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DOES IMMIGRATION PROMOTE ENTREPRENEURSHIP? IN SEARCH FOR POTENTIAL DEVELOPMENTAL AVENUES FOR THE EURO-MEDITERRANEAN (EUROMED) REGION

Samar Abdelmageed

FEMISE
ECONOMIC RESEARCH FORUM منتدى البحوث الاقتصادية
IEMed. European Institute of the Mediterranean

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Author:
Samar Abdelmageed, PhD Student at Ain Shams University

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CONTENTS

ABSTRACT

The main objective of this paper is to examine the impact of immigration on entrepreneurship with a particular focus on the Euro-Mediterranean (Euromed) Region. To address its objective, the study leverages a global country-level panel dataset that covers various entrepreneurship indicators including self-employment and the Global Entrepreneurship Monitor (GEM) indicators on entrepreneurial activities during (2000-2023). A series of One-Step System Generalized Method of Moments (GMM) dynamic models are built to investigate the impacts of immigrant and refugee inflows along with a group of other control variables on necessity-based vs opportunity-based entrepreneurship.

Findings show that immigration contributes to increasing "self-employment", as a proxy for "necessity-based entrepreneurship", with no significant impacts on "opportunity-based" entrepreneurial activities. At the same time, the inflows of refugees do not significantly affect any type of entrepreneurship in host countries. While the Euromed region exhibits relatively high innovation among nascent businesses, it generally lags behind in self-employment and early entrepreneurial activity. Moreover, Female-to-Male early opportunity-based entrepreneurship ratios in Euromed countries are consistently lower than those observed in other countries analyzed. The results emphasize the need for an increasing integration of immigrants and refugees into the labor markets of their host economies, especially in wage employment. Moreover, strengthening networks of cooperation between countries in the north and south of the Euromed can help boost levels of innovation and trade and support opportunity-based entrepreneurship in the region.

RÉSUMÉ

L'objectif principal de cet article est d'examiner l'impact de l'immigration sur l'entrepreneuriat, en mettant un accent particulier sur la région euro-méditerranéenne (Euromed). Pour atteindre cet objectif, l'étude s'appuie sur un ensemble de données de panel mondial au niveau des pays, couvrant différents indicateurs de l'entrepreneuriat, notamment le travail indépendant ainsi que les indicateurs du Global Entrepreneurship Monitor (GEM) relatifs aux activités entrepreneuriales sur la période 2000–2023.

Une série de modèles dynamiques estimés à l'aide de la méthode des moments généralisés en système à une étape (One-Step System GMM) est développée afin d'analyser l'impact des flux d'immigrants et de réfugiés, ainsi que d'un ensemble de variables de contrôle, sur l'entrepreneuriat de nécessité par rapport à l'entrepreneuriat d'opportunité.

Les résultats montrent que l'immigration contribue à l'augmentation du travail indépendant, utilisé comme indicateur de l'entrepreneuriat de nécessité, sans effet significatif sur les activités entrepreneuriales fondées sur les opportunités. Par ailleurs, les flux de réfugiés n'ont pas d'impact significatif sur aucun type d'entrepreneuriat dans les pays d'accueil. Bien que la région euro-méditerranéenne affiche des niveaux relativement élevés d'innovation parmi les entreprises naissantes, elle accuse généralement un retard en matière de travail indépendant et d'activité entrepreneuriale précoce. En outre, les ratios femmes-hommes de l'entrepreneuriat précoce fondé sur les opportunités dans les pays Euromed sont systématiquement inférieurs à ceux observés dans les autres pays analysés.

Ces résultats soulignent la nécessité de renforcer l'intégration des immigrés et des réfugiés dans les marchés du travail des pays d'accueil, en particulier dans l'emploi salarié. En outre, le renforcement des réseaux de coopération entre les pays du nord et du sud de la région euro-méditerranéenne peut contribuer à stimuler l'innovation et les échanges commerciaux, et à soutenir l'entrepreneuriat fondé sur les opportunités dans la région.

الملخص

يهدف هذا البحث بشكل رئيسي إلى دراسة أثر الهجرة على ريادة الأعمال، مع التركيز بشكل خاص على منطقة اليورو-متوسط (Euromed). ولتحقيق هذا الهدف، تعتمد الدراسة على مجموعة بيانات لوحية عالمية على مستوى الدول، تغطي عددًا من مؤشرات ريادة الأعمال، بما في ذلك العمل الحر، إضافة إلى مؤشرات مرصد ريادة الأعمال العالمي (Global Entrepreneurship Monitor – GEM) المتعلقة بالأنشطة الريادية خلال الفترة الممتدة من عام 2000 إلى عام 2023.

وقد تم بناء سلسلة من النماذج الديناميكية باستخدام أسلوب المربعات الصغرى المعممة بالنظام ذي الخطوة الواحدة (One-Step System GMM)، وذلك لتحليل أثر تدفقات المهاجرين واللاجئين، إلى جانب مجموعة من المتغيرات الضابطة الأخرى، على ريادة الأعمال القائمة على الضرورة مقارنة بريادة الأعمال القائمة على الفرص.

وتُظهر النتائج أن الهجرة تسهم في زيادة معدلات العمل الحر، بوصفه مؤشرًا على ريادة الأعمال القائمة على الضرورة، دون أن يكون لها تأثير ذو دلالة إحصائية على الأنشطة الريادية القائمة على الفرص. وفي الوقت ذاته، لا تُظهر تدفقات اللاجئين أي تأثير معنوي على أي نوع من أنواع ريادة الأعمال في الدول المضيفة. وعلى الرغم من أن منطقة اليورو-متوسط تُسجّل مستويات مرتفعة نسبيًا من الابتكار بين الشركات الناشئة، فإنها تتخلف عمومًا في مؤشرات العمل الحر والنشاط الريادي في مراحله المبكرة. كما أن نسب ريادة الأعمال المبكرة القائمة على الفرص لدى النساء مقارنة بالرجال في دول اليورو-متوسط أقل باستمرار من تلك المسجلة في الدول الأخرى محل الدراسة.

وتؤكد هذه النتائج على أهمية تعزيز اندماج المهاجرين واللاجئين في أسواق العمل في الدول المضيفة، ولا سيما في فرص العمل المأجور. كما أن تعزيز شبكات التعاون بين دول شمال وجنوب منطقة اليورو-متوسط يمكن أن يسهم في رفع مستويات الابتكار والتجارة، ودعم ريادة الأعمال القائمة على الفرص في المنطقة.

INTRODUCTION

The last two decades have witnessed a growing mobility of human capital across national borders, driven by the emerging trends of globalization and intensified by persistent crises and instabilities in different parts of the world. Despite the challenges that may accompany the accelerated flows of people between countries, immigration offers a number of welfare gains and prospective opportunities that can stimulate economic growth and support sustainable development.

Immigrant entrepreneurship is one of the potential opportunities emanating from immigration. Instead of joining wage employment, immigrants may decide to become self-employed or employers, which leads to the generation of more jobs for both nationals and other immigrants in their host economies. Skills and knowledge brought by immigrant entrepreneurs may also be transferred inside the economy and result in other incremental gains. Moreover, entrepreneurship may propose an alternative employment solution for refugees. Some suggest that refugees have higher entrepreneurial activity compared to national citizens and other immigrants (Newman et al., 2023). Additionally, Noorbakhsh & Teixeira (2024) found a positive impact of refugee inflows on self-employment in their host economies. However, gains from immigrant entrepreneurship are not attainable without appropriate migration and doing-business policies that can help avoid countereffects such as increasing the size of the informal sector or crowding out wage employment among immigrants. The lack of appropriate policies may also lead to the concentration of immigrant entrepreneurship in certain sectors, such as trade, leaving other sectors largely with no benefits, in addition to potentially diverting immigrants from wage employment and limiting their integration into this type of employment within their host economies (Naudé et al., 2017).

Therefore, a study of the macroeconomic and institutional environment and public policies and their impacts on immigrant entrepreneurship is needed (Falcão et al., 2024; Thi Thanh Thai & Turkina, 2013). Moreover, research on immigrant and refugee entrepreneurship remains limited, with existing studies relying mainly on qualitative approaches or offering only cross-sectional analyses, and focusing mostly on advanced economies, or tackling single-country case studies (Muñoz-Mora et al., 2022; Noorbakhsh & Teixeira, 2024; Riillo & Peroni, 2022; Thi Thanh Thai & Turkina, 2013; Wellalage et al., 2023; Zalkat et al., 2024).

This paper aims to study the impact of immigration flows on entrepreneurship in the Euro-Mediterranean (Euromed) Region[1]. The choice of Euromed comes as a result of the limited literature related to this topic especially for the South Mediterranean countries, in addition to the significance of immigration flows,

[1] The Euromed region used in analysis encompasses the 27 EU member states along with six Southern Arab Mediterranean countries, comprising Algeria, Egypt, Jordan, Lebanon, Morocco and Tunisia. A complete list of the Euromed countries covered by the study is presented in the Appendix.

including refugees, within the region. Moreover, the study extends the work of Noorbakhsh & Teixeira (2024), which examined the impacts of refugee inflows on both the Total early-stage Entrepreneurial Activity (TEA) Rate, sourced from the Global Entrepreneurship Monitor (GEM), and the self-employment estimates, published by the World Bank. Analysis is further expanded by assessing the respective impacts of immigrant and refugee inflows, enabling a direct comparison between them. The study also employs additional indicators of entrepreneurial activity from the GEM database, including the "Female/Male TEA Ratio" and the "Motivational Index" to capture factors underlying the decision to start a business; the "Established Business Ownership" rate as an indicator of business survival; and the "Innovation Rate", which measures the percentage of start-ups that introduces new products into the market.

