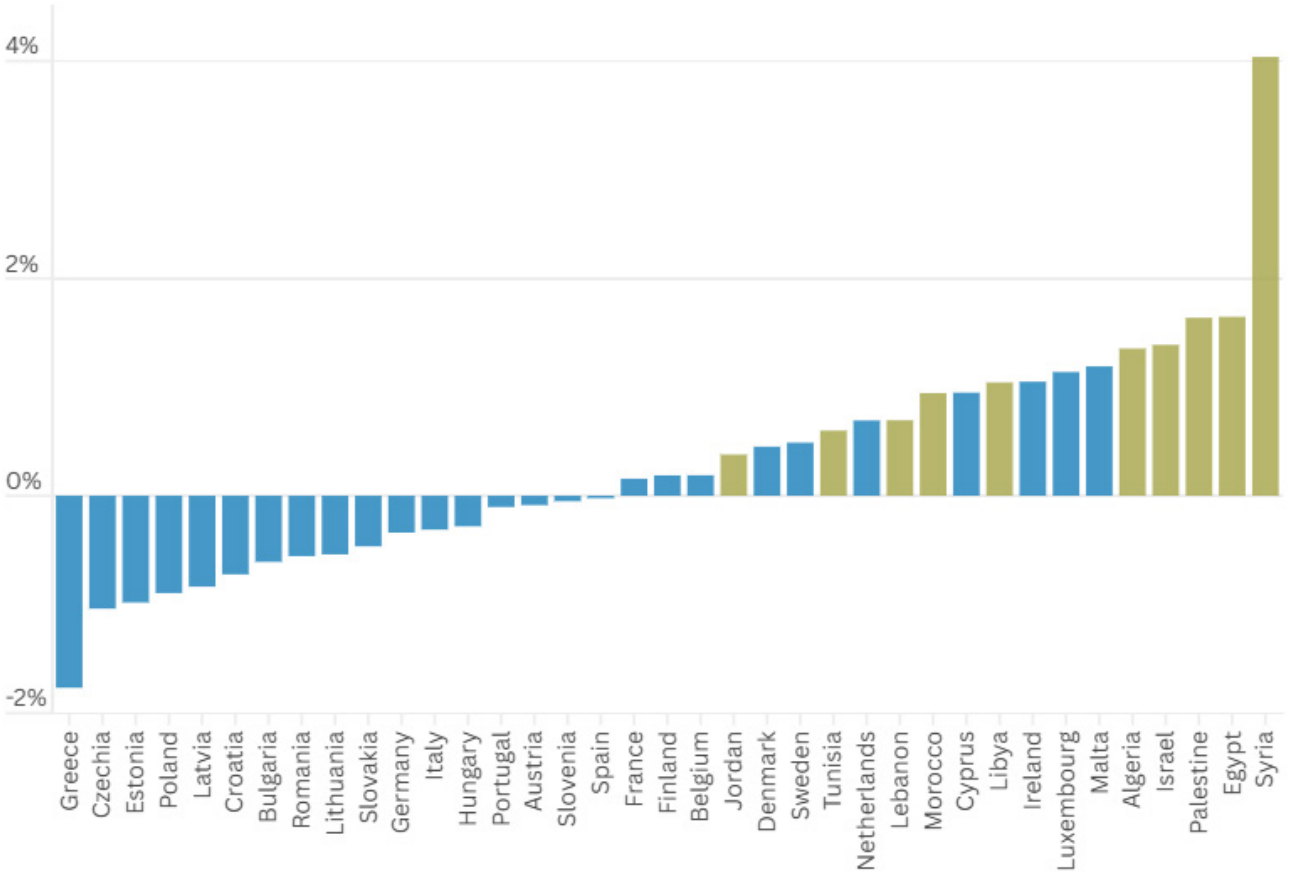
Source: *United Nations, World Population Prospects 2024*

(4) Throughout this document, we use the acronym MED to refer to the ten countries we have considered for the analysis, which correspond to the partner countries in the Southern Neighbourhood included in the Pact. These are: Algeria, Egypt, Lebanon, Libya, Israel, Jordan, Morocco, Palestine, Tunisia and Syria. Please note that the designation of Palestine shall not be construed as recognition of a State of Palestine and is without prejudice to the individual positions of the Member States on this issue.

(5) United Nations (2024b).

(6) Countries are classified according to stages defined by the Demographic Transition Model (DTM). These stages include: Stage 1: High fertility and mortality (TFR: >6); Stage 2: Declining mortality, high fertility (TFR: 4-6); Stage 3: Declining fertility (TFR: 2.5-4); Stage 4: Replacement-level fertility (TFR: 2.1-2.5); Stage 5: Moderate below replacement (TFR: 1.5-2.1); Stage 6: Very low fertility (TFR: <1.5).

FIGURE 2. Population growth rate, 2024.



Source: *United Nations, World Population Prospects 2024*

The clear fertility divide between the EU and MED is reflected in their respective population growth rates (Figure 2). The MED countries (in green) saw uniform population growth in 2024, with every country experiencing an increase in their population. The growth rate was higher than 1.3% in five countries (Syria, Egypt, Palestine, Israel, Algeria), with the highest value above 4% recorded for Syria. By contrast, in the majority of EU Member States, population growth was negative, with Greece having the lowest growth rate at -1.8%.

The population in the ten MED countries is expected to grow from 278 million in 2024 to 393.6 million in 2060, corresponding to an increase of 115.6 million. This growth will be driven by countries such as Palestine, Syria, Israel, Jordan, and Egypt, which will experience significant population increases (above 50%). In contrast, the population of the EU is expected to decline from 450.3 million in 2024 to 402.7 million in 2060, corresponding to a decrease of 47.5 million.

The demographic divide between the MED and EU countries is also evident in their respective age distributions. Examining the potential support ratios (PSR), which describe the number of working-age people (15-64) supporting each older person (65+), reveals that EU Member States cluster at the lower end compared to most of the MED countries.

In 2024, the PSR in every EU Member State was higher than in any MED country. 23 out of 27 EU Member States had a PSR below 3.5%, whereas half of the MED countries had a ratio above 10%. Lowest PSR values, for countries such as Portugal, Finland, and Italy, were close to 2.5% (Figure 3). In contrast, the MED countries with the highest PSR, including Palestine, Jordan, Syria, and Libya, had ratios ranging from 13.5% to 15.1%.

Overall, the PSR data underscore the distinct population dynamics, with the EU experiencing a significant shift towards an older population and the MED maintaining a relatively stable and younger population over the past few decades. This

disparity is not new and has been evident since the 1950s, as shown in Figure 3, which illustrates the substantial decrease in the EU's PSR over time.

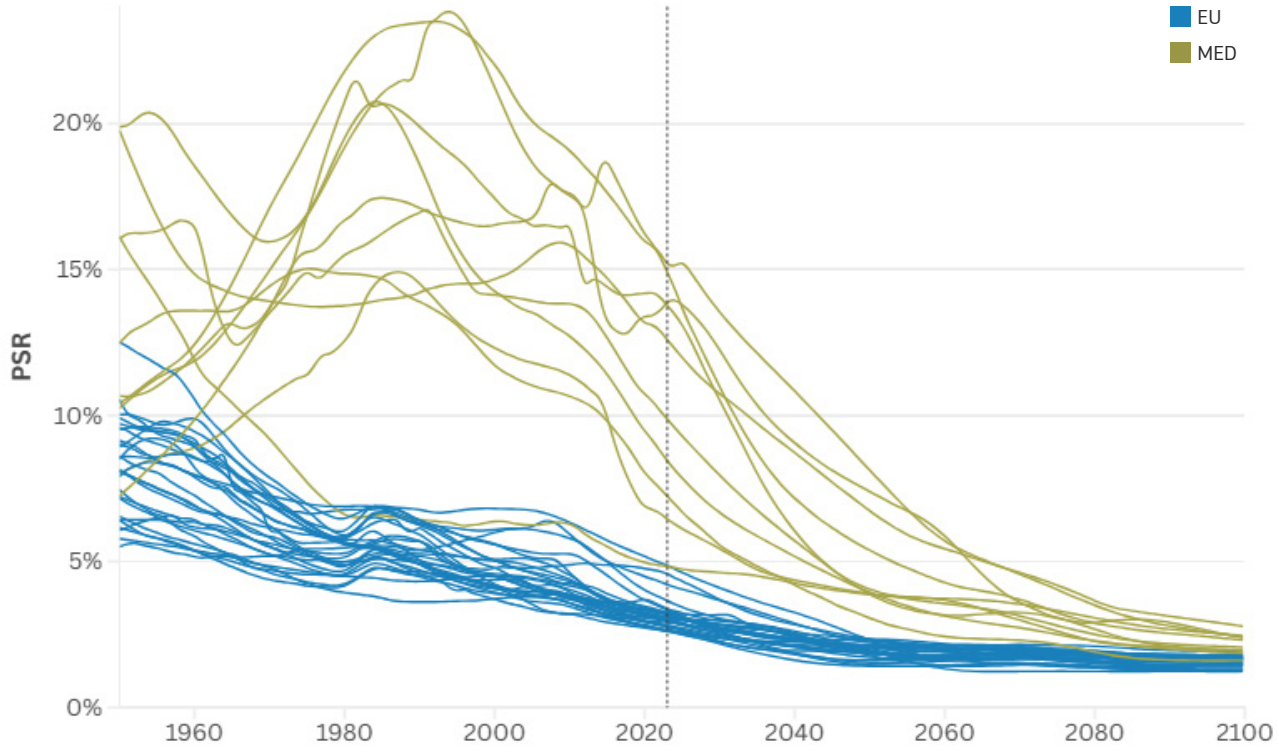
2.2. Expected demographic convergence in the region

Looking ahead to the future, the EU and MED regions are expected to experience a convergence of demographic patterns. According to UN projections, the fertility divide between the two regions may decrease in the coming decades, with most countries in both regions having fertility rates below the replacement level by 2060. In addition, the projected PSR reveal that by 2060, the PSR in the MED countries is expected to fall to around 5%, just above the levels observed in the EU (Figure 3).

The convergence of demographic patterns is also evident in the population pyramids for both regions. As illustrated in Figure 5, the MED region is expected to undergo a substantial shift in its age structure, with a decreasing number of births per woman and a growing proportion of older citizens. By 2060, the population pyramid for the MED will show a larger proportion of older adults and a smaller workforce. In the EU, the population is already ageing, with a large cohort of "baby boomers" approaching retirement. As a result, the number of working-age people is expected to decline, leading to further exacerbating existing labour and skill shortages and posing severe challenges to the economy, healthcare systems, and social security programmes of Member States.

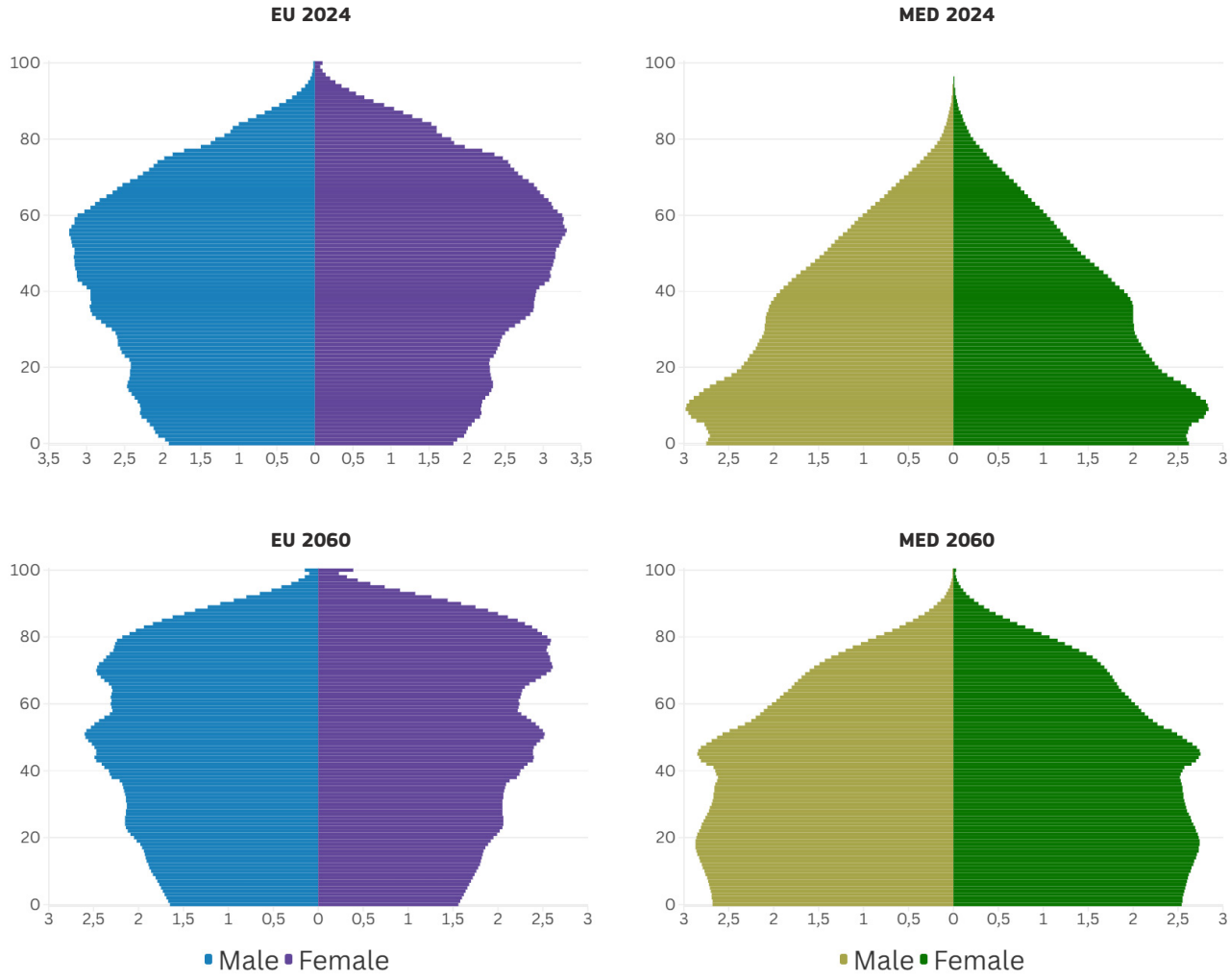
Overall, the demographic trends suggest that the populations of the MED countries will transition towards similar demographic structures to those currently observed in the EU, with a relative decrease of the population of working age.
As seen in the latest section of this report, this convergence will have significant implications for the economies and societies of both regions and will require careful planning and policy responses to address the challenges and opportunities that arise from these demographic changes.