Besides its introduction, the paper is divided into four sections starting with a review of the relevant literature, followed by a presentation of the research methodology, and then a discussion of the analysis results, culminating in a final section on conclusions and policy implications.

LITERATURE REVIEW

While several studies referred to the positive impacts of migration on development, another line of the literature claimed that migration feeds a continuing dependency of developing economies on the developed ones as it may lead to a growing brain drain in home or sending countries rather than a brain gain (Koczan et al., 2021; Naudé et al., 2017). Moreover, immigration can put pressures on the provision of public goods, replace native workers—thus suppressing their wages—and alter the demographic structure in host nations (Fairlie & Lofstrom, 2013; Guerreiro et al., 2020; Koczan et al., 2021).

However, the above-mentioned arguments are challenged by other views which indicate that the brain drain negative effects on sending nations take place only in the short term and are, at later stages, offset by the skills spillover from host to home countries via immigrants and consequently the increasing Foreign Direct Investment (FDI) inflows (Iurian & Radu, 2020; Koczan et al., 2021). Moreover, immigrants benefit their home countries both economically—through financial remittances that stimulate consumption and economic growth—and socially, through social remittances involving the transfer of skills, knowledge and behaviors from host to home countries (Chodavadia et al., 2024; Iurian & Radu, 2020; Naudé et al., 2017).

For host nations, immigrants can contribute to a more youthful demographic transformation of an aging population and create more demand on goods and services resulting in more production, output and therefore jobs (Iurian & Radu, 2020; Koczan et al., 2021). Additionally, a number of studies concluded the non-existence of a negative impact of immigrants in terms of replacing native workers since they are not perfect substitutes to each other (Koczan et al., 2021; OECD & ILO, 2018). Evidence on this claimed crowding-out effect is also limited (Vandor & Franke, 2018). Moreover, immigrant workers can replace natives only in sectors with insufficient labor supply or unfavorable working conditions such as vulnerable employment (OECD & ILO, 2018). Therefore, entrepreneurship can be one of the tools used to support the economic integration and social mobility of immigrants, thus mitigating any potential negative impacts of migration and amplifying its positive gains (Koczan et al., 2021; Vandor & Franke, 2018).

Drivers for Entrepreneurship

Past studies on entrepreneurship refer to its classification according to the motivation behind starting and running a new business into "*necessity-based entrepreneurship*", which is determined due to lack of access to jobs and exclusion from wage employment, and "*opportunity-based entrepreneurship*", which seeks to exploit an opportunity in the market and is determined by choice based on knowledge, skills, technology and innovation (Noorbakhsh & Teixeira, 2024; Shinnar & Nayır, 2019). Moreover, an entrepreneurial motivation or decision is affected by several individual, household and contextual,

including economic, political, institutional, social and cultural characteristics (Falcão et al., 2024; Naudé et al., 2017; Vandor & Franke, 2018; Zalkat et al., 2024). These factors can shape into either pull factors that mainly encourage people to pursue an opportunity-based entrepreneurial activity, or push factors that lead to necessity-based entrepreneurship (Shinnar & Nayır, 2019; Wellalage et al., 2023). Opportunity-driven entrepreneurship is particularly associated with innovation and economic growth (Bedi & Jia, 2024; Vandor & Franke, 2018).

Previous attempts to assess necessity-based entrepreneurship have relied on self-employment as a measuring indicator for this kind of entrepreneurship (Muñoz-Mora et al., 2022; Noorbakhsh & Teixeira, 2024). *Self-employment* is highly related to necessity-driven entrepreneurship, since it is pursued, in most of the cases, when job seekers have no other better employment options (Noorbakhsh & Teixeira, 2024). Immigrants may suffer from different types of discrimination in their host countries' labor markets and are hence driven toward self-employment to earn their living (Naudé et al., 2017; Thi Thanh Thai & Turkina, 2013). These discriminations can take different forms and are created by many factors such as unfriendly migration policies, lack of appropriate skills or educational levels demanded by the host country's labor market and consequently limited access to wage employment, language barriers, inability to tap funding resources, etc. (Falcão et al., 2024; Riillo & Peroni, 2022; Shinnar & Nayır, 2019). These are factors that push immigrants into a necessity-based type of entrepreneurship (Wellalage et al., 2023). In addition, the prevalence of informality in a host nation may encourage immigrants to join self-employment (Muñoz-Mora et al., 2022). Furthermore, economic hardships such as a recession can also push immigrants into self-employment as a solution to unemployment (Lofstrom & Wang, 2022; OECD, 2011).

The Impact of Migration on Entrepreneurship: A Review

Research suggests that immigrants have a higher likelihood of becoming entrepreneurs in their host economies (Naudé et al., 2017; OECD & ILO, 2018; Vandor & Franke, 2018). This can be partially justified by the opportunities they have to introduce new products or to serve their own communities in their host countries (Falcão et al., 2024). Furthermore, immigrant entrepreneurship contributes not only economically through job creation, innovation and trade, but also socially by adding to the cultural diversity of a host country and supporting the integration of immigrants within it (Bedi & Jia, 2024; Brzozowski & Lasek, 2019; Chodavadia et al., 2024; Fairlie & Lofstrom, 2013; Falcão et al., 2024; Guerrero & Wanjiru, 2021; Hunt & Gauthier-Loiselle, 2010; OECD, 2011; Shinnar & Nayır, 2019).

With the recent noticeable increases in immigration and refugee influxes, the literature is now featuring a growing interest in studying the relationship between immigration and entrepreneurship. There is also a rising attention to examine refugee entrepreneurship especially after the 2015 refugee crisis in Europe (Abebe, 2023). Additionally, the majority of available studies focused on immigrant entrepreneurship in developed countries. Papers on advanced economies, such as the US and OECD countries, pointed to the larger share of entrepreneurs among immigrants or the higher probability for immigrants to become entrepreneurs compared to natives (Azoulay et al., 2022; Dheer & Lenartowicz, 2020; Fairlie & Lofstrom, 2013; Kerr & Kerr, 2020; OECD, 2011; Riillo & Peroni, 2022).

On the other hand, few studies examined the impact of immigration on entrepreneurship in emerging economies (Guerrero & Wanjiru, 2021; OECD & ILO, 2018). Muñoz-Mora et al. (2022) is one of these few studies that explored the impact of migration on entrepreneurship for the case of Venezuelan immigrants to Colombia. The study highlighted a positive effect of migration on self-employment but not on employers. This result goes in line with the study of Noorbakhsh & Teixeira (2024) who focused on refugees and found a negative association between refugee inflows and early-stage entrepreneurial activities compared to a positive effect of these inflows on self-employment in countries with high and upper-medium income-levels. Bedi & Jia (2024) employed the GEM data and also concluded that immigrants have a positive effect on entrepreneurship with more favorable impacts in cases of enforcing migration quotas resulting from a decrease in necessity-based as opposed to opportunity-based entrepreneurship. In another direction, Wellalage et al. (2023) examined the link between immigration and entrepreneurship and the moderating role of culture in this regard. This paper reiterated the positive impact of immigration on entrepreneurship expressed in terms of a higher probability of pursuing an entrepreneurial activity for immigrants with heterogenous effects by culture and type of entrepreneurship.

Determinants of Immigrant Entrepreneurship

As mentioned earlier, the decision made by job suppliers to carry over an entrepreneurial activity relies on multiple factors, which differ slightly for immigrants. Fairlie & Lofstrom (2013) summarized factors affecting immigrant entrepreneurship into human capital, access to finance, home country business experience, proximity to same ethnic communities and legal status of the immigrant.

Human capital is one of the most important individual determinants of entrepreneurship in general but it has a special significance for immigrants since a mismatch between their skills and knowledge and those required by their new host labor market can push them into necessity-based entrepreneurship (Bedi & Jia, 2024; Fairlie & Lofstrom, 2013; Shinnar & Nayır, 2019). However, the literature offers mixed evidence and shows that in some cases a higher level of education can sometimes be associated with higher inclination toward entrepreneurship (Fairlie & Lofstrom, 2013). Highly-educated individuals usually strive for opportunity-based entrepreneurship, whereas low levels of education may push individuals into necessity-based entrepreneurship to escape unemployment (Bedi & Jia, 2024; Lofstrom & Wang, 2022).

Gender and age are other individual factors that can influence immigrant entrepreneurship. It is suggested by the literature that females may engage more in necessity-based entrepreneurship as a result of its flexible nature with a chance for female immigrants to replace female natives in this type of entrepreneurial work (Bedi & Jia, 2024). Country of origin may also be related to the choice of pursuing an entrepreneurial activity by immigrants because the degree of embeddedness of the value of entrepreneurship in their cultures can affect this choice (Vandor & Franke, 2018).

There are multiple contextual characteristics that impact immigrant entrepreneurship. Leading these factors are the institutional and economic environments of the host country (Lofstrom & Wang, 2022;

Vandor & Franke, 2018). Another element is ethnic communities in host countries. Residing in a geographical area with the same ethnic group, or what can be referred to as an ethnic enclave, may provide a market for special products and services to satisfy the particular needs of this group, in addition to a potential channel to access finance (Fairlie & Lofstrom, 2013; Lofstrom & Wang, 2022; Shinnar & Nayır, 2019; Vandor & Franke, 2018). Maintaining ties with home nation along with establishing good social networks in the host nation support immigrants to choose entrepreneurship as a career path (Lofstrom & Wang, 2022; Shinnar & Nayır, 2019). Additionally, illegal or undocumented immigration or facing different sorts of discrimination in the labor market stimulate the need for informal self-employment as the last resort (Fairlie & Lofstrom, 2013; Vandor & Franke, 2018).