FIGURE 3. Potential support ratio (PSR) by year and country, estimated (1950-2023) and projected (2024-2100).



Source: *United Nations, World Population Prospects 2024*

FIGURE 4. Population pyramids for the EU and MED, 2024 and 2060.



Source: *United Nations, World Population Prospects 2024*

2.3. The interplay between demographics and migration

The relationship between population dynamics and migration patterns is complex, as the demographic profile of a country both influences and is influenced by migration.

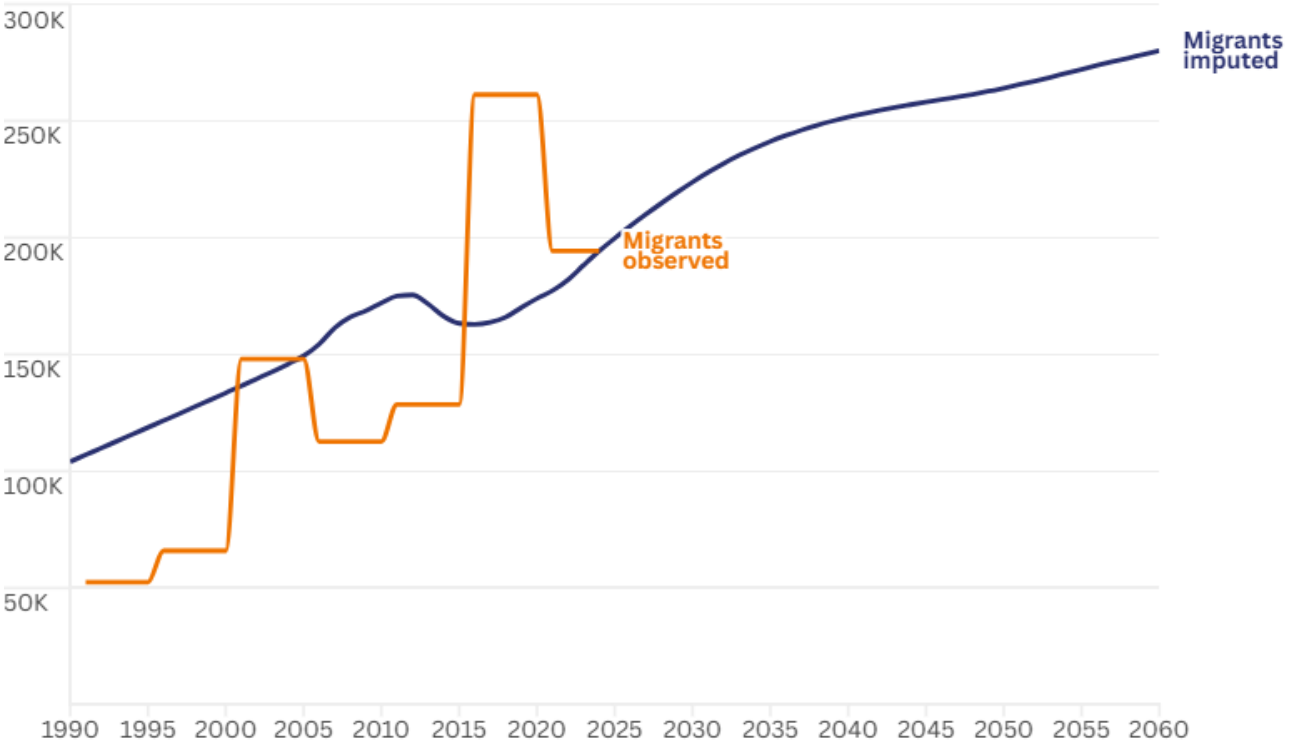
To illustrate the potential relative impact of population dynamics on migratory patterns between the MED and EU regions, we have conducted simple simulations (see Annex 1) based on historical population data since the 1990s (1990-2023) and population projections for the next 35 years (2024-2060)[7].

A comparison of simulated migration numbers with historical data reveals that demographic factors, while influential, do not fully account for the observed migration dynamics between the MED and EU. The simulations (see Figure 6) suggest that if migration had been driven solely by demographic factors, such as growing populations with large young cohorts in countries of origin, the resulting migration flows would have significantly differed from those actually observed over the past decades[8].

(7) See Population dynamics and migration in the EU and Mediterranean regions – an exploration of demographic landscapes | Knowledge for policy for more details on the approach.

(8) Please note that the simulation concerns migration only of nationals from MED countries. Demographic trends in Sub-Saharan Africa and their consequences on migration to MED countries and from there to the EU are not part of the analysis.

FIGURE 5. Hypothetical annual migration flows between the MED and EU, 1990-2060.



Source: *Own calculations based on United Nations, International Migrant Stock 2024.United Nations, World Population Prospects 2024 and Eurostat (2024) Immigration by age group, sex and citizenship (migr_imm8). Note: The observed bilateral migration flows in orange are calculated from official migrant stock data and represent annual average flows over 5-year periods. The blue line depicts the hypothetical annual bilateral migration flows imputed based on population growth in the countries of origin.*

These results highlight that the demographic potential[9] of MED countries is just one of several factors that contribute to shape migration flows in the region. Other factors, including economic conditions, conflicts, and border policies, have also played a significant role in shaping migration patterns.

Looking into the future and under the hypothetical scenario that migration patterns remain as they were observed in 2024, the annual flow from the MED to the EU could increase by 44% between 2024 and 2060, with countries like Syria, Morocco, and Egypt remaining major sources of migrants. This increase can be attributed, in part, to the demographic potential of these countries, which is characterised by large and growing populations with significant proportions of young people. However, the comparison between observed and estimated flows in Figure 6 highlights how the actual migration can be much lower or higher than what is predicted on the basis of purely demographic characteristics of the population in countries of origin. Lower migrations can be explained by immigration restrictions and higher migrations by contingent events such as the Syrian crisis in the period 2015-2020.

Moreover, as the Mediterranean region's population is expected to age and the number of working-age people to decline, the proportion of young people in the population, who are typically the most likely to migrate, will decrease over time. As a result, the pool of potential migrants will shrink in the future, limiting the number of people who can move to the EU.

(9) The concept of "demographic potential" refers to the potential of a country or region's population to contribute to migration flows. In the context of the MED region, the demographic potential is characterized by a large and growing population, with a significant proportion of young people. This demographic profile can be expected to contribute to increased migration pressures, as young people are more likely to migrate in search of better economic opportunities, education, or other factors. The demographic potential of MED countries is therefore an important factor to consider when analysing migration patterns between the MED and EU regions.

3. Migration

Historically, migrations have shaped civilisations on both shores of the Mediterranean Sea and are still increasing in importance. While countries in the MED and EU host and send a large number of international migrants, their migration patterns are determined by heterogeneous dynamics. This section presents general migration patterns for the MED through the analysis of UN migration stock data and then focuses on migration from MED to the EU harnessing EUROSTAT data on migration flows.

3.1. International migration in the region: key and emerging trends

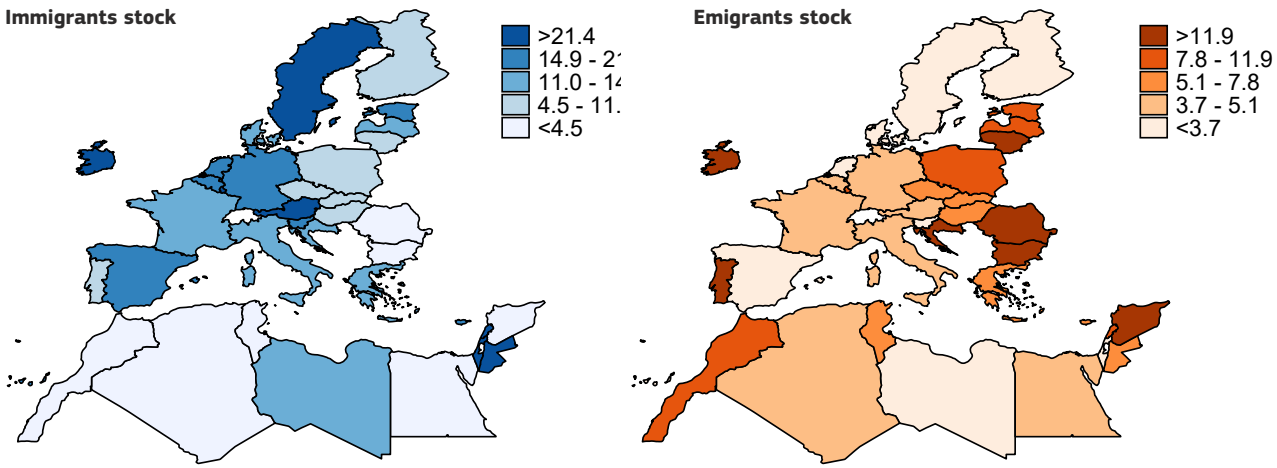
The MED and EU regions have experienced a significant increase in international migration[10] over the past few decades. The number of migrants in these areas has more than doubled since 1990, reaching a total of 75.8 million in 2024. This growth can be seen in both regions, with the MED region experiencing an increase from 5.4 million to 12.4 million migrants. The EU region has seen an even larger increase, growing from 24.6 million to 63.3 million migrants.

The proportion of migrants in the total population varies significantly across countries in the MED and EU (Figure 7). Notably, the most populous MED countries (Morocco, Tunisia, Algeria) have very low - less than 1% - immigrant populations, while in the Levant the share of immigrants in the populations can exceed 20% (45.7% in Jordan, 24.5% in Lebanon, 22.3% in Israel). For comparison, in many EU countries immigrants[11] represent over 10% of the population, and the share exceeds 50% for smaller countries as Luxemburg, Malta and Austria.

With regards to emigration, while some MED countries have large diaspora populations, with over 35% of Syrians residing abroad, others as Lebanon and Morocco have relatively low emigration rates, close to 10%. In the EU, many Southern and Eastern European countries have over 15% of their population living abroad.

Within this landscape, the migration of MED countries nationals to the EU has been a consistent and significant phenomenon over the years. With strong historical and cultural ties, the EU is the second most important destination for MED nationals, after intra-regional migration within the MED area, which remains the primary destination.

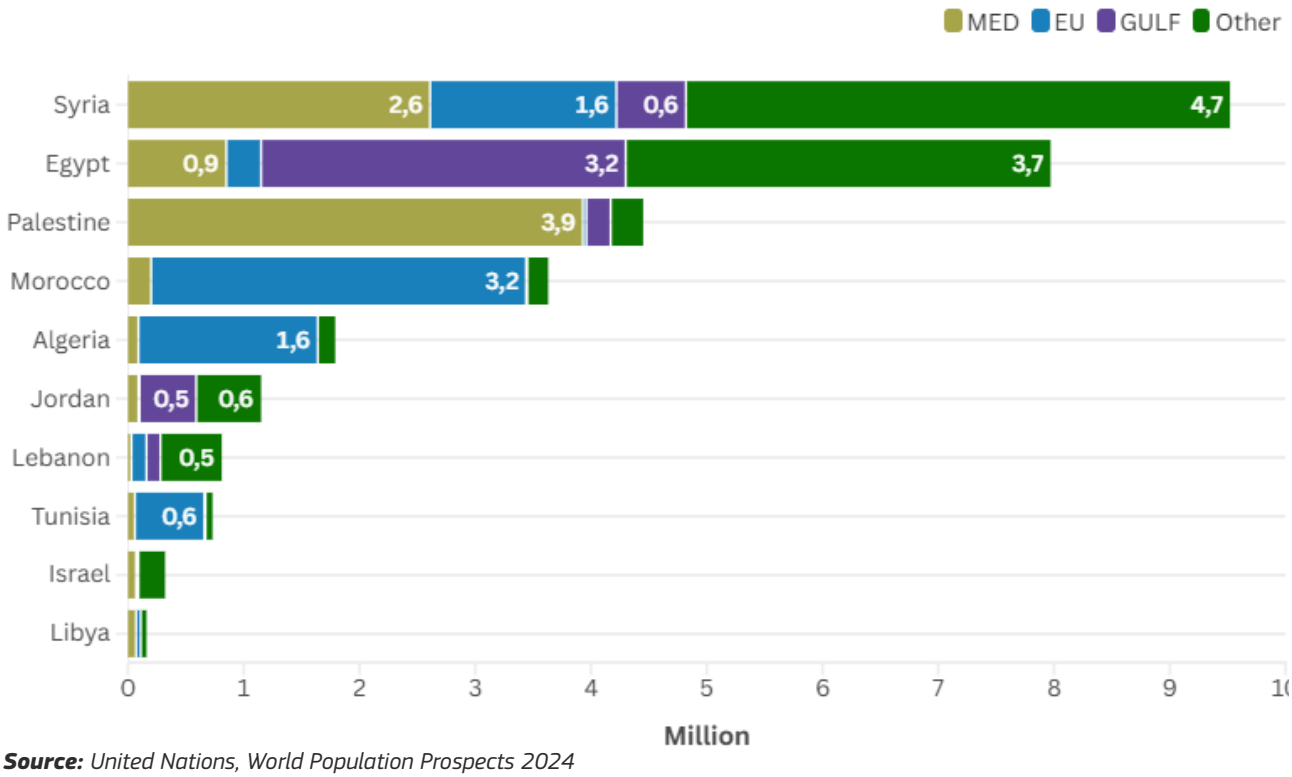
FIGURE 6. International immigrant and emigrant stock as a share of population in the EU and MED.