RESEARCH METHODOLOGY

The study's objective is to answer the following main questions: Is immigration linked to entrepreneurship, and if so, what is the impact of immigration on entrepreneurship in the Euromed region? How did the relationship between immigration and entrepreneurship develop over time? What factors mediate this relationship? Are there any differences between the impacts of immigrant inflows and those of refugee inflows? And, what are the reasons behind these differences, if they exist?

The comparison between the impacts of all immigrants and those of only refugees is necessary since immigrants are mainly driven by economic and employment reasons while refugees are forced to leave their home countries due to political instabilities, crises, wars, conflicts or natural disasters (Koczan et al., 2021). Moreover, more than 85% of refugees are hosted by developing countries (Guerrero & Wanjiru, 2021) in addition to one third of global immigrants (OECD & ILO, 2018), which can add further challenges and calls for the study of the implications of immigration in the global south.

Research Hypotheses and Model Specification

Based on the review of the previous literature done on the topic, the study aims to test the following hypotheses:

H1: Immigrant inflows positively affect entrepreneurship rates in their host economies including countries in the Euromed region

H2: Refugee inflows positively affect entrepreneurship rates in their host economies including countries in the Euromed region

H3: Immigrant inflows positively affect opportunity-based entrepreneurship rates, whereas refugee inflows positively affect necessity-based entrepreneurship rates in their host economies including countries in the Euromed region

H4: Immigrant inflows positively affect entrepreneurship innovation rates in their host economies including countries in the Euromed region

To answer its main research questions and test its hypotheses, the paper employs the generalized method of moments (GMM) panel data models to operationalize the relationship between the main dependent variable, which is each one of the entrepreneurial activity indicators (EAI), and the main explanatory variables of immigrant/refugee inflows, in addition to the control variables including individual, macroeconomic and institutional variables. The model can be written in the following form:

$$EAI_{i,t} = \alpha EAI_{i,t-1} + \beta_1' X_{i,t} + \beta_2' X_{i,t-1} + \eta_i + \upsilon_{i,t} \qquad (1)$$

where i =1,2,3,...,*N* represents the number of countries included in analysis and t =1,2,3,...,*T* represents the time points or years. The model is estimated using lagged values of the dependent variable, $EAI_{i,t-1}$, and the level and lagged values of the endogenous explanatory variables, $X_{i,t}$ and $X_{i,t-1}$ respectively. η_i are the time-invariant fixed effects and $\upsilon_{i,t}$ are the idiosyncratic errors (Blundell & Bond, 1998).

The GMM estimation is used because of its efficiency in handling dynamic relationships where the dependent variable's current value is correlated with its past values. In addition to the model's advantages in addressing endogeneity among variables and increasing the number of observations available for analysis, it can account for heterogeneity across units of analysis or the presence of fixed effects, heteroskedasticity and autocorrelation within the same unit. Moreover, the GMM models use instruments from inside the dataset and can allow for external instruments, if needed, and the model's estimates reduce bias resulting from variable omission or potential measurement errors (Noorbakhsh & Teixeira, 2024; Roodman, 2009). The paper applies a system GMM model due to the improved precision and performance of system GMM models compared to first-differenced GMM especially in cases of small numbers of observations and high autoregressive parameters (Blundell & Bond, 1998). A system GMM uses the original level equation (1) with the following first difference equation:

$$\Delta EAI_{i,t} = (\alpha - 1)EAI_{i,t-1} + \beta_1' X_{i,t} + \beta_2' X_{i,t-1} + \eta_i + \upsilon_{i,t} \qquad (2)$$

This model uses the lagged first differences as instruments for equation (1) and the lagged levels of the endogenous variables as instruments for equation (2) (Blundell & Bond, 1998; Roodman, 2009).

A one-step system GMM is used because of its simplicity and adequacy to work with small datasets with many gaps compared to a two-step system GMM.

Study Variables and Data

The contributions of immigrants to entrepreneurship and to development may differ by the type of entrepreneurial activity (necessity vs opportunity-driven) (Naudé et al., 2017). Accordingly, a group of models are fitted to study different entrepreneurial activity indicators. The first entrepreneurship indicator employed is the percentage of the self-employed out of total employment, which can be used as a proxy for necessity-based entrepreneurship (Muñoz-Mora et al., 2022; Noorbakhsh & Teixeira, 2024). This self-employment percentage, globally estimated by the International Labor Organization (ILO), includes both the formal and informal sectors. Despite the strong association between self-employment and informality, the study focuses on analyzing necessity-based entrepreneurship, as proxied by self-employment, in general without specifically addressing the informal sector.

Other entrepreneurial activity indicators analyzed are extracted from data of the Global Entrepreneurship Monitor (GEM) including the Total early-stage Entrepreneurial Activity (TEA), Established Business Ownership and Innovation rates; Female/Male TEA ratio; and the Motivational index. The GEM is a reliable harmonized cross-country data source used by previous literature to study the relationship

between immigration and entrepreneurship (Bedi & Jia, 2024; Noorbakhsh & Teixeira, 2024; Riillo & Peroni, 2022; Wellalage et al., 2023). The GEM indicators on global entrepreneurial activities are derived based on surveys of a minimum sample of 2000 adults in each economy investigated. These surveys have expanded over time to cover now around 120 countries worldwide (GEM (Global Entrepreneurship Monitor), 2023). However, more complete data are available on self-employment compared to the GEM indicators.

Since indicators of early-stage entrepreneurial activity include both the necessity- and opportunity-based types of entrepreneurship as stated in Noorbakhsh & Teixeira (2024), the study decided to include the other GEM indicators of established business ownership and innovation rates, which can be more representative indicators for opportunity-based entrepreneurship. Furthermore, the motivational index, measured as the percentage of those involved in TEA who are opportunity-motivated relative to those who are necessity-motivated, can be used as the main proxy for the opportunity-based type of entrepreneurship.

The main explanatory variables employed in the model are the immigrant and refugee inflows. Similar to Wellalage et al. (2023), Bedi & Jia (2024) and Noorbakhsh & Teixeira (2024) a group of control variables are inserted in the model, which include individual, macroeconomic and institutional variables. The individual variables consist of the age composition of population represented by the percentages of population aged 20-39 years and those aged 40-59 years, the percentage of females in the population, population growth and the average number of years of schooling. Moreover, the macroeconomic variables encompass the GDP per capita, unemployment rate, inflation rate, the percentage of domestic credit given to the private sector to GDP, inflows of Foreign Domestic Investment (FDI) and trade openness. As for the institutional variables, the study employs the Factor Analysis (FA) and the Principal Component Analysis (PCA) to build a composite index of the World Bank's governance indicators to assess the institutional quality of an economy. Based on these analyses, individual variables are assigned to specific factors and factor scores are calculated to determine the weights used to construct the composite index (Mooi et al., 2018).

Data on different individual, macroeconomic and institutional variables are extracted from the World Development Indicators Database of the World Bank. The main sources for data on migration stocks are the World Development Indicators Database (WDI) of the World Bank and the United Nations Global Migration Database; however, data on the migrant stock by country of destination are only available on a five-year periodicity, which means that for the period of study, the data are available only for 2000, 2005, 2015 and 2020. Therefore, to solve this lack of data issue, the study employs the net migration variable, which is available on a yearly basis in the WDI database. This variable is the subtraction of emigrants outside of a country from the immigrants flowing inside it. Finally, data on population by age group are obtained from the World Population Prospects of the United Nations Population Division, whereas statistics on refugees are retrieved from the United Nations High Commissioner for Refugees (UNHCR). Table A in the Appendix presents the study's main variables with their descriptions.

The paper builds its models using data of all countries available for the period (2000-2022) with a dummy variable for countries in the Euromed region. The Euromed countries analyzed were selected

based on data availability and include six Southern Arab Mediterranean countries, comprising Algeria, Egypt, Jordan, Lebanon, Morocco and Tunisia, in addition to the 27 EU member states. Complete lists of the 110 countries included in the global analysis as well as countries studied from the Euromed region are available in the Appendix.

RESULTS AND DISCUSSION

GLOBAL AND REGIONAL TRENDS OF IMMIGRATION

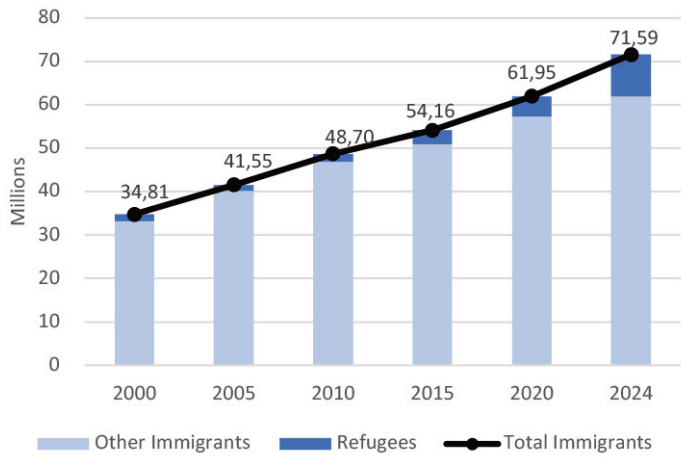
Based on the United Nations' global migration database with data available up to 2024, the world's international migrant stock has increased dramatically by about 98% between 1990 and 2024 and by 74% between 2000 and 2024. Since the majority of migrants are economic migrants who mainly seek employment opportunities, according to the latest available data on migrant stocks in 2024, the world's more developed regions host 55% of immigrants with a percentage increase of 58% in their migrant stock between 2000 and 2024. Moreover, high-income countries host 65% of the total global migrant stock compared to 34% in low-and-middle-income countries. However, the situation is reversed in the case of refugees. The 2024 report published by the UNHCR on the global trends of forced displacement highlights that 73% of the forcibly displaced including refugees live in low and middle-income countries (United Nations High Commissioner for Refugees (UNHCR), 2024).