Source: *United Nations, International Migrant Stock 2024.*

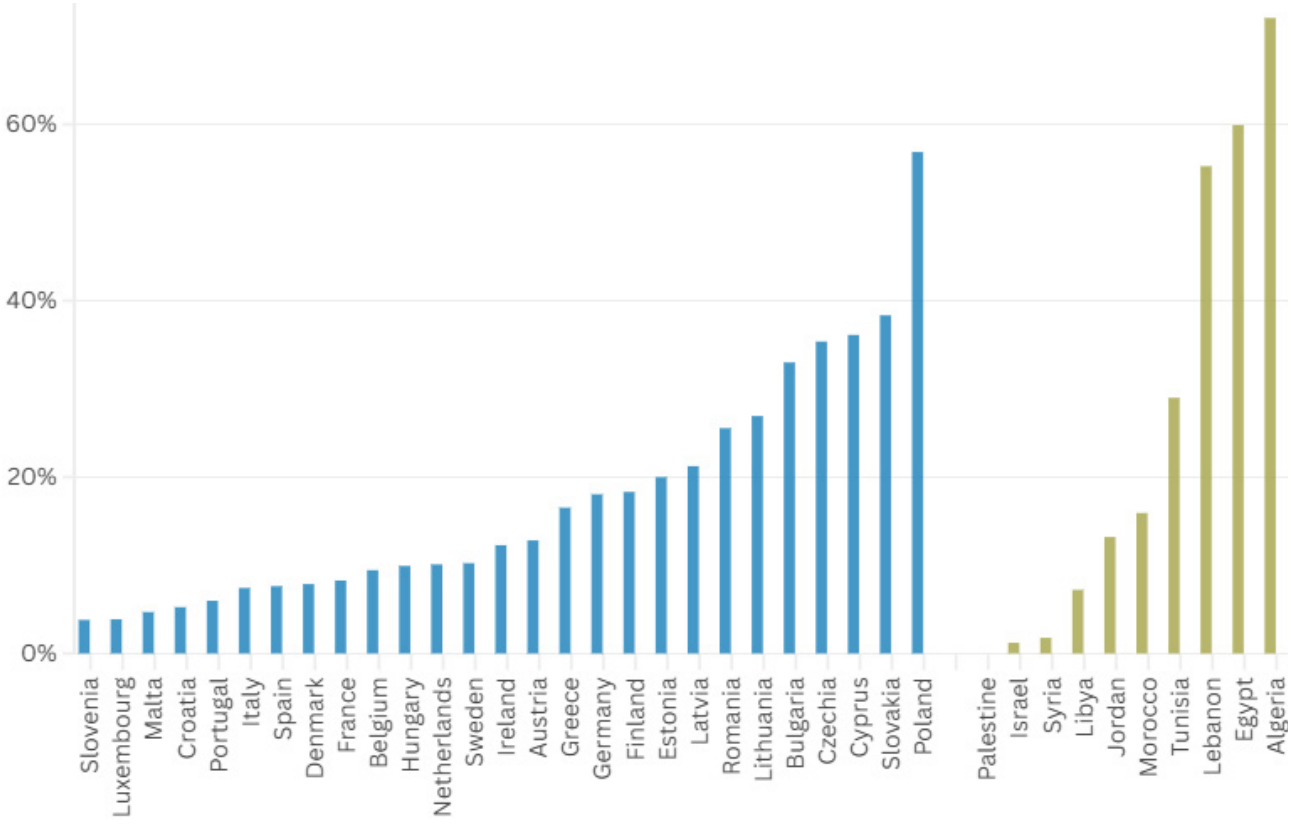
(10) In the context of the UNDESA dataset (United Nations, 2024a), international migration refers to the movement of people across international borders, encompassing intra-regional migration (e.g. between EU countries), as well as the stocks of refugees and asylum seekers.
(11) including nationals of another EU Member State

FIGURE 7. International migrant stock originating in the MED by destination region, 2024.



Source: *United Nations, World Population Prospects 2024*

FIGURE 8. Refugees and asylum seekers as a share of migrant stock, 2024.



Source: *United Nations, World Population Prospects 2024*

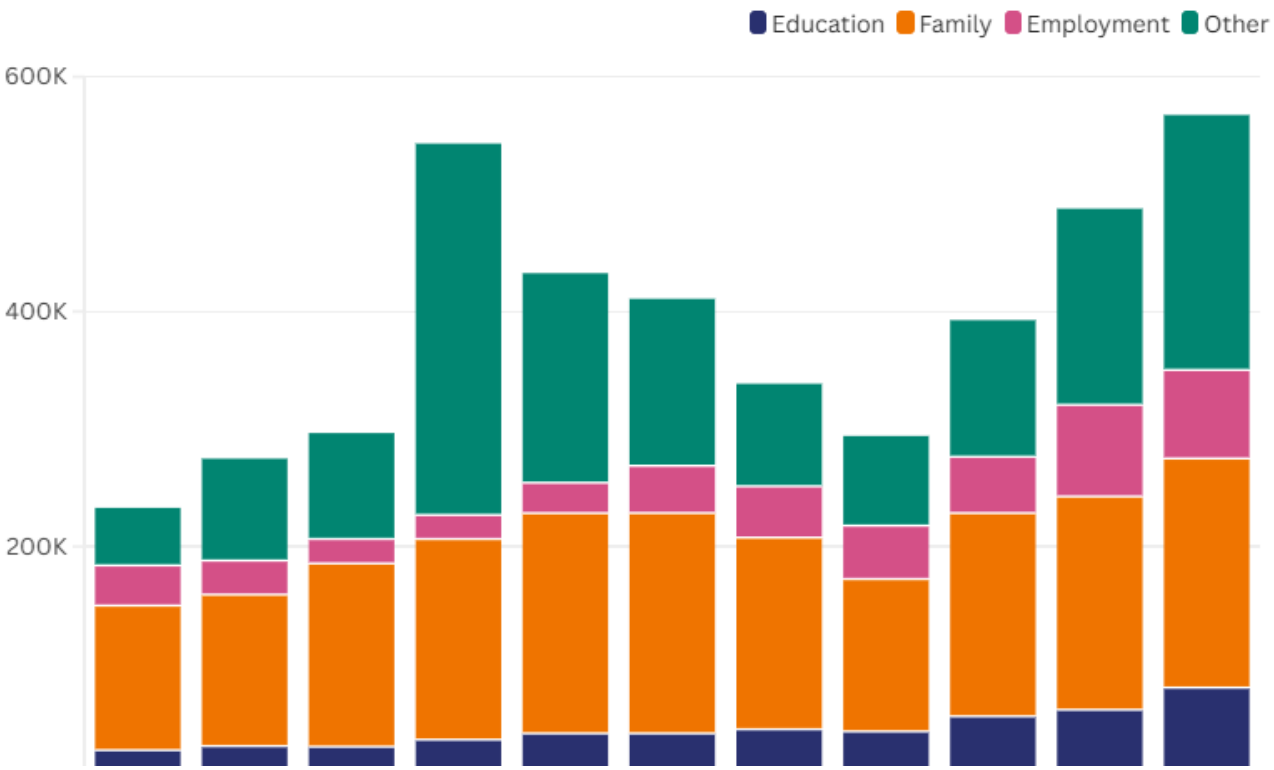
Aggregating the number of migrants from the MED does not reveal the full level of heterogeneity across countries of origin. Moroccan, Algerians and Tunisians show a marked preference for the EU as destination region (82 to 89%), while Palestinians and Libyans move predominantly to countries within the MED region, and Egyptians and Jordanians move to the Gulf countries[12] (Figure 9).

3.2. Migration from the Mediterranean region to the EU: an overview

EUROSTAT resident permit data reveal that in 2023, slightly over 4.8 million MED nationals resided legally in the EU, with Moroccans, Syrians, and Algerians being the top three nationalities. Overall, MED nationals represent 19% of Third Country Nationals (TCN) in the EU. Currently, the majority of them live in France, Spain, Italy and Germany - which are in general the countries hosting the majority of TCN. France has consistently been the country with highest number of valid residence permits for MED nationals over the past 15 years (2008-2023)— on average 35%—, followed by Spain with 23%. Italy's share of valid permits has decreased over the years, while Germany has increased significantly, both in terms of share and absolute number, becoming one of the top three issuing Member States.

Looking at migration flows, in the past decade (2013-23), over 350 000 MED nationals have acquired an EU resident permits every year, with no defined trend. The only exceptions relate to a spike in 2016, largely driven by Syrians acquiring international protection status, and a decrease in 2020, likely due to the COVID-19 pandemic (Figure 10).

FIGURE 9. First permits by reason - MED to EU27



Source: *Data on first permits collated from Eurostat datasets migr_resedu (First education permits), migr_resocc (First permits by renumerated activities/employment), migr_resfam (First family permits), migr_resoth (First other permits[13]) (in order to avoid data reporting gaps in resfam/resfirst).*

(12) This analysis focuses on the countries of the Cooperation Council for the Arab States of the Gulf. They include: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, the United Arab Emirates.

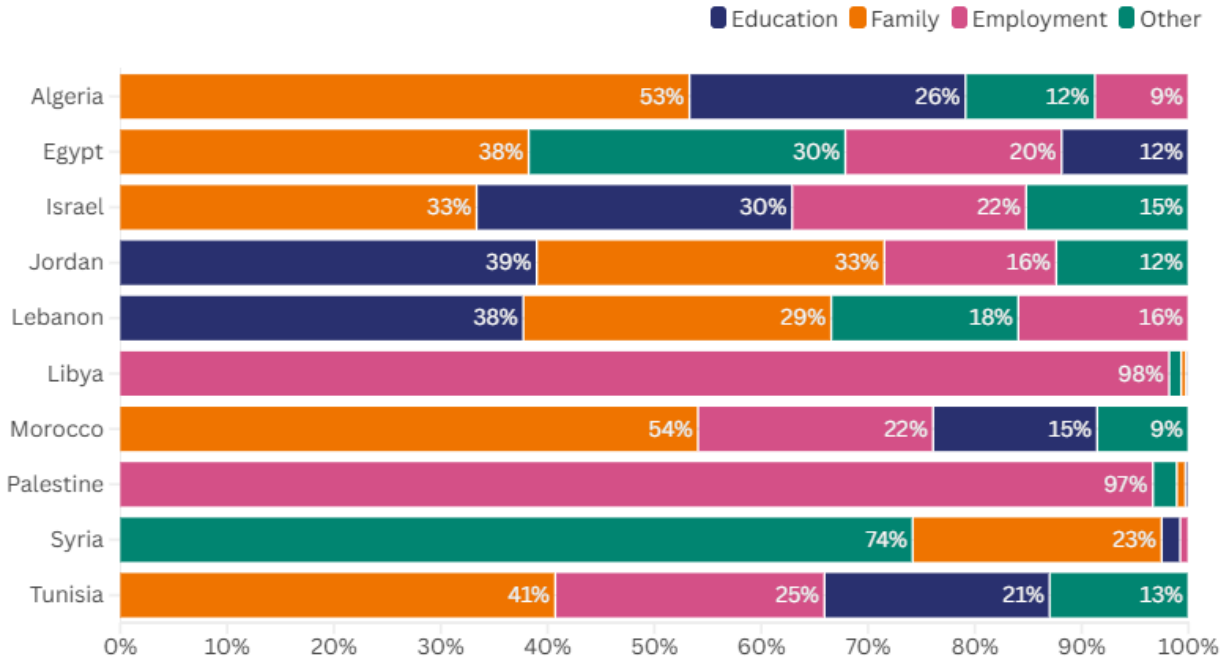
(13) Other permits include international protection (refugee and subsidiary protection status) and humanitarian status, international protection status (refugee and subsidiary protection status), Humanitarian status, Residence, Unaccompanied minors, Victims of trafficking in human beings, and Not specified. Data reporting gaps: migr_resocc missing reporting for (1) Blue cards: DK, IE. HR pre-EU 2013; (2) Highly skilled: LT, SI, SK, HR pre-EU 2013; (3) Other employment: HR pre-EU 2013; (4) Researchers: HR pre-EU 2013; (5) Seasonal workers: IE, HR, insignificant.

While family has consistently been the top reason for obtaining a residence permit (43% of first permits on average in the decade 2013-23), it has also been the one showing the slowest increase in the same period. Conversely, the numbers of first residence permit issued for education and employment reasons, albeit still smaller than family permits, have increased by 200% and 120%, respectively, accompanied by a substantial increase in permits issued for "other" reasons, mostly linked to protection. Some of these permits are linked to subsequent asylum applications. Notably, EUROSTAT data indicates that MED nationals have maintained a relatively stable presence among asylum applicants in the EU, comprising around 24%[14] of the total, despite fluctuations in the overall number of applications.

The composition of permits by reasons also differs among MED countries. Family reunification is by far the main reason to obtain a residence permit for nationals from Tunisia, Morocco and Algeria, according to 2019-23 EUROSTAT data. Conversely, over 50% of Jordanians, Lebanese and Israelis come to the EU with education or employment-related permit, while Syrians, Palestinians and Libyans mostly obtain a permit for international protection (categorized as "other"). Syrians have also consistently represented the main nationality for asylum applications, accounting for about 62% of all MED applications in 2024.

Youth is a predominant group among MED migrants to the EU. In line with migrants from other origins, migrants from MED countries have a younger age structure than the overall MED population in country of origin. Over 36% of MED nationals obtaining a first residence permits are youth aged 15-29. Meanwhile, the share of youth 15-29 in the general population in MED countries stands at 25% as per UN data 2024[15]. Between 2019-2023, MED countries with highest proportion

FIGURE 10. First permits by type per MED country -- sum of first permits issued 2019-2023, percentage of all permits for country



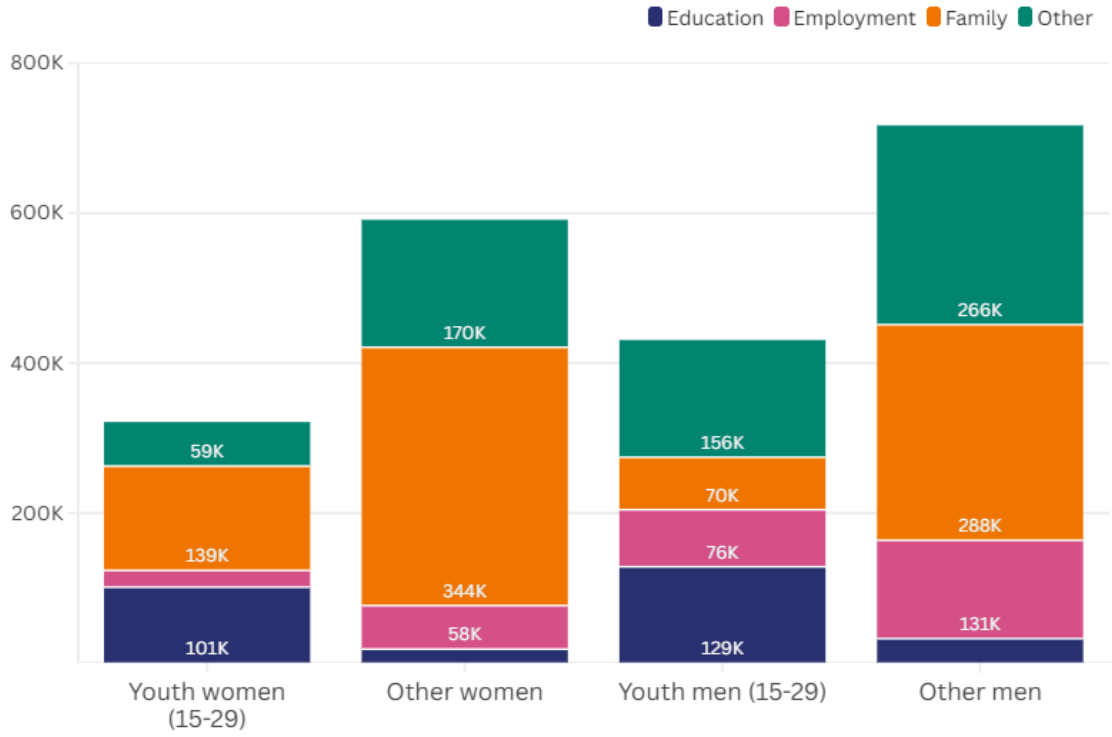
Source: *Data on first permits collated from Eurostat datasets migr_resedu (First education permits), migr_resocc (First permits by renumerated activities/employment), migr_resfam (First family permits), migr_resoth (First other permits[16]) (in order to avoid data reporting gaps in resfam/resfirst).*

(14) Average share of asylum applicants with MENA citizenship relative to all applicants with non-EU27 citizenship, calculated using the 2013-2024 sums of asylum applicants from MENA and from all non-EU27, respectively, from migr_asyappctza

(15) United Nations (2024b)

(16) Other permits include international protection (refugee and subsidiary protection status) and humanitarian status, international protection status (refugee and subsidiary protection status), Humanitarian status, Residence, Unaccompanied minors, Victims of trafficking in human beings, and Not specified. Data reporting gaps: migr_resocc missing reporting for (1) Blue cards: DK, IE. HR pre-EU 2013; (2) Highly skilled: LT, SI, SK, HR pre-EU 2013; (3) Other employment: HR pre-EU 2013; (4) Researchers: HR pre-EU 2013; (5) Seasonal workers: IE, HR, insignificant.

FIGURE 11. Share of permits by reason, sex, and age -- MED nationals to EU, 2019-2023



Source: *Eurostat, migr_resfas, 2019-2023 (significant data reporting gaps pre-2019).*

of youth aged 15-29 receiving first permits from EU27 were Palestine, Lebanon, and Jordan where around half of first permits were issued to youth aged 15-29. First permits issued to Tunisians and Algerians were also received by youth from these countries at a rate above 40%. Libya had by far lowest percentage of first permits issued to youth at 24%.[17]

Youth represent an important age group especially in education permits, accounting for 82% of permits issued to MED nationals under this category[18]. However, when looking at the reasons for obtaining a first residence permit for MED youth, education only stands at 30%, very closely followed by both family and other reasons (28% and 29%).

Gender disparities are also evident in the data. Between 2019 and 2023, men accounted for approximately 57% of first permit recipients overall. The same proportion holds for people aged 15-29. Looking more specifically at difference across permits types, between 2019-2023, 53% of first permits granted to women were family permits, while 9% were work-related permits. For men, the share was 31% for family and 18% for employment. Figure 12 shows these differences including by age group.

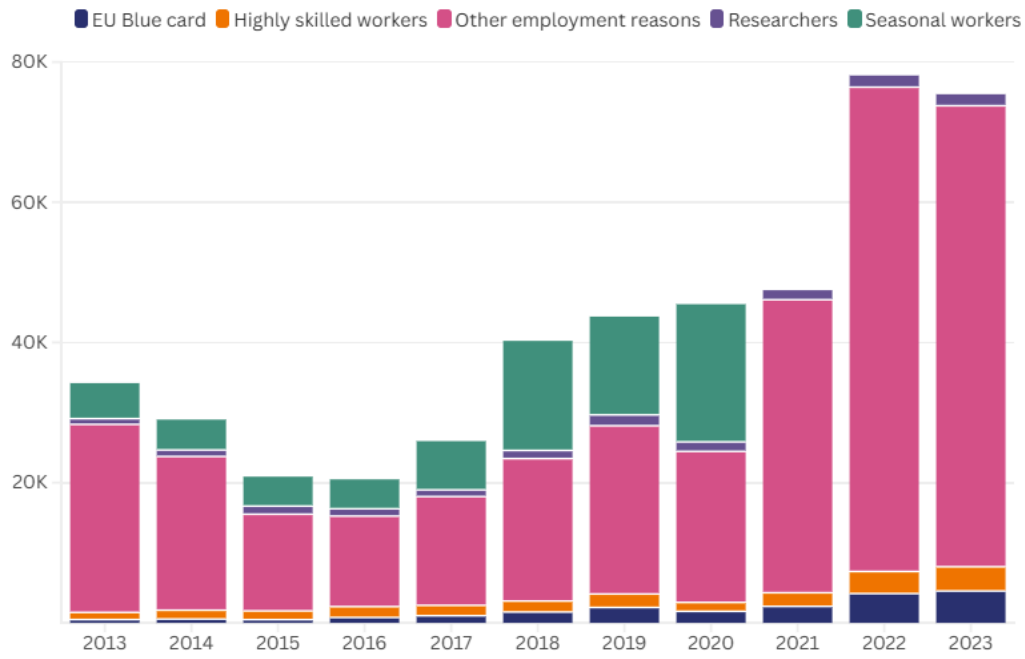
3.3. Focus on labour migration

Employment-related first residence permits for MED nationals have more than doubled in the past decade (2013-2023), from 34 000 to 75 000 (Figure 13). Morocco, Tunisia, and Egypt receive 85% of employment permits. Alongside the overall number of permits, the number of both EU Blue Cards and permits for highly skilled remunerated activities issued to MED nationals has increased steadily over the past decade, reaching nearly 4 600 Blue Cards and 3 500 permits for highly skilled remunerated activities in 2023, in addition to 1 600 permits for remunerated research. MED workers appear to be more skilled than migrants

(17) Adapted through data from Eurostat's migr_resfas. Data reporting gaps for migr_resfas: (1) EDUC: DE 2010-2018, NL 2010, 2012-2015, PL 2015, significant; (2) EMP: DE 2010-2018, NL 2010, 2012-2015, significant; (3) FAM: DE 2010-2018, NL 2010, 2012-2015; (4) OTH: DE 2010-2018, NL 2010, 2012-2015, PL 2015, significant; HR, CY missing at times for all above, less significant.

(18) Adapted through data from Eurostat's migr_resfas and migr_resoth.

FIGURE 12. First employment permits by type - MED nationals to EU



Source: *Eurostat migr_resocc. Note: seasonal work permits are not accounted as a specific permit type under migr_resocc after 2020. From 2021 onwards, they are aggregated under "Other employment reasons".*

from other regions. Highly skilled and EU Blue Card permit recipients represent 9% of all first employment permits granted to MED nationals in the EU between 2019 and 2023, while for migrants from other regions this share reaches 7%. Within the MED migrant group, there are large country of origin-related differences: in the case of Israel, Lebanon and Syria, the percentage of highly skilled surpasses 30% of all employment permits (39%, 37% and 31% respectively), while Algeria and Morocco have the lowest shares 5% and 3%)[19].

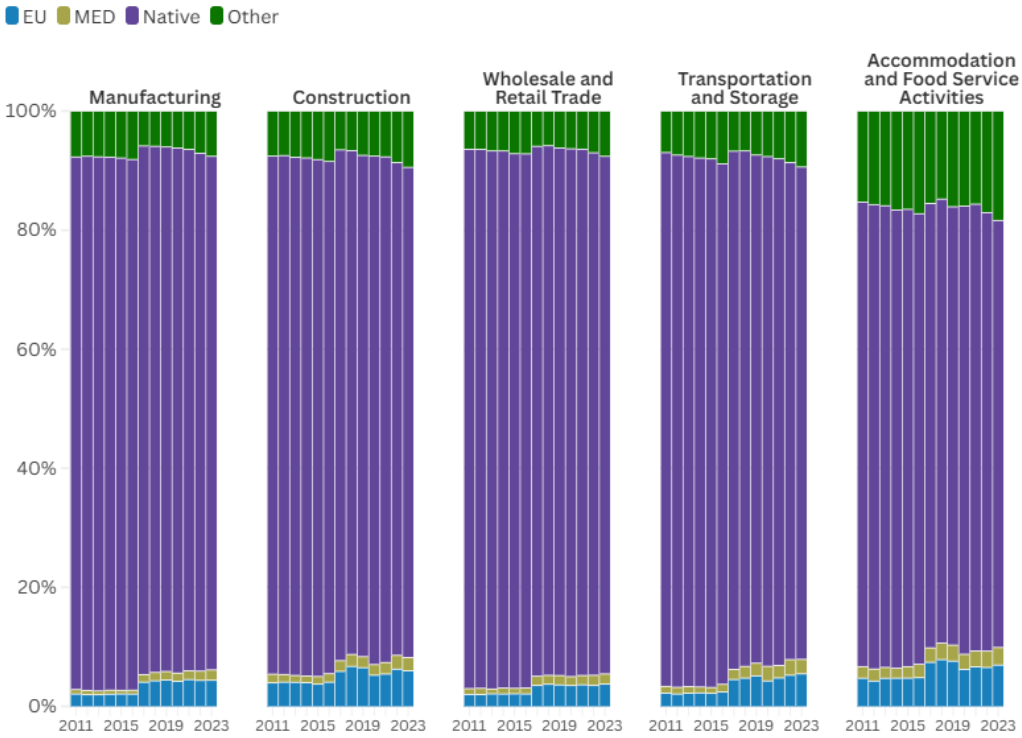
Today, migrants from MED countries play an important role in the EU economy. Data on shortages occupations (defined as occupations that have been persistently in shortage of workers since 2016 as per the ESDE report 2023[20]) show how migrants from MED countries are more likely than EU citizens to be employed in such occupations. Around 35% of MED migrants work in shortage occupations in contrast to 23% of EU born citizens. The contribution of migrants from MED countries to shortage occupation has increased from 2% in 2016 to 3.4% in 2023.

Despite the mentioned elements, the full potential of labour migration between the MED and the EU seems not to be seized. First of all, the increase in overall employment permits for MED national is smaller than the trend for all migrants in the EU[21], for which the number of employment-related permits tripled (to over 1.2 M in 2023) and was the category of residence permits with the highest growth in the past decade.

Secondly, in terms of sectors of employment, MED nationals are concentrated in few areas of the EU economy, characterised by low-skilled and low-wage jobs. The Manufacturing sector stands out as the largest employer of MED nationals, with over 4.5 M individuals employed in 2023. This sector has consistently demonstrated a high demand for MED national workers, with their share of the total sector workforce staying stable around 8- 9% over

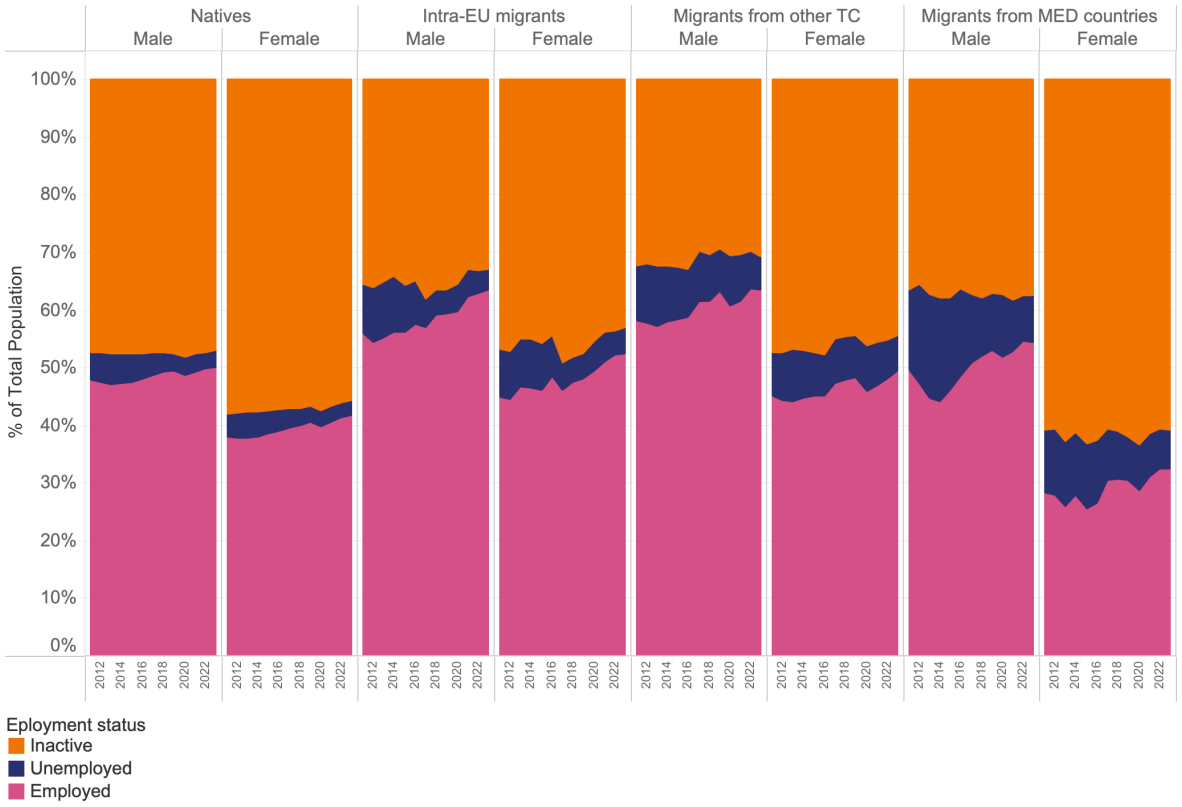
(19) Data calculated through migr_resocc, alongside collation from migr_resedu, migr_resfam, and migr_resoth. Applies to graphs below as well.
(20) See European Commission, (2023). List of occupations in persistent labour shortage, ISCO-08, 2016-2021: Medical doctors; Nursing and midwifery professionals; Software and applications developers and analysts; Cooks; Waiters and bartenders; Shop salespeople; Personal care workers in health services; Building frame and related trades workers; Building finishers and related trades workers; Sheet and structural metal workers, moulders and welders, and related workers; Machinery mechanics and repairers; Electrical equipment installers and repairers; Heavy truck and bus drivers; Domestic, hotel, and office cleaners and helpers
(21) For which the number of employment-related permits tripled (from just over 420,000 in 2013 to over 1.2 M in 2023) and was the category of residence permits with the highest growth in the past decade.