By the year 2024, the Euromed[2] region hosted roughly a quarter of the world's migrant stock and almost one third of its refugees[3]. Figure 1 shows that the Euromed region has experienced an accelerated immigration movement in the last two decades by more than the double, rising from about 35 million migrants in 2000 to 72 million migrants in 2024, and exceeding the world's migrant stock increase rate of 74% during the same period. Furthermore, the number of refugees hosted by Euromed countries grew more than five times between 2000 and 2024, from nearly two to ten million refugees [Figure 2], compared to a global increase rate by 155%. It is worth noting that the number of refugees between 2021 and 2022 only has expanded substantially by about 80%, from almost five to nine million refugees, due to the escalation of conflicts, particularly the Russia-Ukraine war. Refugees now represent 13% of immigrants in Euromed.

[2] Countries used to define the Euromed region and calculate its aggregates are listed in the Appendix.

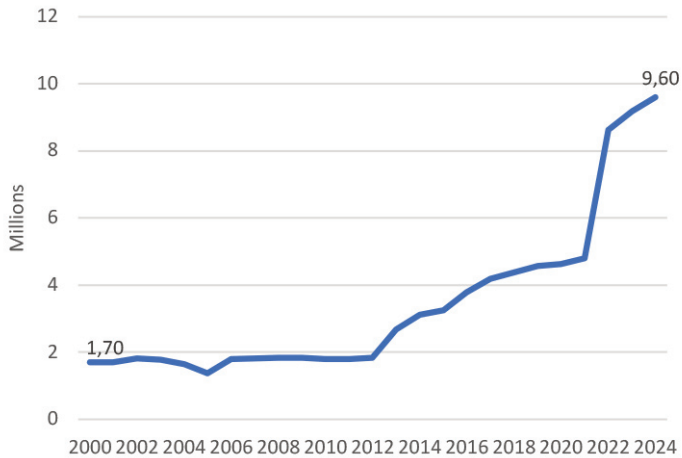
[3] Data used in analysis refer only to refugees under UNHCR's mandate.

Figure 1. Migrant Stock, Euromed, 2000-2024



Source: Calculated based on United Nations Department of Economic and Social Affairs, Population Division (2024). International Migrant Stock 2024 and UNHCR Refugee Data Finder

Figure 2. Number of refugees in Euromed, 2000-2024



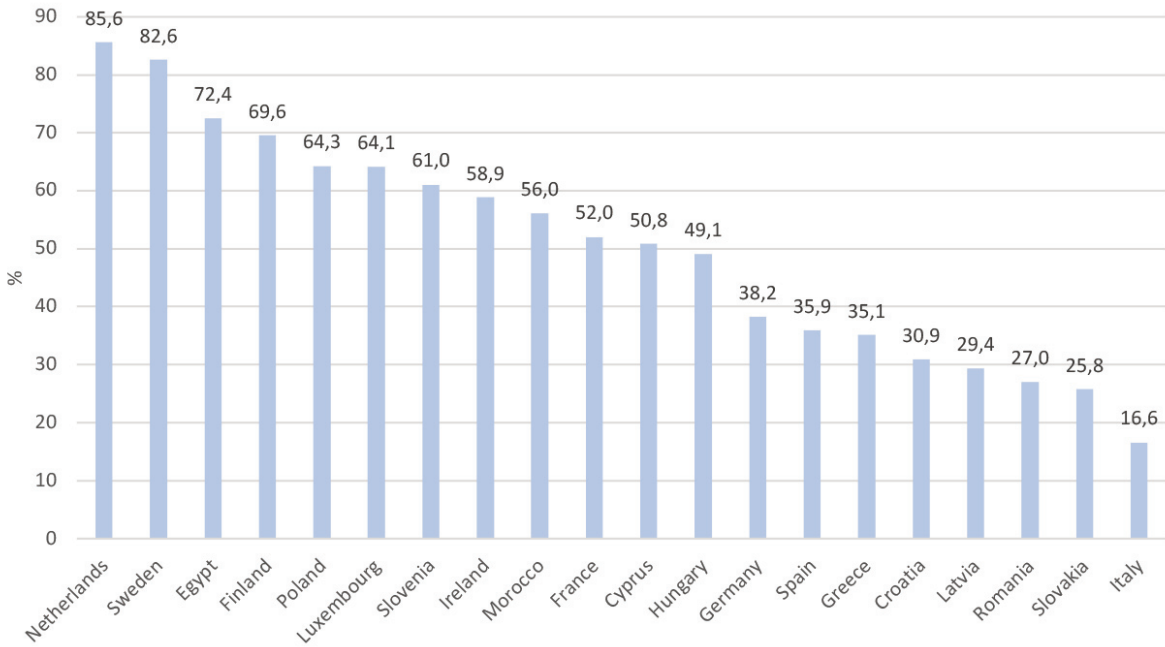
Source: Calculated based on numbers of refugees under UNHCR's mandate extracted from UNHCR Refugee Data Finder

ENTREPRENEURSHIP IN THE EUROMED REGION: A DESCRIPTIVE ANALYSIS

The GEM provides cross-country publicly-available data on the main indicators of entrepreneurial behaviors between 2001 and 2024, whereas the full Adult Population Survey (APS) datasets, which include the detailed answers to survey questions are published online three years after data collection. Therefore, the latest available year for the detailed GEM-APS datasets is 2021. However, data on the indicators of entrepreneurial attitudes and behaviors are available to access and download for the period between 2001 and 2024.

According to the GEM-APS data of 2021, an average percentage of about 50% of the surveyed individuals in the Euromed region believe that it is easy to start a business in their country; however, clear variations exist among countries [Figure 3]. The data also show that the share of entrepreneurs who start their businesses to earn a living (necessity-based early-stage entrepreneurs) among males is generally higher compared to females in Euromed [Figure 4], which can reflect the impact of unemployment risk that differs by gender on the decision of pursuing a necessity-based entrepreneurial activity. Males cannot afford staying unemployed for a long period of time; therefore, when job are scarce, they decide to become entrepreneurs to earn a living.

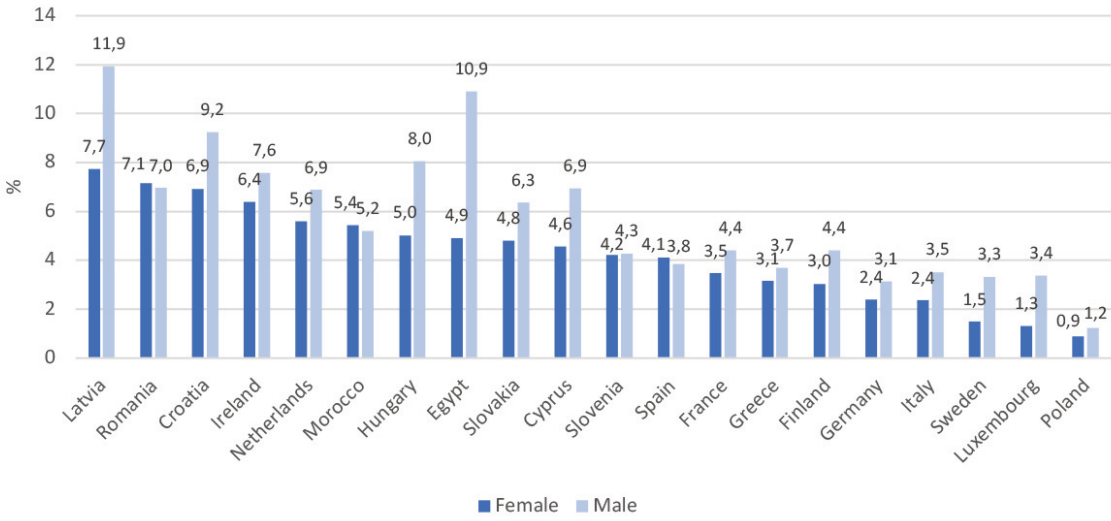
Figure 3. Percentage of respondents who think it is easy to start a business in their country, Euromed countries, GEM 2021