FIGURE 13. Distribution of workers in selected sectors, by nationality groups (2011-2023)



Source: *Own elaboration of LFS microdata. Note: the disaggregation of migrants for MED countries is based on proportions in the stock data.*

FIGURE 14. Share of working age population of migrants and natives by employment status (2011-2023)



Source: *Own elaboration of LFS microdata. Note: the disaggregation of migrants for MED countries is based on proportions in the stock data.*

the last decade. The Wholesale and Retail Trade sector and Construction sector employed over 500 000 MED nationals in 2023, which accounted for 7% and 6% of the total workforce in these sectors, respectively. Finally, the Accommodation and Food Service Activities sector and the Transportation and Storage sector also play a significant role in employing MED nationals.

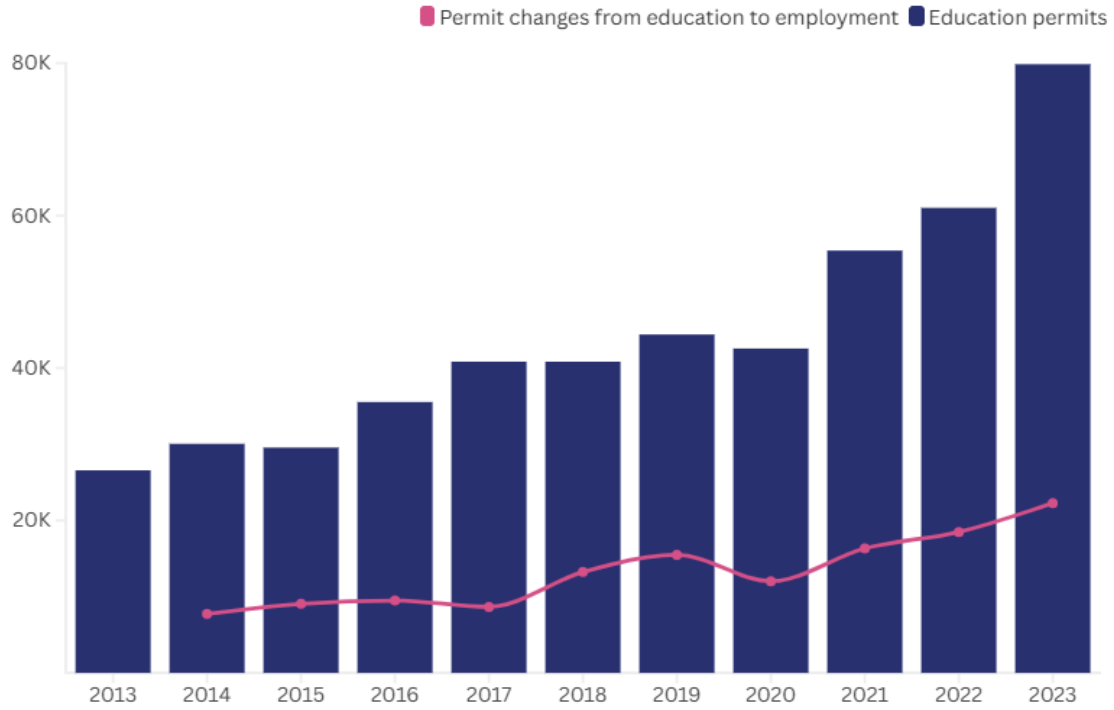
Lastly, data from the EU Labour Force Survey (LFS)[22] reveal that, in comparison to other migrant groups, migrants from MED countries exhibit a higher level of inactivity, largely attributed to a significant gap in labour force participation among women (Figure 15). This means that migrants, and especially women, from MED countries are less likely to be actively engaged in the workforce, either by working or seeking employment, compared to other migrant groups.

3.4. Education mobility as pathway to employment

The past 15 years have seen a significant increase in education-related permits issued by EU 27 countries to nationals from around the world. Between 2008 and 2023, the number of education permits more than doubled, rising from nearly 233 000 to almost 545 000. This trend is even more pronounced for nationals from the Mediterranean region, where the number of education permits almost quadrupled over the same period, from over 21 000 to nearly 80 000.

A closer examination of the data reveals that this growth was largely driven by an increase in permits issued to nationals from North African countries, particularly from 2015 onwards. While students from Morocco, Algeria, and Tunisia make up the largest groups in absolute terms, education is also

FIGURE 15. First permits by type per MED country -- sum of first permits issued 2019-2023, percentage of all permits for country



Source: *Eurostat dataset migr_resedu and migr_reschange*

(22) Data on migrants from MED countries is not available for Bulgaria, Finland, Croatia, Lithuania, Malta, Poland, and Sweden. For other countries, estimates are based on UN migrant stock data, which provide shares of international migrants by country of origin, destination, and year. These shares are used to disaggregate LFS data by major geographical areas of North Africa and Near and Middle East, assuming that for the considered 10 countries migrants have similar characteristics to other migrants in these regions. Migrant identification is based on country of birth.

a primary motivator for migration among nationals from other Mediterranean countries. Notably, for Jordanians and Lebanese, education is the main reason for migration, with almost 40% of first permits issued between 2019 and 2023 being for education purposes. This suggests that education is playing an increasingly important role in shaping migration patterns from the MED to the EU.

Education permits are sometimes converted to other types of permits; in the past decade the absolute number of conversions from education to employment has increased alongside the increased number of education permits, meaning that young MED nationals started working after completing their studies in the EU. In 2023 for example, there were over 22 000 conversions from education to employment. The countries with the highest permit conversion are Morocco, Algeria, Tunisia, and Lebanon, which together accounted for 90% of all education-to-employment permit conversions in 2023 among MED countries. In relative terms, the share of MED nationals' education permits converted to employment permits has remained stable at around 15%, larger than the corresponding share for nationals of all other countries (about 9%)[23].

The growing number of education permits and conversions into employment permits demonstrate that studying in the EU represents an increasingly important channel of entry into the EU labour market for MED nationals. For the EU, this represents an opportunity to benefit from skilled migration with potentially lower integration challenges.

(23) The percentage is calculated over the number of valid education permits from the previous year, just as an indication of conversion phenomena. Eurostat datasets used for the calculations are migr_reschange and migr_resvalid. Data from Denmark is not reported in migr_resvalid 2008-2020.

4. Education

The analysis in this section aims at providing an overview of the current state of formal education in MED countries and future evolution in relation to population dynamics, also in view of identifying areas where policy interventions can have the greatest impact, specifically in the context of collaboration with the EU.

4.1. Participation to formal education in Mediterranean countries

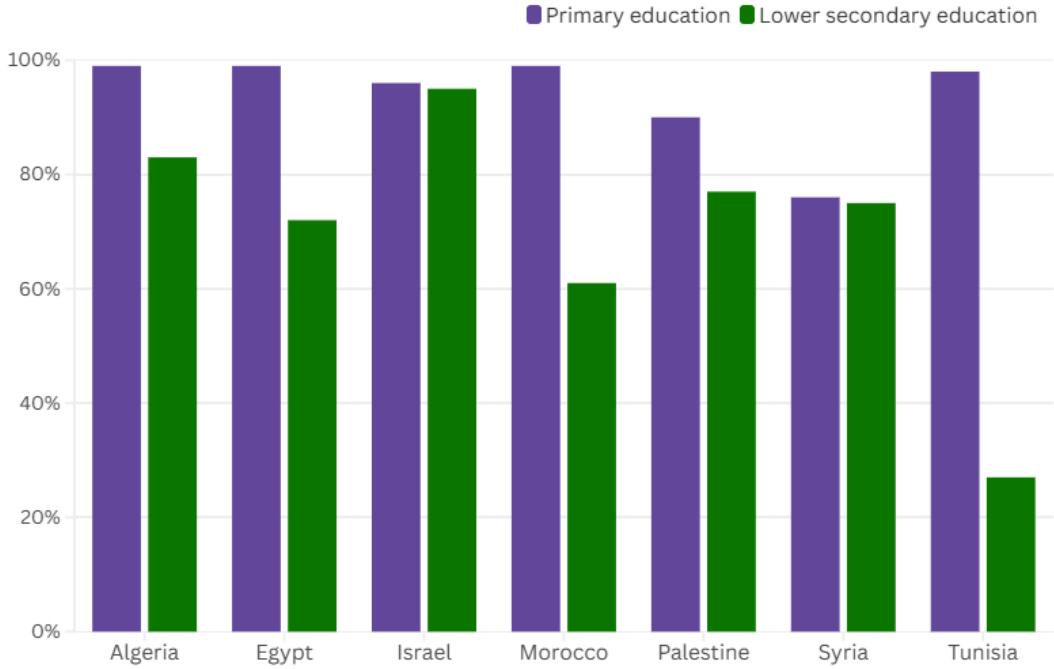
Our analysis of the current state of education focuses on variables that are available for most recent years and are widely recognised as key indicators of the status of education, as supported by the existing literature on the relationship between educational attainment and economic growth[24].

As illustrated in Figure 17, enrolment rates in primary education are generally observed to be high, with most countries exhibiting rates approaching 99%. However, notable exceptions are evident in Syria, where the enrolment rate is substantially lower at 76.4%, and Palestine, where the rate is almost 91%. In lower secondary education, enrolment rates are observed to be lower, with values below 90% in most countries.

This phenomenon is particularly pronounced in Morocco, where the enrolment rate is 61.9%, and Tunisia, where the rate is 27.2%. These findings suggest that a significant proportion of students in MED countries are exiting the formal educational system at early stage, thereby limiting their future opportunities and potential contributions to the economy.

Family background typically has an important impact on various educational outcomes, one of

FIGURE 16. Enrolment rate – primary vs. lower secondary education



Source: *World Bank Education Statistics (EdStats), last available year (between 2021 and 2023)*

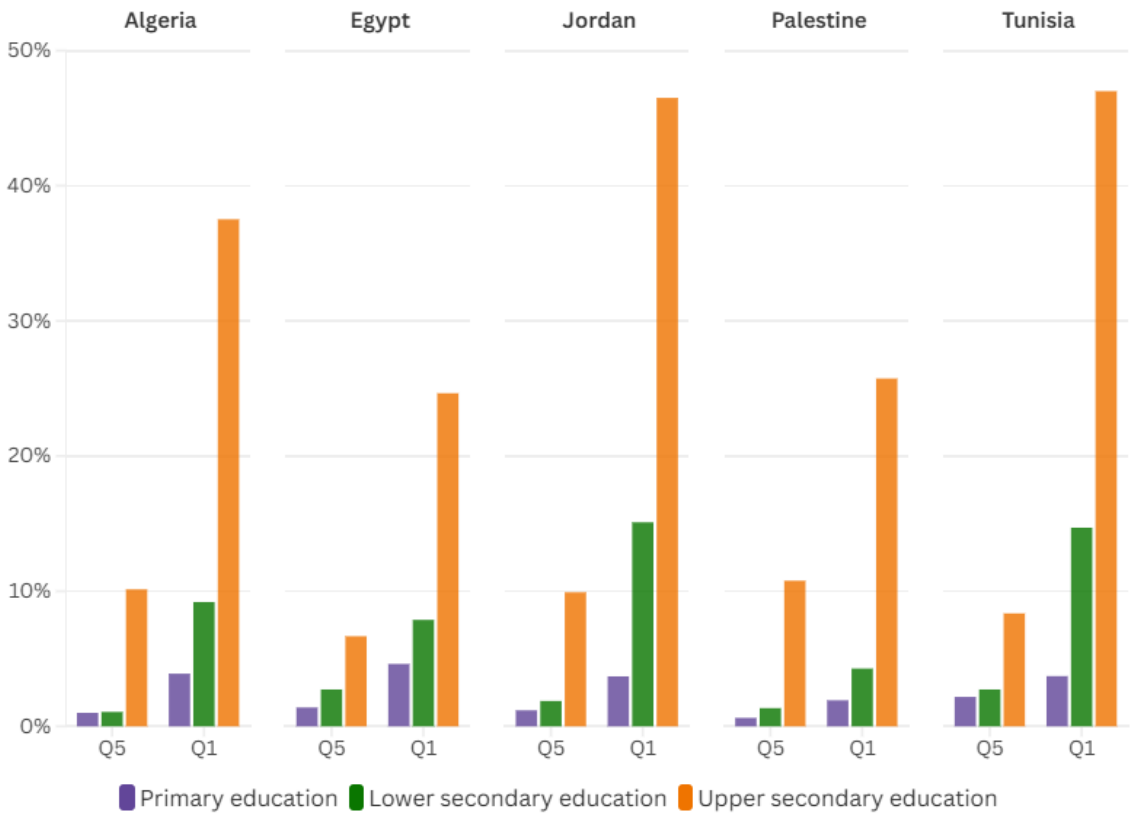
(24) See Hanushek and Woessmann (2015)

which is school attendance. Data on MED countries indicate that children from disadvantaged families are disproportionately represented among those who are out of school. Specifically, the share of young individuals of primary education age who are out of school is significantly higher among those from relatively disadvantaged families, with ratios ranging from almost two to almost four times higher compared to children from more affluent households. This socio-economic gradient is observed to increase as the level of education advances, with the disparity in enrolment rates between disadvantaged and advantaged groups becoming more pronounced at the lower secondary and upper secondary levels.

Completion rates in primary school are between 94.3% (EGY) and 100% (ISR), but they significantly decrease in lower secondary school in DZA (49.5%) and JOR (60%). Upper-secondary school (between 72% and 93%) completion rates are lower in all countries.

In summary, in some MED countries, the number of students enrolled in school decreases as they progress from primary education to lower secondary education, indicating that many students are leaving school before completing their basic education. Also, income inequalities heavily affect school enrolment, and there is a strong link between the education and income levels of parents and their children: children of highly educated parents are more likely to receive a good education and have higher incomes themselves, while children of less educated parents are more likely to have limited access to quality education. This can perpetuate a cycle of disadvantage and lead to higher socio-economic inequalities. Therefore, reducing income inequalities as early as possible is important for ensuring that all children regardless of their family background have equal access to quality education, and for promoting social mobility.