Source: GEM 2021 APS Global National Level Data

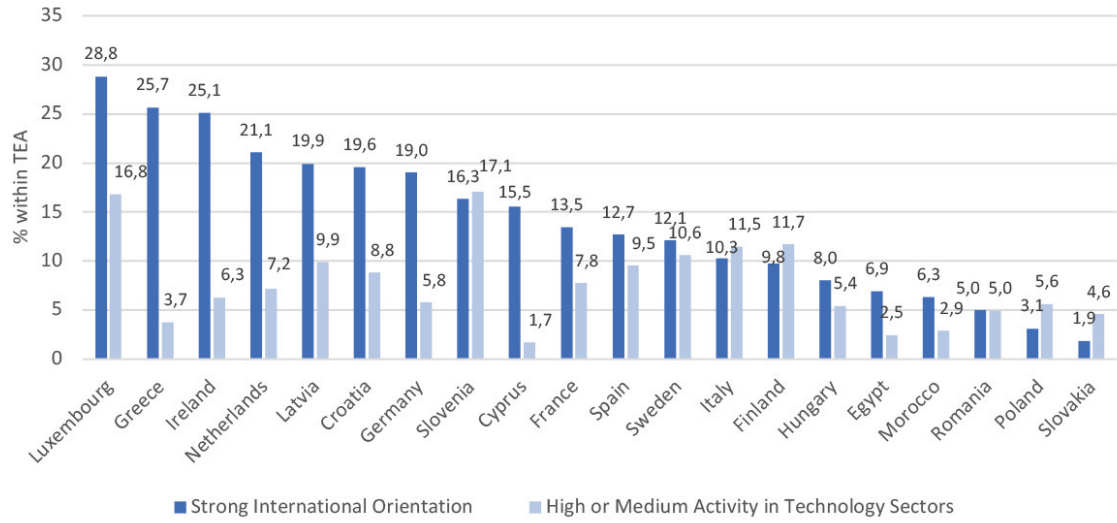
Entrepreneurship should promote trade and innovation, which are linked to development and economic growth; therefore, it is important to examine the prevalence of trade activities among early-stage businesses as well as their involvement in the technology sectors of their countries. Figure 5 depicts a clear lack of international orientation with start-ups and their weak engagement in technology sectors in Euromed countries. This is particularly evident among South Mediterranean businesses in Egypt and Morocco.

Figure 4. Percentage of entrepreneurs who are involved in early-stage businesses to earn a living due to scarce jobs, Euromed countries, GEM 2021



Source: GEM 2021 APS Global National Level Data

Figure 5. Percentages of TEA businesses with strong international orientation (more than 25% of revenue from outside country) and TEA businesses that are active in technology sectors, Euromed countries, GEM 2021

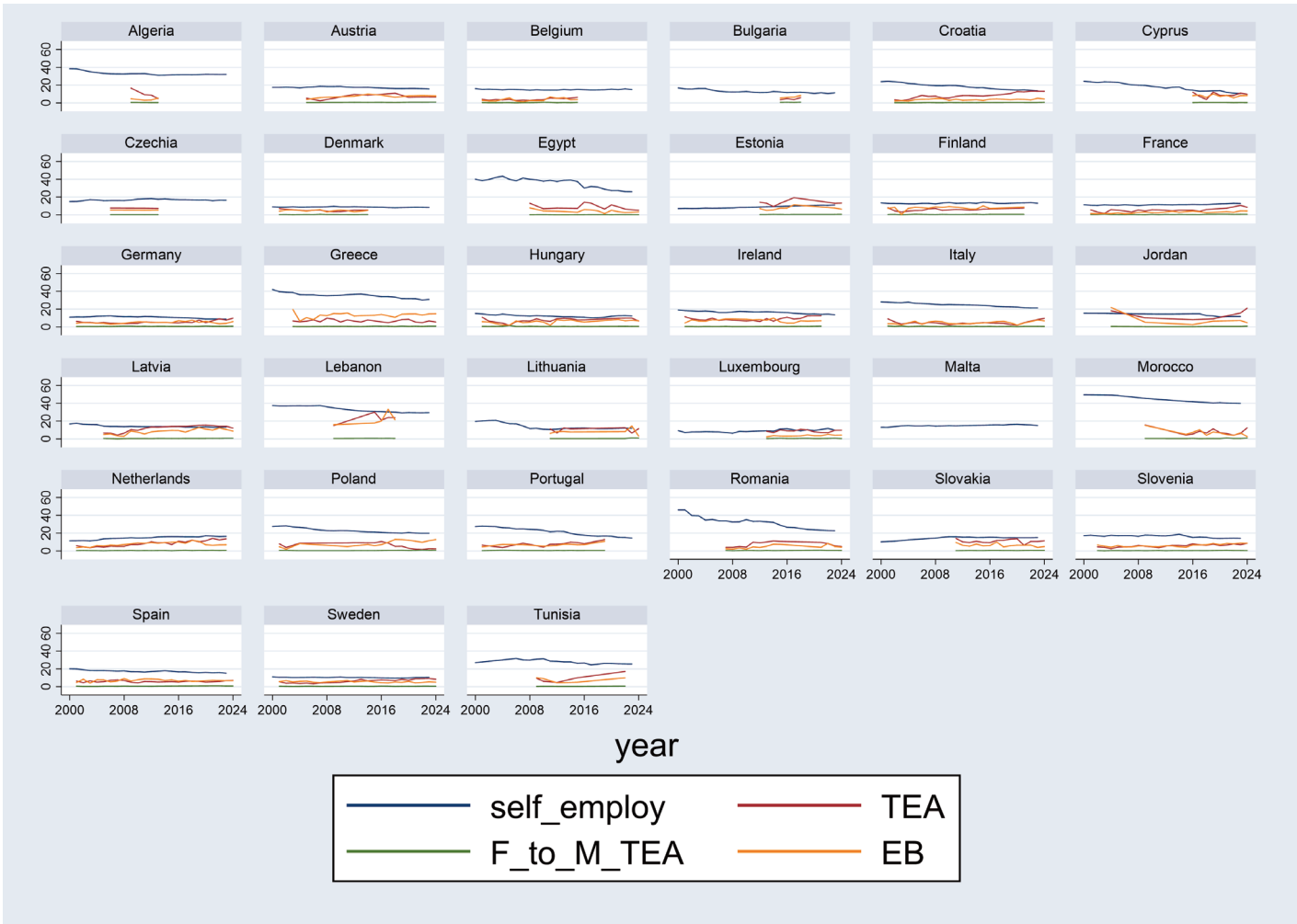


Source: GEM 2021 APS Global National Level Data

Figure 6 captures the time trends of entrepreneurship indicators within Euromed countries during (2000-2024). It is clear from individual country graphs that, in general, the share of self-employment is higher compared to the GEM entrepreneurship indicators of TEA, Female/Male TEA Ratio (F_to_M_TEA) and Established Business Ownership Rate (EB) in Euromed. Moreover, self-employment has the highest

levels in the South Mediterranean Euromed with the exception of Jordan. Among the North Mediterranean Euromed countries, Greece and Romania have high levels of self-employment. However, levels of self-employment are decreasing over time in many North and South Mediterranean countries within the Euromed region. These reductions are not necessarily translated into increases in other entrepreneurial activity indicators, since they may correspond to increases in wage employment, unemployment or self-exclusion from labor force participation.

Figure 7. Time trends of the entrepreneurship indicators: self-employment (self_employ), TEA, Female/Male TEA Ratio (F_to_M_TEA) and Established Business Ownership Rate (EB), Euromed countries, 2000-2024



Note: No GEM data are available for Malta
Source: WDI and GEM

ANALYZING THE RELATIONSHIP BETWEEN IMMIGRATION AND ENTREPRENEURSHIP

Although data of the GEM entrepreneurship indicators are available until 2024, the most recent data on the explanatory variables employed in the model for evaluating the impact of immigration on entrepreneurship are limited to the year 2023. Accordingly, the analysis period extends between 2000 and 2023. Furthermore, to explore how immigration is linked to entrepreneurship in the Euromed region, the paper fits a one-step system GMM estimation. This type of models deals with the potential endogeneity among the study's variables. For the purpose of generalization and to increase the number of observations available for analysis, a panel dataset of 110 global countries is used in model estimation. A dummy variable for the Euromed countries is inserted in the model to check if there are specific differences in results between the Euromed and other regions in the world. Moreover, robust standard errors are used in model estimation to treat heteroskedasticity. In addition, the Arellano and Bond tests are used to examine the existence of AR(1) and AR(2) autocorrelations in residuals along with the Sargan/Hansen tests for validity of the model's instruments. In order to rely on the estimation results of the model, the AR(1) autocorrelation should be significant against a non-significant AR(2) correlation, whereas the null hypotheses of the Sargan/Hansen tests should not be rejected (Arellano & Bond, 1991; Roodman, 2009).

DESCRIPTIVE ANALYSIS

Before starting model estimation, a descriptive analysis is carried out to explore the study's variables. Tables 1 displays the descriptive statistics of the study's variables for the global panel of data. Self-employment share of total employment largely varies among countries. It represents almost all employment in countries such as Ethiopia in which self-employment represented about 91% of the total employment in 2000 and reached 85% in 2023. As of 2023, the share of self-employment in total employment exceeds 80% in African economies including Ethiopia, Madagascar, Nigeria, Togo and Uganda. On the other hand, self-employment almost does not exist or is less than 5% in the Arab Gulf countries of Qatar, Kuwait, Oman and the United Arab Emirates. Across the sample, the average TEA rate (12%) was substantially lower than the average share of self-employment in total employment (33%), suggesting that early-stage entrepreneurship is less common than self-employment.

Female to male TEA is on average below 1 with a value of 0.65, which refers to the less prevalence of early-stage entrepreneurship among females relative to males. Moreover, the average percentage of entrepreneurs who run established businesses is smaller than average TEA, indicating issues related to business survivals. On average, the percentage of early-stage entrepreneurs who seek an improvement-driven opportunity is 2.76 times the percentage of a necessity-motivated TEA. As for innovation, an average of only 26% of early-stage entrepreneurs believe they offer innovative unique products.

Table 1. Descriptive statistics of the study's variables for the global panel of data during (2000-2023)

Variable	Obs	Mean	Std. Dev.	Min	Max
self-employment	2616	33.08	23.57	.39	91.23
TEA	1083	11.91	7.79	1.48	52.11
female to male TEA	1083	.65	.22	.05	1.69
motivational index	522	2.76	2.31	.35	19.5
EB	1083	7.68	5.01	.42	37.74
innovation	467	25.89	10.5	.76	58.7
pop aged 20-39	2640	30.36	4.76	20.25	57.77
pop aged 40-59	2640	22.4	5.91	9.24	37.19
pop female	2640	50.02	3.5	23.82	54.92
pop growth	2640	1.15	1.63	-10.93	21.7
GDP per capita growth	2614	2.12	4.77	-49.13	91.78
unemployment	2616	7.91	5.52	.1	34.01
inflation	2520	6.21	14.06	-9.8	325
FDI inflows to GDP	2555	6.16	29.03	-440.13	452.22
trade to GDP	2478	90.03	59.42	19.56	442.62
dom. credit to GDP	2237	65.62	48.81	1.89	304.58
gov index	2512	56.48	22.45	0	100
school years mean	760	10.11	2.59	.56	14.38
net migration	2640	14.44	267.81	-2290.41	1889.13
refugees	2438	117.36	345.09	0	3764.52

Source: Own elaboration based on data of GEM, WDI and World Population Prospects of the UN's Population Division

Similarly, the Euromed countries has average levels of TEA that are well below self-employment. The highest levels of self-employment in Euromed during the period of study belonged to Morocco and were around 50%, whereas the highest level of TEA was observed in Lebanon in 2015 (30%). Out of the 20 Euromed countries surveyed in the 2023 GEM, 12 economies reported TEA rates below 10%. Furthermore, the percentage of female early-stage entrepreneurs in Euromed is on average around half the percentage for males, which is below the global average. However, the average motivational index value is comparable to the global average value. Problems of business survival are also indicated by the low average percentage of entrepreneurs who run established businesses (6.5%). An average of about 29% of early-stage entrepreneurs in Euromed believe they offer innovative unique products [Table 2].

Table 2. Descriptive statistics of the study's variables for the Euromed panel of data during (2000-2023)

Variable	Obs	Mean	Std. Dev.	Min	Max
self-employment	792	19.13	9.4	6.5	49.63
TEA	433	7.56	3.57	1.56	30.15
female to male TEA	433	.56	.16	.18	1.69
motivational index	198	2.94	2.3	.48	11.8
EB	433	6.53	3.45	.5	33.2
innovation	179	29.12	8.99	8.62	58.7
pop aged 20-39	792	28.26	3.27	21.31	36.95
pop aged 40-59	792	26.22	3.59	13.35	31.71
pop female	792	50.94	1.28	47.65	54.3
pop growth	792	.52	1.24	-3.85	9.99
GDP per capita growth	791	2.11	3.95	-20.13	23.44
unemployment	792	9.06	4.47	1.8	29.77
inflation	783	4.11	12.26	-4.45	221.34
FDI inflows to GDP	789	11.87	51.15	-440.13	452.22
trade to GDP	791	111.49	57.02	29.86	394.22
dom. credit to GDP	712	78.11	41.51	5.97	254.67
gov index	759	69.93	18.65	20.69	100
school years mean	325	11.49	1.72	6.31	14.38
net migration	792	40.46	141.61	-566.65	1175.28
refugees	792	95.91	231.5	0	2593.01

Source: Own elaboration based on data of GEM, WDI and World Population Prospects of the UN's Population Division

To build the models, correlations and multicollinearity among the independent variables need to be tested. Table B in the appendix presents the pairwise correlational analysis of the study's main explanatory variables, which displays some high correlations among some of the explanatory variables. Significant correlation coefficients are particularly high between the percentage of population between 20 and 39 years of age and the share of females in population; the governance index and each of the average number of schooling years, the percentage of population between 40 and 59 years of age and domestic credit to the private sector as a percentage of GDP; and the population growth rate and each of the shares of individuals whose ages are between 40 and 59 and females out of the total population. Furthermore, the Variance Inflation Factors (VIF) were calculated and showed a value higher than 5 for a number of independent variables. Accordingly, variables including population growth, the percentage of population between 20 and 39 years of age, the average number of schooling years and domestic

credit to the private sector as a percentage of GDP were excluded from the model to avoid multicollinearity issues.

MODELS RESULTS

A series of one-step system GMM models were built using the data described previously where all variables were treated as endogenous except the population, governance and migration or refugee indicators, which were used as instruments in the models. Models were checked for validity using the Arellano and Bond AR(1) and AR(2) autocorrelation tests and the Hansen test. All models showed consistency with significant AR(1) autocorrelations and insignificant AR(2) autocorrelations in residuals. In addition, results of the Hansen test supported the validity of instruments for all models.

The impact of immigrant inflows on entrepreneurship

Results of the models estimated to analyze the impact of immigration on entrepreneurship [Table 3] refer to the positive significant impact of immigration on self-employment, as a proxy for necessity-based entrepreneurship, at the 5% significance level, against no significant impacts of immigration on the GEM indicators used to assess opportunity-based entrepreneurship. This outcome conforms with past literature, including Azoulay et al. (2022), Dheer & Lenartowicz (2020), Fairlie & Lofstrom (2013), Muñoz-Mora et al. (2022), Pekkala Kerr & Kerr (2020) and Riillo & Peroni (2022), on the contribution of immigrants to entrepreneurship to their host countries. However, this kind of entrepreneurship is mostly necessity-based and may be particularly vulnerable, especially among immigrants. Moreover, the situation in the Euromed is no different from other regions in the world in this regard. Although the Euromed region has significantly higher levels of innovation at the 10% significance level, as indicated by the results of model (6) in Table 3, immigration does not contribute to innovation rates in Euromed or elsewhere.

Models discussing migration effects on entrepreneurship show that higher levels of economic growth help decrease self-employment, as a proxy for necessity-based entrepreneurship, which detects the impact of development on the mobility of the working force to better employment options. Additionally, the higher the percentage of the population whose ages are between 40 and 59 out of the total population, the lower the share of self-employment in total employment or the proportion of new entrepreneurs among the working-age population, which implies that people in younger age groups tend to engage more in self-employment or early-stage entrepreneurial activities. Conversely, the share of females in population is positively associated with self-employment, which accentuates the higher vulnerability of women in labor markets. On the other hand, improving governance levels supports motivational against necessity-based entrepreneurship and promotes innovation in early entrepreneurial activities. Results of the models also refer to the level persistence of self-employment and early-stage entrepreneurship over time, indicating that higher current values can contribute to more increases in the future.

THE IMPACT OF REFUGEE INFLOWS ON ENTREPRENEURSHIP

As for the impacts of refugee inflows, the models' estimation results, listed in Table 4, do not show any statistically significant effects of refugee inflows on necessity- or opportunity-based entrepreneurship.

These findings are consistent across Euromed and other parts of the world. On the other hand, the Euromed region is generally characterized by lower levels of self-employment and early entrepreneurial activity in contrast to higher levels of innovation among its nascent businesses. However, Euromed countries suffer in general from lower Female/Male TEA Ratios compared to the rest of countries included in analysis.

Results also suggest that a country with a higher share of females in its population has statistically significant higher self-employment and TEA rates at the 5% significance level. This might be attributed to multiple reasons including the lack of appropriate job opportunities for women in wage employment and their increasing desire to have their own business to attain flexibility and achieve financial independence. Additionally, increasing domestic credit to the private sector helps growing established businesses and trade promotes opportunity-based vs necessity-based entrepreneurship. Similar to the results of the immigration models, higher governance levels boost motivational-driven and innovative early entrepreneurial activities.

Table 3. Impacts of immigration on entrepreneurship using global panel data during (2000-2023): one-step system GMM estimation results

	(1) self-employment	(2) TEA	(3) female to male TEA	(4) motivational index	(5) EB	(6) innovation
lag self-employment	0.852***					
	(0.046)					
net migration	-0.001**	0.000	-0.000	-0.001	0.001	0.001
	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)
pop aged 40-59	-0.281***	-0.415***	-0.001	-0.013	-0.130	-0.513
	(0.104)	(0.139)	(0.007)	(0.062)	(0.193)	(0.368)
pop female	0.278**	0.114	-0.000	-0.083	0.154	-0.617*
	(0.112)	(0.106)	(0.005)	(0.069)	(0.185)	(0.327)
GDP per capita growth	-0.041***	-0.051	-0.003	-0.048	-0.071**	-0.084
	(0.009)	(0.044)	(0.002)	(0.039)	(0.029)	(0.291)
unemployment	0.024	-0.158	-0.009*	-0.091*	-0.131	-0.182
	(0.056)	(0.106)	(0.005)	(0.051)	(0.128)	(0.393)
inflation	0.012	-0.042	0.004	-0.017	-0.022	-0.182
	(0.018)	(0.049)	(0.004)	(0.039)	(0.063)	(0.232)