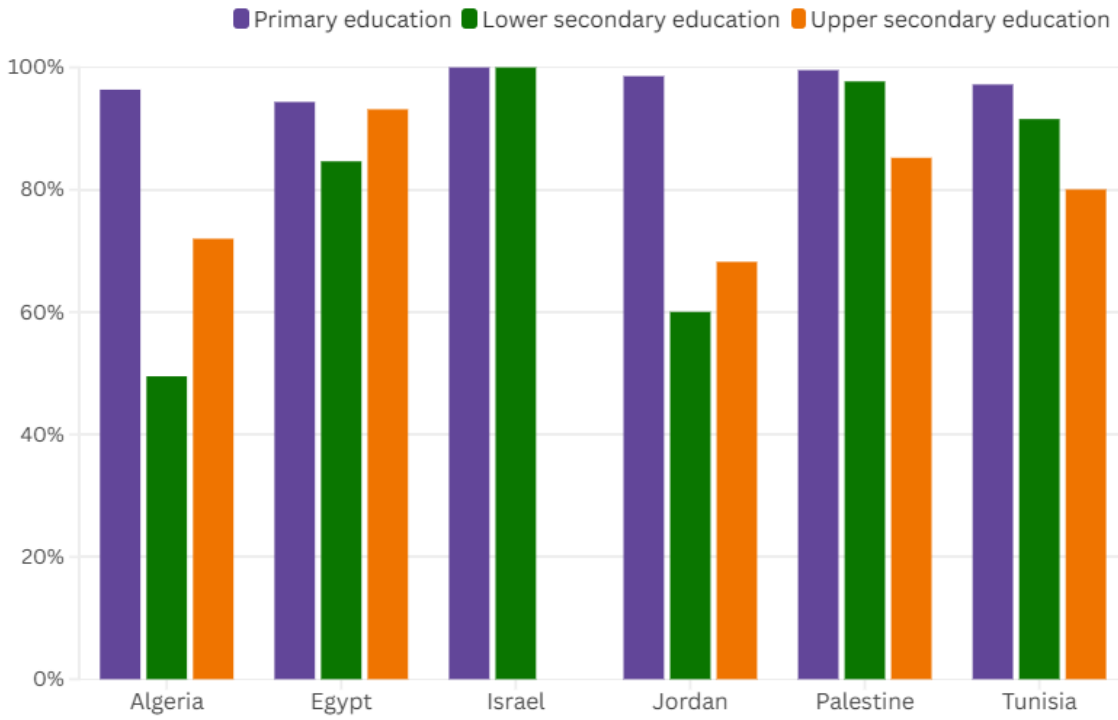
FIGURE 17. Out of school rate comparison for Q1 and Q5 - Primary vs. Lower secondary vs. Upper secondary education[25]



Source: *World Bank Education Statistics (EdStats), last available year (between 2017 and 2020)*

(25) The quintile distribution divides the population into five equal groups (20% each) based on equivalised disposable income, ranking from lowest (Q1) to highest (Q5) income.

FIGURE 18. Completion rates - Primary vs. Lower secondary vs. Upper secondary education



Source: *World Bank Education Statistics (EdStats), last available year (between 2017 and 2024)*

4.2. Cognitive skills: a prerequisite for competitiveness and economic growth

A substantial body of research[26] has consistently demonstrated a strong positive correlation between cognitive skills and development outcomes. This underscores the importance of acquiring practical skills and competencies in school, rather than merely attending classes. To evaluate cognitive abilities, we employ two key indicators: youth literacy rates and Harmonized Learning Outcomes (HLO) scores, which provide a more nuanced understanding of students' actual learning achievements.

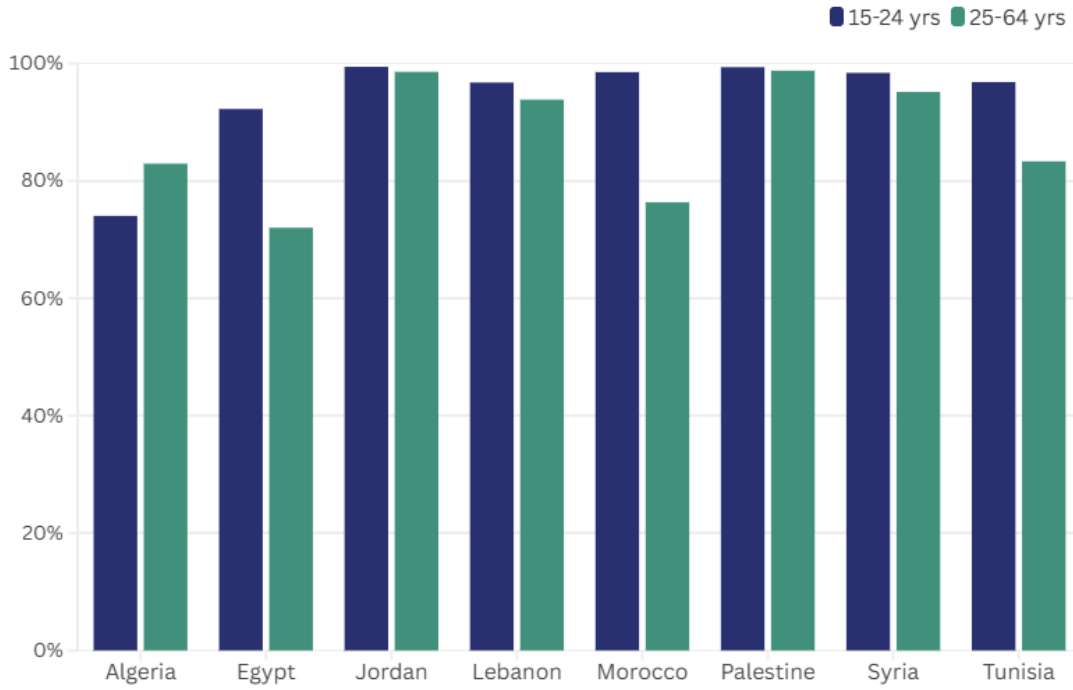
The youth literacy rate is the percentage of people aged 15-24 who can both read and write with understanding a short simple statement about their everyday life. Figure 20 shows that while literacy rates are generally high in MED countries, notable exceptions exist, such as Egypt, where the literacy rate is 72%, and Morocco, with a rate of 76.3%.

The HLO indicator offers a globally comparable measure of learning outcomes, aggregating results from international and regional standardized tests in mathematics, reading, and science to assess cognitive skills across countries[27]. The analysis of HLO scores across the ten MED countries reveals significant variation, highlighting differences in the quality of education and learning outcomes within the region. The scores range from a high of 480 in Israel to a low of 355 in Egypt, with a notable difference of 125 points between the two. To put this into perspective, a difference of 120 test score points is equivalent to roughly one year of education, underscoring the considerable disparities in educational attainment across the region. The remaining MED countries fall into an intermediate range, with scores as follows: Algeria (374), Morocco (380), Tunisia (384), Lebanon (389), Palestine (412), and Jordan (429).

(26) See Hanushek and Woessmann (2015)

(27) HLO is developed by the World Bank, and it provides country-level scores to assess the quality of education by capturing cognitive skills across countries. They are measured in TIMSS-equivalent units, where 300 is minimal attainment and 625 is advanced attainment. See Patrinos, H. A. and Angrist, N., Global Dataset on Education Quality: A Review and Update (2000-2017) (English). Policy Research working paper WPS 8592 Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/390321538076747773

FIGURE 19. Literacy rates: 15-24 vs 25-64 years



Source: *World Bank Education Statistics (EdStats), last available year (between 2018 and 2022)*

Compared to EU Member States, the HLO scores in MED countries, with the exception of Israel, are uniformly lower than those in EU Member States, and all other MED countries score below the minimum threshold achieved by EU27 countries, highlighting a substantial disparity in learning outcomes between the two regions.

Significant variations exist within Europe as well, with the highest scores recorded in Estonia (543) and Finland (533), and the lowest scores found in Bulgaria (441) and Romania (442). The largest EU countries also exhibit varying scores, including Germany (517), France (510), Italy (491), Poland (530), and Spain (506). This suggests that MED countries currently face challenges in terms of improving cognitive skills, which is a prerequisite for competitiveness and economic growth in an increasingly globalised economy.

4.3. Vocational and tertiary education: key indicators

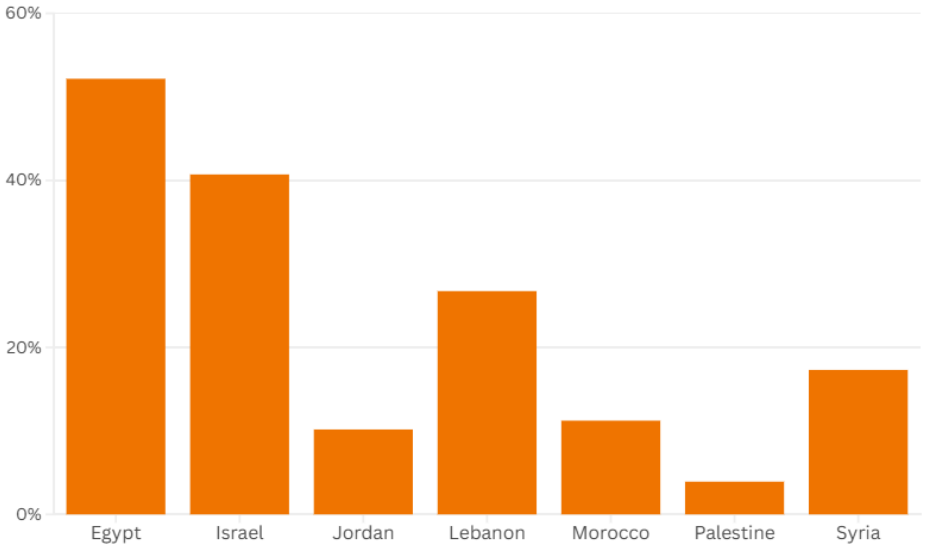
Economic growth models often emphasise the role of human capital as a driver of long run growth. However, the specific engines of growth are different in contexts of more advanced economies - often referred to as “frontier countries” - and emerging economies or “off-frontier countries”[28].

For frontier countries it is essential to have high quality of human capital and a high quality and quantity of new ideas and designs (e.g. patents, innovations, university industry cooperations). This is achieved by promoting high-quality tertiary education institutions, ensuring equal access to these institutions for talented students from all backgrounds, and fostering strong partnerships between higher education institutions and the productive sector.

In off-frontier countries, as most MED countries, competitiveness is not driven by pioneering technological innovations, but rather by the ability of its workforce to effectively adopt and utilize existing advancements (known as absorptive capacity), leading to productivity gains. In such contexts, the presence of elite universities is less critical to overall performance compared to having a robust Vocational Education and Training (VET) system, particularly in lower and upper secondary education; a well-functioning tertiary education

(28) See Storesletten, K.; Zilibotti, F. (2000). Education, Educational Policy and Growth. Swedish Economic Policy Review, 7:39-70.

FIGURE 20. Share of upper-secondary students enrolled in IVET programmes



Source: *World Bank Education Statistics (EdStats), last available year (between 2021 and 2023)*

sector with relatively high tertiary education graduation rates; and a significant proportion of graduates in fields closely related to technological progress, such as science, technology, engineering, and mathematics (STEM).

Although data on the relative performance of VET students is limited, we can examine the proportion of upper secondary students enrolled in Initial Vocational Education and Training (IVET) programmes[29]. As shown in Figure 21, the share of upper-secondary students enrolled in IVET programmes varies across countries.

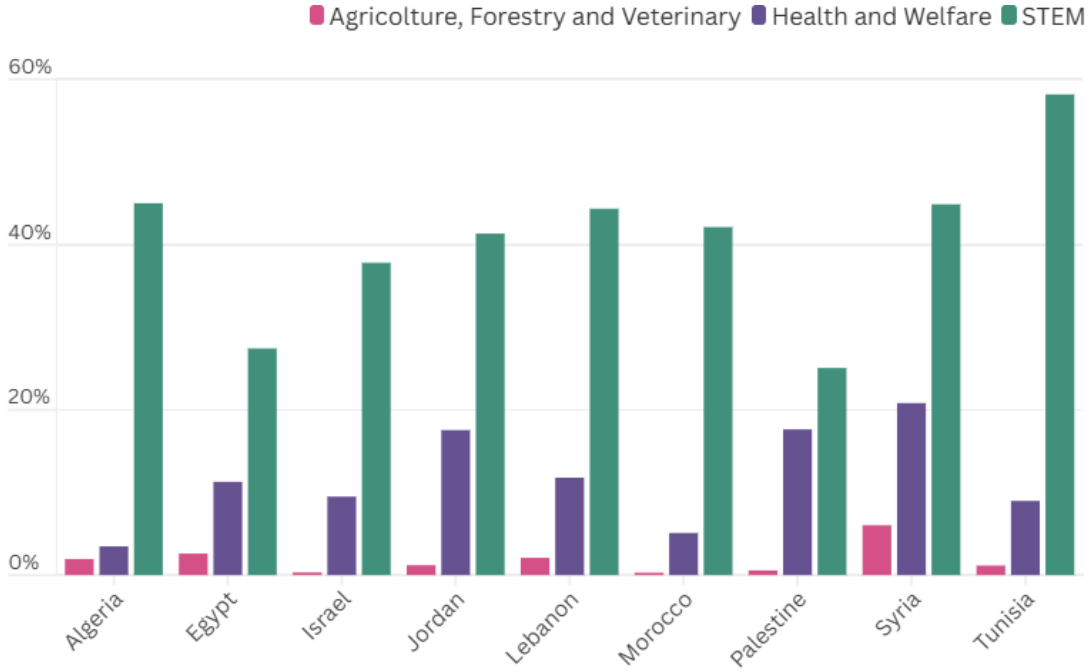
Notwithstanding the limitations of these statistics, the data suggests that Palestine, Jordan, Morocco, and Syria have relatively low enrolment rates in IVET. This could potentially hinder their ability to absorb and capitalize on global innovations, highlighting a need for increased investment in vocational education and training to enhance their absorptive capacity.

In terms of tertiary education graduation rates, the six countries with available data can be divided into two groups. The first group, comprising Algeria (39.6%), Israel (38.3%), Palestine (37.3%), and Egypt (33%), has graduation rates well above 30%. In contrast, Tunisia and Morocco have significantly lower tertiary graduation rates, at 25.5% and 22%, respectively. For comparison, the EU27 average in 2024 was 44%, with values ranging from 65.2% in Ireland to 23.2% in Romania (and around 30% in Italy, the Czech Republic, and Hungary).