FDI inflows to GDP	0.002	-0.000	0.000	0.003	0.003	0.003
	(0.001)	(0.003)	(0.000)	(0.009)	(0.003)	(0.035)
trade to GDP	0.005	0.007	0.000	-0.011	0.002	-0.070
	(0.006)	(0.010)	(0.000)	(0.008)	(0.013)	(0.066)
Euromed	-2.288	-2.781	-0.152	-0.415	1.381	13.540*
	(1.415)	(2.019)	(0.113)	(1.220)	(3.050)	(7.412)
gov index	-0.035	-0.054**	-0.002*	0.086***	-0.076**	0.229**
	(0.025)	(0.026)	(0.001)	(0.025)	(0.036)	(0.104)
lag TEA		0.339***				
		(0.086)				
lag female to male TEA			-0.024			
			(0.076)			
lag motivational index				-0.127		
				(0.080)		
lag EB					0.016	
					(0.078)	
lag innovation						-0.068
						(0.079)
Constant	-0.711	18.075***	0.961***	4.402	8.572	59.862***
	(4.005)	(6.094)	(0.356)	(3.904)	(9.025)	(19.768)
Observations	2149	795	795	359	795	320
No. of instruments	68	68	68	54	68	53
AR1 (p-value)	0.000	0.000	0.000	0.003	0.000	0.014
AR2 (p-value)	0.841	0.311	0.429	0.707	0.170	0.145
Hansen-J (p-value)	0.122	0.314	0.133	0.245	0.276	0.395

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.010
Source: Own elaboration based on data of GEM, WDI and World Population Prospects of the UN's Population Division

Table 4. Impacts of refugee inflows on entrepreneurship using global panel data during (2000-2023): one-step system GMM estimation results

	(1) self-employment	(2) TEA	(3) female to male TEA	(4) motivational index	(5) EB	(6) innovation
lag self-employment	0.858***					
	(0.044)					
refugees	0.000	-0.000	-0.000	0.000	0.000	0.002
	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.006)
pop aged 40-59	-0.238***	-0.251	0.008	-0.011	-0.107	-0.555
	(0.088)	(0.176)	(0.009)	(0.061)	(0.186)	(0.359)
pop female	0.292**	0.320**	0.011	-0.077	0.166	-0.606*
	(0.117)	(0.128)	(0.008)	(0.064)	(0.148)	(0.325)
GDP per capita growth	-0.041***	-0.054	-0.003	-0.048	-0.070**	-0.090
	(0.009)	(0.047)	(0.002)	(0.041)	(0.028)	(0.280)
unemployment	0.010	-0.208	-0.013*	-0.082	-0.123	-0.181
	(0.060)	(0.130)	(0.007)	(0.055)	(0.120)	(0.412)
inflation	0.013	-0.058	0.003	-0.018	-0.021	-0.232
	(0.018)	(0.049)	(0.004)	(0.039)	(0.060)	(0.204)
FDI inflows to GDP	0.002	0.003	0.000	0.003	0.003	0.004
	(0.001)	(0.003)	(0.000)	(0.009)	(0.002)	(0.035)
trade to GDP	0.008	0.028*	0.001*	-0.012	0.004	-0.062
	(0.006)	(0.016)	(0.001)	(0.009)	(0.012)	(0.075)
Euromed	-3.124**	-7.874***	-0.422***	-0.438	0.682	14.166*
	(1.518)	(2.752)	(0.141)	(1.270)	(2.374)	(8.141)
gov index	-0.036	-0.057*	-0.003	0.083***	-0.068**	0.220**
	(0.027)	(0.033)	(0.002)	(0.024)	(0.033)	(0.097)
lag TEA		0.340***				
		(0.091)				

lag female to male TEA			-0.022			
			(0.097)			
lag motivational index				-0.122		
				(0.084)		
lag EB					0.039	
					(0.080)	
lag innovation						-0.064
						(0.081)
Constant	-2.442	4.718	0.264	4.107	6.815	59.645***
	(4.290)	(7.423)	(0.471)	(3.954)	(6.962)	(21.182)
Observations	2060	784	784	357	784	318
No. of instruments	68	68	68	54	68	53
AR1 (p-value)	0.000	0.000	0.000	0.003	0.000	0.012
AR2 (p-value)	0.698	0.315	0.415	0.706	0.147	0.153
Hansen-J (p-value)	0.157	0.294	0.269	0.279	0.275	0.457

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.010
Source: Own elaboration based on data of GEM, WDI and World Population Prospects of the UN's Population Division

To summarize, table 5 presents the decisions concluded regarding each of the research hypotheses tested by the study.

Table 5. Results of testing the study's main research hypotheses

Research Hypothesis	Decision
H1: Immigrant inflows positively affect entrepreneurship rates in their host economies including countries in the Euromed region	The study found statistical evidence to support the positive impact of migration on necessity-based entrepreneurship with no significant impact on opportunity-based entrepreneurship; therefore, the research hypothesis is accepted.
H2: Refugee inflows positively affect entrepreneurship rates in their host economies including countries in the Euromed region	The study found no significant impact of refugee inflows on entrepreneurship; therefore, the research hypothesis is rejected.
H3: Immigrant inflows positively affect opportunity-based entrepreneurship rates, whereas refugee inflows	The study found no significant impact of immigrant inflows on opportunity-based entrepreneurship and no significant

positively affect necessity-based entrepreneurship rates in their host economies including countries in the Euromed region.	impact of refugee inflows on necessity-based entrepreneurship; therefore, the research hypothesis is rejected.
H4: Immigrant inflows positively affect entrepreneurship innovation rates in their host economies including countries in the Euromed region.	The study found no significant impact of immigrant inflows on entrepreneurship innovation rates; therefore, the research hypothesis is rejected.

Source: Own elaboration

CONCLUSION AND POLICY RECOMMENDATIONS

MAIN TAKEAWAY LESSONS

Entrepreneurship is not always the magical answer for unemployment especially among immigrants and refugees. The analysis results have demonstrated that immigrant inflows help increase only self-employment, which serves as an indicator of necessity-based entrepreneurship. Although necessity-based entrepreneurship could initially be, in some cases, the only viable option to earn an income, this might hold true only for a brief period, since vulnerability prevails in this kind of entrepreneurship and business survival or development is not guaranteed.

The paper has also shown that immigrants do not contribute to opportunity-based entrepreneurship. This can be attributed to the unemployment rates, which, in return, negatively affects opportunity-based entrepreneurship. Additionally, refugee inflows have no significant impacts on either necessity-based or opportunity-based early-stage entrepreneurship. This demonstrates the lack of economic integration of refugees in their host countries.

Results also highlighted the increasing contribution of females compared to males in necessity or opportunity-based entrepreneurship. Countries with higher proportions of young people among their populations exhibit an advantage to spur entrepreneurial activities in their economies, as people in younger age groups appear to engage more in self-employment or early-stage entrepreneurial activities. However, the Euromed area is lagging relatively behind other countries in the percentage of early-stage female entrepreneurs compared to this percentage among males. On the other hand, the Euromed region is characterized by higher levels of innovation among its nascent businesses compared to other parts of the world.

POLICY RECOMMENDATIONS

On the one hand, economic growth is negatively associated with necessity-based entrepreneurship. However, the results of analysis highlighted the positive significant impacts of immigration only on necessity-based entrepreneurship and the lack of evidence on any significant impacts of either migrant or refugee inflows on opportunity-based entrepreneurship. Therefore, it is important to promote the integration of immigrants and refugees into the labor markets of their host economies, including the Euromed region, especially in wage employment. Refugees should not be ruled out of wage employment, as it may sometimes provide better-paying options, particularly for low-skilled workers who are more likely to opt for self-employment. Providing educational and training programs is essential to reduce barriers against the economic integration of refugees. These programs can also incorporate entrepreneurial skills to support and familiarize them with the new context in which they operate. International organizations involved in refugee issues should guide host countries in designing these programs and offer impact and evaluation tools to measure their effectiveness.

On the other hand, opportunity-based entrepreneurship is positively linked to development. Enhancing governance is one of the requirements for promoting opportunity-based entrepreneurship. Therefore, countries, especially in the south of the Euromed region, should work more on creating a regulatory and institutional environment that motivates entrepreneurship.

Growing trade is another important contributing factor to elevate the levels of opportunity-based entrepreneurship. Accordingly, fostering innovation and trade is a key factor that should be pursued, particularly in the South Mediterranean area, to strengthen opportunity-based entrepreneurship. Networks of cooperation between countries in the north and south of the Euromed can help boost the levels of innovation and trade in the region.

It is not enough to start a business. Businesses should be created to grow and flourish. Established businesses must be supported by providing businesses with more opportunities of access to credit and protecting the early-stage entrepreneurs, through effective public policies, against unfair competition resulting from large FDI inflows.

Entrepreneurship is now becoming a more attractive working option for women due to its flexibility and independence nature. However, women also appear to engage more in necessity-based entrepreneurship, which aggravates their vulnerability in labor markets. Therefore, countries in the Euromed region need to offer more support for women, whether financially or skill-wise, to pursue entrepreneurship and grow their businesses. It is crucial to design different training as well as funding programs that target women in particular to address their specific needs. The Euromed region also possesses an important factor that can help catalyze its entrepreneurial activity, which is the large proportion of young people living especially in the south. In general, as demonstrated by the findings, young people are more inclined to engage in entrepreneurship. To harness this potential, a tailored set of training and funding programs should also be designed for the youth. Finally, it is increasingly urgent for governments to consider a new set of social protection policies and tools that provide alternative forms of protection, especially for the self-employed.