From a compositional perspective, MED countries exhibit a relatively high share of STEM graduates, which could offset lower participation rates in tertiary education compared to the EU. The share of graduates in Agriculture, Forestry, and Veterinary, relevant for countries in which agriculture still plays an important role, is low, while Health and Welfare graduates are more prevalent in some countries, indicating the related status of the health profession among young cohorts (Figure 22).

(29) Initial Vocational Education and Training (IVET) is normally carried out in the initial education system and when making the transition into working life. Continuing Vocational Education and Training (CVET) programmes, generally take place after initial education training and after entry into working life.

FIGURE 21. Share of tertiary graduates by field of study



Source: *World Bank Education Statistics (EdStats), last available year (2021-2022)*

4.4. Education and future population dynamics

To explore the interplay between population dynamics, education, and human capital development in MED countries in the future, we rely on scenarios developed by the International Institute for Applied Systems Analysis (IIASA) using the Shared Socioeconomic Pathways (SSPs) framework[30]. This framework provides a comprehensive view of global development, incorporating factors like population growth, education, and migration. The SSPs are based on five possible scenarios for the period 2020-2100, and we focus on three of them: SSP1, SSP2, and SSP3.

The main novelty of these SSPs is the integration of demographic predictions with forecasts on migration and human capital, proxied by educational attainment. In essence, IIASA provides scenarios that outline the expected age-sex-education composition of the population from 2020 to 2100. Age and sex are critical factors, as they directly influence fertility rates, while education plays a pivotal role in driving economic growth, well-being, and health, and is also negatively correlated with fertility rates.

We consider three scenarios:

- SSP1: combines rapid education expansion (achievement of SDG 4, targeting high-quality universal primary and secondary education by 2030) with rapid fertility and mortality de-cline and medium migration levels.

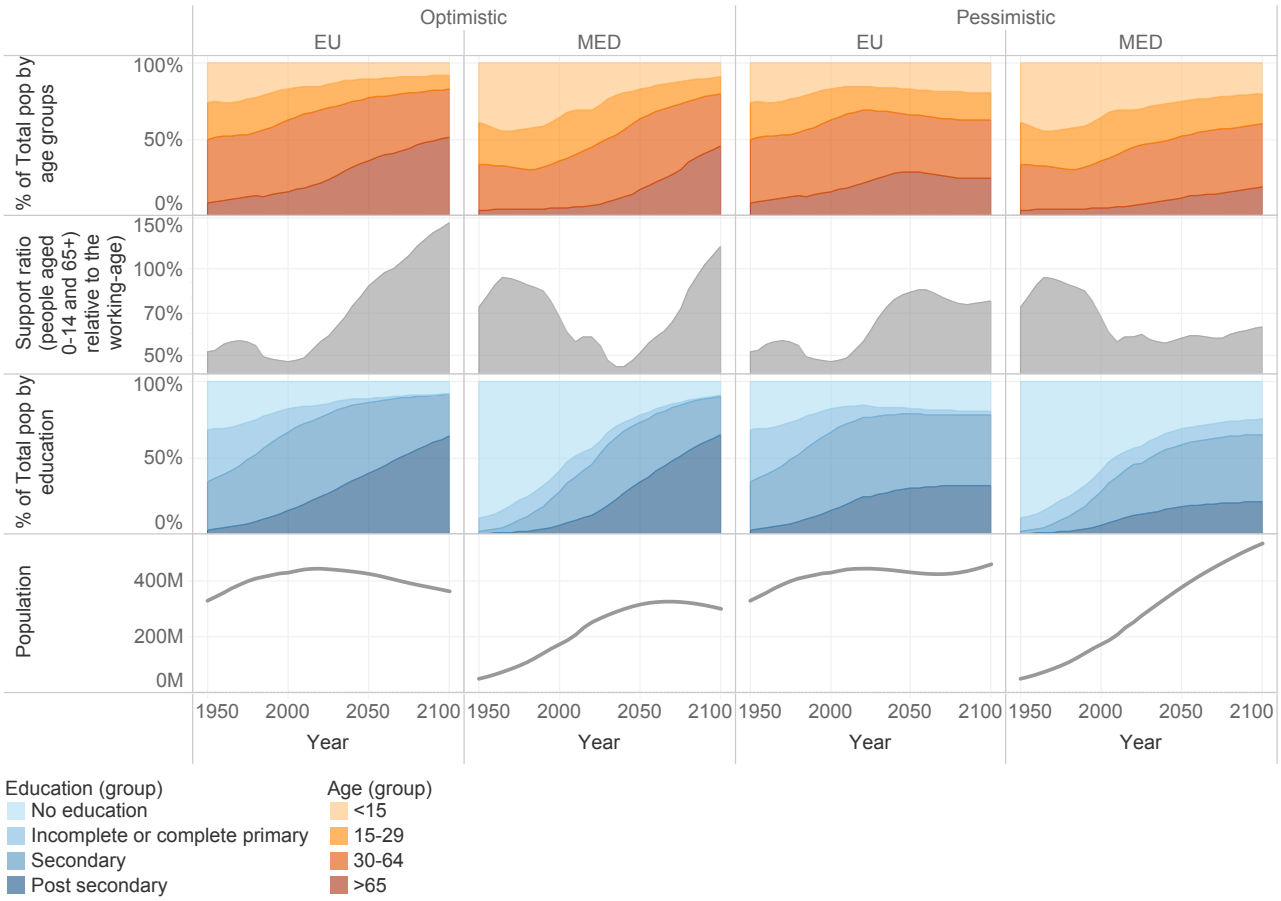
- SSP2: combines medium fertility, mortality, and migration assumptions with the Global Education Trend (a moderate path for educational development, assuming an average trend based on historical experience) scenario.

- SSP3: combines stalled school enrolment rates (educational attainment progression rati-os are set to be constant for the whole projection period) with slow fertility and mortality decline and low migration levels.

These SSPs can be interpreted as an optimistic scenario (SSP1), a status quo scenario (SSP2), and a pessimistic one (SSP3). We focus on the comparison between SSP1 and SSP3, as SSP2 represents the current trend.

(30) The scenarios have been defined in a collaborative effort of the international Integrated Assessment Modeling community with the medium scenario following that of a major new effort by the Wittgenstein Centre for Demography and Global Human Capital (IIASA, OEAW, WU) involving over 550 experts from around the world.

FIGURE 22. Demographic projections for the EU and MED countries according to two education scenarios.



Source: *IIASA projections and historical data on population by education (1995-2070) downloaded from the Wittgenstein Centre Human Capital Data Explorer.*

Figure 23 reports the evolution for the period considered (1995-2070) of four key variables, for the EU and MED countries separately (in both cases referring to the aggregated values across all countries), under SSP1 and SSP3.

In MED countries, population growth is more rapid in SSP3 than in SSP1, driven by higher fertility and mortality rates, as well as lower migration levels. In terms of demographic composition, the proportion of young people (under 15 and 15-29 years old) declines more quickly after 2025 under SSP1 than under SSP3, primarily due to lower fertility rates in SSP1. Conversely, the proportion of older individuals increases more rapidly under SSP1, driven by lower mortality rates.

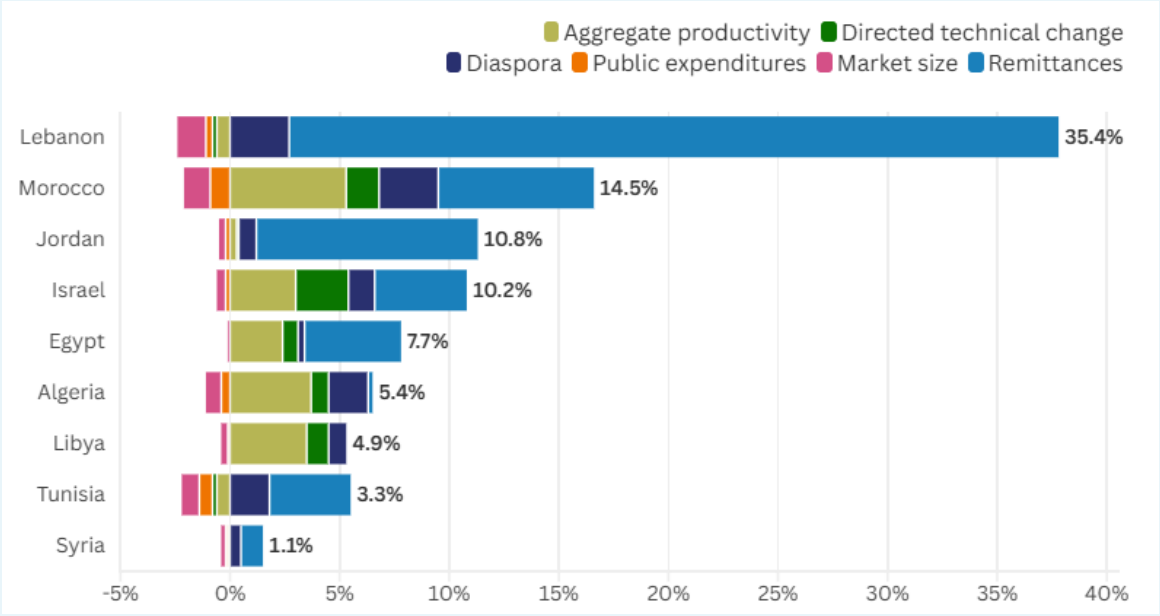
The educational composition of the population, which is influenced by age and gender demographics, also exhibits distinct trends between SSP1 and SSP3. Under SSP1, the proportion of individuals with little (incomplete primary, complete primary) or no education declines more rapidly after 2025 compared to SSP3. Conversely, SSP1 is characterised by a more pronounced increase in the share of individuals with upper-secondary and tertiary education (post-secondary education) after 2025.

Notably, the support ratio in MED countries under SSP1 is projected to decline until 2035, after which it will increase significantly, mirroring the trend observed in the EU since 2005. In contrast, under SSP3, the support ratio in MED countries remains relatively stable from 2005 to 2065. The SSP1 scenario highlights a key aspect of population dynamics, as previously discussed using UNDESA projections: the rapid expansion of education is accompanied by a swift transition to lower fertility rates. This, in turn, accelerates the shift in the population's composition towards a stage characterised by increasing support ratios, similar to the current situation in the EU.

Box 1. Education and labour mobility benefits for MED countries

International migration can have implications for the development dynamics of countries of origin[31]. Positive effects include the beneficial impact of remittances on countries of origin, the facilitation of innovation and improvements of productivity, and the role of diaspora in fostering trade. Negative effects of emigration include adverse effects due to a decrease in market size of origin economies and loss of tax payments by emigrants.

FIGURE 23. Simulated welfare implications for populations in the MED countries of origin.



Source: *Cha'Ngom et al. (2025).*

An important debate within the migration-development nexus relates to the so-called brain drain or brain gain argument. Recent evidence suggests that while emigration could create a substantial loss of vital human capital for origin countries, the prospects of emigration pathways may create incentives for people to increase individual investments in skill accumulation. If this incentive effect is strong enough, it can provide a substantial stimulus for additional skill formation and compensate for the losses. A recently developed, unified, and generalised macro-model analyses the country-specific effects of emigration for countries of origin[32] and shows positive implications for the welfare in the MED countries (Figure 24). In Lebanon, the country with the strongest positive effect among all MED countries, the income per worker is 35.4% higher in a world with migration than in a hypothetical scenario simulating a world without migration. Even in Syria, the country with the smallest positive effect, income per worker is simulated to be 1.1% higher due to migration prospects. The largest benefit in MED countries is driven by remittances, but also productivity and

(31) On the effects of migration on development see, for example:
- Siegel M, Marchand K, Hagen-Zanker J and Weisner, Z (2024) New insights on the development impacts of mi-gration. MIGNEX Flagship Report. Oslo: Peace Research Institute Oslo. Available at www.mignex.org/d077
- Marchand K., Hagen-Zanker J., Memon, R., Rubio, M. and Siegel, M. (2023). Direct effects of migration on devel-opment. MIGNEX Background Paper. Oslo: Peace Research Institute Oslo. Available at www.mignex.org/d071.
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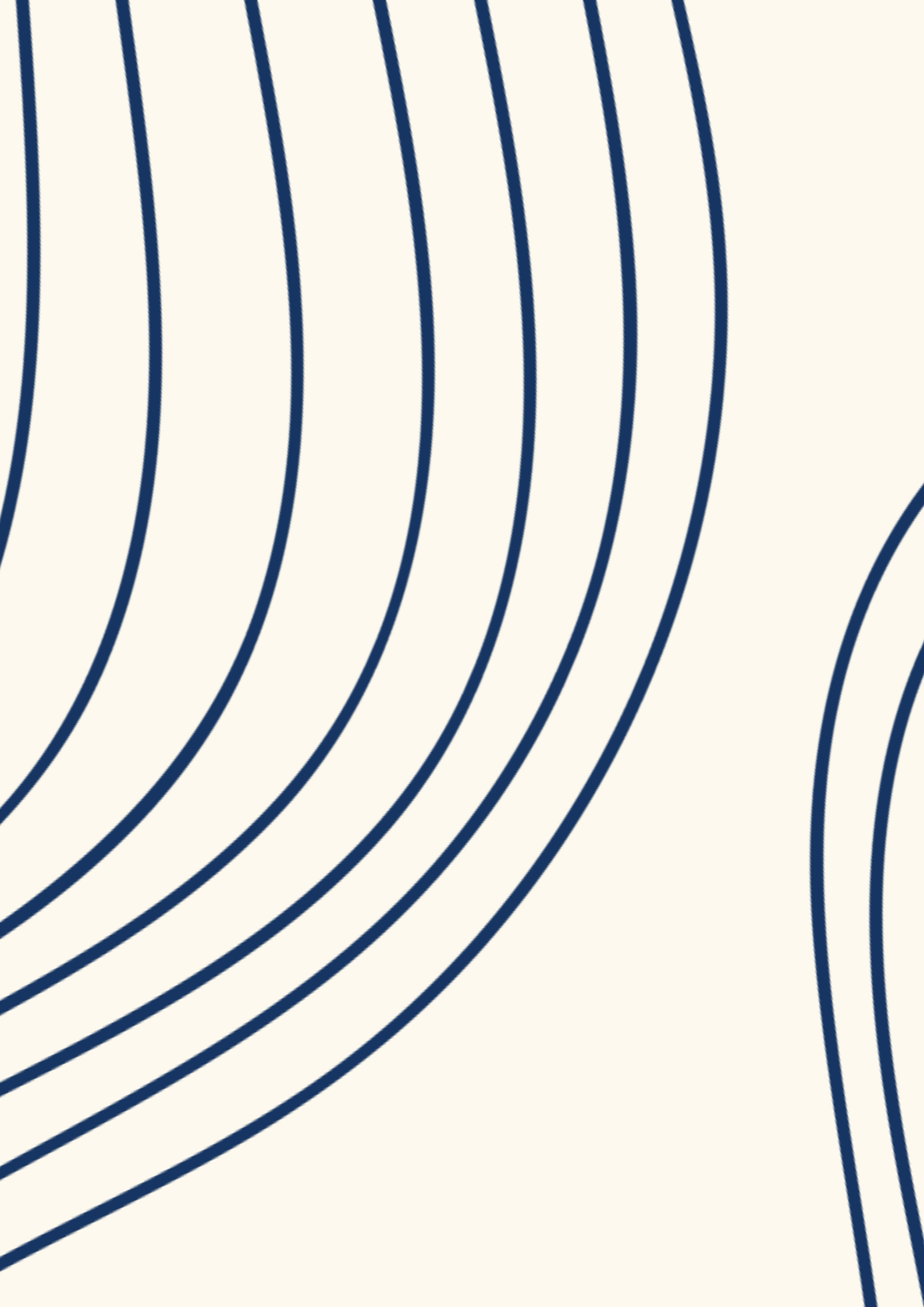
(32) The model compares a simulation of the global economic system without migration with observed data. This allows to simulate the magnitude of the educational incentive effect generated by emigration, and to distin-guish its impact on development for each country of origin separately. For a detailed description of the ad-vanced generalised approach, see Cha'Ngom, N., C. Deuster, F. Docquier & J. Machado (2025). Selective Migra-tion and Economic Development: A Generalized Approach. International Economic Review, forthcoming.

innovation (technical change) play a role. The latter can be related to the observed difference in competences level between MED and EU countries, for which education and labour opportunities and exchanges (such as Erasmus+ and circular migration) for MED nationals in the EU can contribute to increase the human capital and economic benefits of MED countries.

These dynamics highlight the need to develop and implement mutually beneficial partnerships between countries of destination in the EU and countries of origin in the MED. This could include for example increased education opportunities for MED nationals in the EU, and especially in fields which are relevant for both EU and MED labour markets, improved regulation on remittances, and rights portability to support migrant workers' return and retirement.



5. Conclusions and policy implications

The interplay between population dynamics, migration trends, and education systems has a profound impact on the social, economic, and demographic future of regions and countries, with significant implications for policymaking in the short, medium, and long term. In the context of the Pact for the Mediterranean, understanding these complex relationships is crucial for the European Union and its Southern Neighbourhood partners to develop effective cooperation strategies.

The analysis presented in this report highlights distinct demographic trends in the Mediterranean region, with significant population growth and a large youth cohort in the Southern Neighbourhood, contrasting with the EU's ageing population and low fertility rates. It also emerged that in the long term, the window of opportunity for economic development linked to a young age structure in MED countries will start to close, with support ratios progressively converging to similar levels as in the EU.

The migration landscape is characterised by complex patterns. Labour migration emerges as a key channel for both addressing labour shortages in the EU, and for promoting economic development in countries of origin. Meanwhile, education systems in MED countries face significant challenges, with low enrolment rates, high dropout rates, and limited access to quality education hindering the development of human capital and competitiveness.

The evidence presented in this report underscores the **need for a comprehensive approach to address the interconnected challenges and opportunities in the Mediterranean region**. This approach should prioritise the development of human capital, promote mutually beneficial partnerships, and leverage the potential of education and migration to drive sustainable economic growth and social development.

To support informed decision-making and cooperation between the EU and its Southern Neighbourhood partners, three key conclusions emerge, underscoring the need for strategic management of migration, expansion of labour migration pathways, targeted education policies, and investments in human capital accumulation.

I. Changes in age structure will shape the migration potential of countries of origin but the actual realisation of such potential into migratory movements will ultimately depend on various factors, including migration and asylum policies in countries of destination

Demographic trends will continue to play a fundamental role among the structural drivers of migration in the medium to long term. As illustrated above, till 2040, MED countries' demographic landscapes will be characterised by increasing populations and a large proportion of people in their prime working ages compared to a relatively small proportion of children and older persons. As of 2040, the demographic patterns in the MED will be more similar to those currently experienced in the EU.

The effects of such changes in terms of migration potential can only be estimated and should not be interpreted as a prediction. The young age structure of the Mediterranean population certainly increases migration potential. However, this does not necessarily translate into large-scale migration to the EU, as actual migratory movements are shaped by many other factors. Indeed, the extent to which the demographic migration potential will materialise in actual migratory movements is dependent on other long-term trends such as urbanisation and development, on contingent events like wars and instability, and ultimately on the political choices and partnerships between countries of origin and destination. In this context, policy choices will be crucial to ensure that migration in the Mediterranean can continue to play the historically fundamental role of maintaining geopolitical stability while producing

positive development externalities for both countries of origin and destination.

II. The expansion of education and labour migration pathways for MED nationals can benefit both EU and MED countries

European Member States and MED countries are facing a different demographic reality. While the EU is facing a shrinking population and increasingly prevalent labour shortages, the large cohorts of young people entering the working age population present significant challenges for MED countries, particularly in terms of providing decent employment opportunities. These divergent trends offer a basis for complementarity between the two regions.

The increasing number of employment-related permits issued by EU Member States to third country nationals, as well as the numbers of conversions from education to employment permits is a clear signal of increased openness of EU markets to foreign workers, a phenomenon driven by the EU demographic reality as well as changing workforce and labour needs. While migration will not solve Europe's demographic challenges, it is already evident that foreign workers are an integral and essential part of the economies of all EU Member States. For MED nationals in particular, the fact that 35% of them work in shortage occupations is a clear signal of their key contribution to the EU economy, demonstrating how migration can help to alleviate some labour market pressures.

Nevertheless, the full potential of labour migration between the two regions remains to be unlocked. Employment permits for MED nationals have grown more slowly than those issued to other migrant groups, suggesting that opportunities to match EU labour needs with available talent are not being fully exploited. Furthermore, the low labour market participation among MED women highlights an additional, largely untapped source of economic and social potential, whose activation could generate substantial benefits in terms of productivity, gender equality, and social inclusion.

While initiatives like the Talent Partnerships are crucial, they can be complemented by other strategies to attract foreign talent. Education represents an especially promising area for EU–MED cooperation and a strategic channel for mobility. A significant proportion of permits issued to migrants from the region in the education category are granted to young people, many of whom subsequently transition from study into employment. This pathway provides the EU with a pool of skilled workers who often face fewer integration challenges, while creating opportunities for MED countries through knowledge transfer, the circulation of talent, and the development of stronger institutional linkages in higher education and research. By strengthening partnerships between universities, vocational training institutions, and employers across the two shores of the Mediterranean, it is possible to develop a more anticipatory and forward-looking approach to mobility, thereby not only responding to immediate labour shortages needs but equipping young people with skills aligned with evolving labour market demands in the region.

III. Targeted education policies and sustained investments in human capital shall be developed and strengthened in MED countries

Educational attainment has a direct and proven impact on people's personal and societal development. The fact that a significant proportion of students in MED countries is dropping out of school or leaving the formal education system prematurely, often before completing their secondary education, can limit their future job prospects and hinder their ability to contribute to the economy. Efforts should therefore target school attendance, especially for disadvantaged fami-lies, alongside measures to acquire practical skills and competences at school. To this end, Tech-nical and Vocational Education and Training (TVET) can play a key role in equipping people with practical skills and prepare them for the labour market.

Specifically, MED countries have a window of opportunity until 2035 to invest in education and human capital. Until then, the relatively large and young working-age population, together with a favourable balance between workers and dependents, provides ideal conditions to strengthen skills, raise productivity, and support economic and social development.

In the next 10–15 years, increasing tertiary education graduation rates could expand opportunities for skilled migration to the EU, with positive effects on MED countries' welfare. Over the longer term, when the ageing of population reduces the size of the workforce, higher education will be essential to raise labour productivity and support the transition toward an economic model centred on human capital rather than continuous labour supply growth.

The period from 2025 to 2035 will thus be crucial for decision-making: a large and well-educated workforce, combined with mentioned favourable demographics, could drive both economic competitiveness and social development. To seize this opportunity, MED countries must prioritise sustained, comprehensive investments in education at all levels—from reducing early school dropouts to expanding tertiary education and TVET—ensuring both immediate labour market relevance and long-term resilience.

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List of abbreviations and definitions

Abbreviations	Definitions
ESDE	Employment and Social Developments in Europe
EU	European Union
EUROSTAT	European Statistical Office
HLO	Harmonized Learning Outcomes
IBCs	Illegal Border Crossings
IIASA	Applied Systems Analysis
IVET	Initial Vocational Education and Training
LFS	Labour Force Survey
MED	Ten Mediterranean countries considered for the analysis: Algeria, Egypt, Lebanon, Libya, Israel, Jordan, Morocco, Palestine, Tunisia and Syria.
OADR	Old-age Dependency Ratio
SSPs	Shared Socioeconomic Pathways
TVET	Technical and Vocational Education and Training ()
UNDESA	United Nations Department of Economic and Social Affairs
UNHCR	United Nations High Commissioner for Refugees
VET	Vocational Education and Training

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Annex 1- Data and methodology

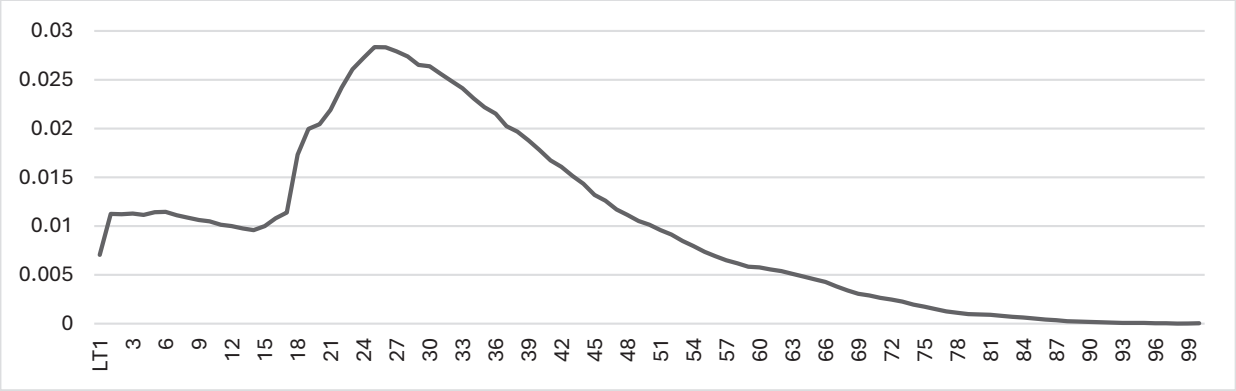
1. A back- and forecasting analysis of migration between the MED and EU

We conduct a simple computational exercise to back- and forecast the number of international migrants from the MED to the EU. To this end, we rely on the fully hypothetical scenario of assuming that the bilateral migration flows between the MED and EU will remain constant as observed around the year 2024. We follow a stepwise approach. First, we derive proxies for bilateral migration flows from the United Nations International Migrant Stock 2024 by computing the differences in bilateral migrant stocks between the years 2024 and 2020. This methodology has been tested an applied in various instances (see Abel and Cohen, 2022). Second, we multiply these proxies with age-specific migration flow data from Eurostat (migr_imm8) for each of the 27 EU Member States, in order to obtain an approximate measure of the age-specific bilateral migration flows for the year 2024. The age distribution of migrants usually follows a common pattern, with a peak among those of working age (Figure B1). It should be noted that this has implications for the computational exercise, since the approach relies on age-specific data. Third, we multiply these flows by the age-specific population data for the estimated period 1990-2023 and the projected period 2025-2060 derived from the United Nations World Population Prospects 2024. The following equation provides the imputed number of migrants:

$$\sum_i \sum_j \sum_s M_{ij,t}^{s} = \sum_i \sum_j \sum_s \sum_a \overline{s_{ij}^{s,a,2024}} p_{j,t}^{s,a}, \qquad \forall t \in [1990,2060] \cap \mathbb{Z} \quad (1)$$

where i describes the destination country in the EU, j stands for the origin country in the MED, M denotes the international migrants, p is the population, s stands for the sex, a stand for the one-year age group, t describes the year, and the imputed bilateral migration shares are given by $\overline{s_{ij}^{s,a,2024}}$

FIGURE 24. Age distribution of migrants to the EU, 2020-2022.



Source: *Eurostat (2024).*

2. Downscaling country of LFS microdata data by specific countries of origin

The analysis of MED migrant occupation in the EU labour force, as shown in Figures 13 and 14, is based on identifying the population by specific countries of origin within the Mediterranean Region. However, due to confidentiality concerns and limited sample sizes, the EU-level Labour Force Survey (LFS) microdata typically used for labour market analysis only provide aggregated figures by broad macro-regions (North Africa, Near and Middle East). To overcome this limitation, we used a downscaled approach, allocating the LFS population according to the relative share of migrant stocks within each macro-region, as reported in the United Nations International Migrant Stock 2024.

3. Data selection for the education analysis

The selection of data for the education analysis was guided by the availability of variables for years proximate to 2025, as well as their general relevance as indicators of educational status. The primary source of data utilized in this analysis is the World Bank Education Statistics (EdStats[33]). A notable challenge in compiling these data is the rarity of observing the same variable in the same year across all countries. To address this, the most recent observation available for each country was selected, with the difference in years typically being no more than one year. This approach is consistent with the methodology employed in the literature examining the impact of educational attainment on economic growth[34].

The selection process focused on variables that capture key aspects of education, commencing with indicators related to school attendance, considered a prerequisite for any formal learning. Beyond the examination of school attendance, the analysis further incorporates indicators that assess cognitive abilities, spanning from foundational skills such as basic literacy to more advanced domains, including mathematics and science. Finally, the analysis examines tertiary education, focusing on the distribution of recent graduates across different fields of study, recognizing that certain disciplines, such as STEM, are more closely linked to economic growth and development.

(33) available at: https://datatopics.worldbank.org/education/
(34) See Hanushek and Woessmann (2015)

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