AREAS FOR FUTURE RESEARCH

Despite of the growing number of studies in the area of immigrant and refugee entrepreneurship, the field is still under researched especially for the global south. Immigrants are not homogenous and so are their impacts (Fairlie & Lofstrom, 2013). Therefore, there is a need to study immigrant entrepreneurship by immigrant type and ethnicity. It is worth mentioning that this study focused on overall migration and refugees only. However, future research should also examine entrepreneurship among other displaced groups, such as asylum seekers. Moreover, it is useful to track the survival of businesses established by immigrants as the literature points to several problems and barriers affecting their survival rates (Brzozowski & Lasek, 2019; OECD, 2011; Riillo & Peroni, 2022). Additionally, studying the development of entrepreneurial activities across generations of immigrants is a valuable area for further exploration and analysis, offering deeper insights into the contribution of migration to entrepreneurship in host nations.

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APPENDIX

List of countries used in global analysis

Algeria	Angola	Argentina	Armenia	Australia
Austria	Bangladesh	Barbados	Belarus	Belgium
Bolivia	Bosnia and Herzegovina	Botswana	Brazil	Bulgaria
Burkina Faso	Cameroon	Canada	Chile	China
Colombia	Costa Rica	Croatia	Cyprus	Czechia
Denmark	Dominican Republic	Ecuador	Egypt	El Salvador
Estonia	Ethiopia	Finland	France	Georgia
Germany	Ghana	Greece	Guatemala	Hong Kong
Hungary	Iceland	India	Indonesia	Iran
Ireland	Italy	Jamaica	Japan	Jordan
Kazakhstan	Kosovo	Kuwait	Latvia	Lebanon
Libya	Lithuania	Luxembourg	Madagascar	Malawi
Malaysia	Malta	Mexico	Montenegro	Morocco
Namibia	Netherlands	New Zealand	Nigeria	Norway
Oman	Pakistan	Panama	Peru	Philippines
Poland	Portugal	Puerto Rico	Qatar	Romania
Russia	Saudi Arabia	Senegal	Serbia	Singapore
Slovakia	Slovenia	South Africa	South Korea	Spain
Suriname	Sweden	Switzerland	Syria	Thailand
Togo	Tonga	Trinidad and Tobago	Tunisia	Türkiye
Uganda	United Arab Emirates	United Kingdom	United States	Uruguay
Vanuatu	Venezuela	Vietnam	Yemen	Zambia

List of Euromed countries used in regional analysis

Algeria	Austria	Belgium	Bulgaria	Croatia
Cyprus	Czechia	Denmark	Egypt	Estonia
Finland	France	Germany	Greece	Hungary
Ireland	Italy	Jordan	Latvia	Lebanon
Lithuania	Luxembourg	Malta	Morocco	Netherlands
Poland	Portugal	Romania	Slovakia	Slovenia
Spain	Sweden	Tunisia		

Table A. Description of the Study's Main Variables

Variable Type and Name	Variable Description
Dependent Variables	
Self-employment	Percentage of the self-employed out of total employment (modeled ILO estimate)
Total Early-stage Entrepreneurial Activity (TEA)	Percentage of individuals (aged 18–64) who are starting or running a new business for less than 42 months, based on GEM Adult Population Survey (APS)
Female/Male TEA Ratio	Percentage of female 18-64 population who are either a nascent entrepreneur or owner-manager of a 'new business', divided by the equivalent percentage for their male counterparts, based on GEM Adult Population Survey (APS)
Motivational Index	Percentage of those involved in TEA that are improvement-driven opportunity motivated, divided by the percentage of TEA that is necessity-motivated, based on GEM Adult Population Survey (APS)
Established Business Ownership Rate	Percentage of 18-64 population who are currently an owner-manager of an established business, i.e., owning and managing a running business that has paid salaries, wages, or any other payments to the owners for more than 42 months, based on GEM Adult Population Survey (APS)
Innovation Rate	Percentage of those involved in TEA who indicate that their product or service is new to at least some customers AND that few/no businesses offer the same product, based on GEM Adult Population Survey (APS)
Independent Variables	
Net migration (per 1000 population)	Number of immigrants minus number of emigrants (the variable is calculated by the paper to be per 1000 population)
Refugees (per 1000 population)	Number of individuals recognized under the 1951 Convention relating to the Status of Refugees, its 1967 Protocol, the 1969

	Organization of African Unity (OAU) Convention Governing the Specific Aspects of Refugee Problems in Africa, the refugee definition contained in the 1984 Cartagena Declaration on Refugees as incorporated into national laws, those recognized in accordance with the UNHCR Statute, individuals granted complementary forms of protection, and those enjoying temporary protection. The refugee population also includes people in refugee-like situations (the variable is calculated by the paper to be per 1000 population)
Control Variables	
Individual:	
Percentage of population aged 20-39 years	Population size between 20 to 39 years of age to total population, calculated using data from UN's Population Division-World Population Prospects 2024
Percentage of population aged 40-59 years	Population size between 40 to 59 years of age to total population, calculated using data from UN's Population Division-World Population Prospects 2024
Percentage of females in the population	Females to total population
Average number of years of schooling	Average number of years of education (primary/ISCED 1 or higher) completed by a country's adult population (25 years and older), excluding years spent repeating grades
Population growth	Annual population growth rate

Variable Type and Name	**Variable Description**
Macroeconomic:	
GDP per capita growth	Annual percentage growth rate of GDP per capita based on constant local currency
Unemployment rate	The share of the labor force that is without work but available for and seeking employment
Inflation rate	Measured by the consumer price index and reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.
Domestic credit to private sector (% of GDP)	The percentage of domestic credit to private sector, which refers to financial resources provided to the private sector by financial corporations, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment, out of GDP
Foreign Domestic Investment (FDI) inflows	Net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor

Trade openness	The sum of exports and imports of goods and services as a share of GDP
Institutional:	
Governance index	An index constructed by the study to measure the quality of institutions in a country using FA and PCA and relying on data of the World Bank's six aggregate indicators of the following six dimensions of governance: Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption

Source: GEM Definitions, https://www.gemconsortium.org/wiki/1154, World Bank's WDI-Metadata Glossary, https://databank.worldbank.org/metadataglossary/World-Development-Indicators, World Bank's World Governance Indicators-Documentation, https://www.worldbank.org/en/publication/worldwide-governance-indicators/documentation, World Bank's Education Statistics: Education Attainment, UN's Population Division-World Population Prospects 2024, UNHCR- Refugee Data Finder, https://www.unhcr.org/refugee-statistics/methodology/definition

Table B. Pairwise correlational analysis of the study's main variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) pop aged 20-39	1.000													
(2) pop aged 40-59	-0.215***	1.000												
(0.000)														
(3) pop female	-0.778***	0.155***	1.000											
(0.000)	(0.000)													
(4) pop growth	0.466***	-0.502***	-0.565***	1.000										
(0.000)	(0.000)	(0.000)												
(5) GDP per capita growth	-0.036*	0.044**	0.118***	-0.188***	1.000									
(0.067)	(0.026)	(0.000)	(0.000)											
(6) unemployment	-0.076***	0.024	0.266***	-0.212***	-0.031	1.000								
(0.000)	(0.211)	(0.000)	(0.000)	(0.115)										
(7) inflation	-0.014	-0.158***	0.050**	0.047**	-0.024	0.076***	1.000							
(0.488)	(0.000)	(0.011)	(0.018)	(0.221)	(0.000)									
(8) FDI inflows to GDP	0.012	0.090***	0.016	-0.004	0.049**	-0.007	-0.033*	1.000						
(0.536)	(0.000)	(0.417)	(0.854)	(0.014)	(0.710)	(0.098)								
(9) trade to GDP	0.060***	0.360***	0.000	-0.031	0.065***	-0.095***	-0.089***	0.198***	1.000					
(0.003)	(0.000)	(0.980)	(0.118)	(0.001)	(0.000)	(0.000)	(0.000)							
(10) dom. credit to GDP	-0.134***	0.571***	0.038*	-0.189***	-0.078***	-0.073***	-0.323***	0.146***	0.257***	1.000				
(0.000)	(0.000)	(0.070)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)						
(11) net migration	-0.049**	0.112***	-0.053***	0.093***	-0.082***	-0.053***	-0.046**	0.023	-0.011	0.222***	1.000			
(0.012)	(0.000)	(0.007)	(0.000)	(0.000)	(0.007)	(0.021)	(0.243)	(0.580)	(0.000)					
(12) refugees	-0.026	-0.098***	-0.008	0.056***	-0.011	-0.028	0.147***	-0.044**	-0.179***	-0.027	0.098***	1.000		
(0.204)	(0.000)	(0.700)	(0.005)	(0.596)	(0.171)	(0.000)	(0.033)	(0.000)	(0.212)	(0.000)				
(13) school years mean	-0.312***	0.754***	0.168***	-0.310***	-0.125***	0.094***	-0.130***	0.095***	0.346***	0.469***	0.253***	-0.163***	1.000	
(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.010)	(0.000)	(0.010)	(0.000)	(0.000)	(0.000)	(0.000)			
(14) gov index	-0.215***	0.634***	0.043**	-0.203***	-0.037*	-0.118***	-0.282***	0.114***	0.391***	0.657***	0.228***	-0.177***	0.731***	1.000
(0.000)	(0.000)	(0.030)	(0.000)	(0.064)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		

*** p<0.01, ** p<0.05, * p<0.1

Source: Own elaboration based on data of GEM, WDI and World Population Prospects of the UN's Population Division

FEMISE

CMCI · 2 rue Henri Barbusse · F-13 241 Marseille cedex 01 · France
+ 33 (0) 4 91 31 51 95 · www.femise.org

ECONOMIC RESEARCH FORUM
منتدى البحوث الاقتصادية

21 Al-Sad Al-Aaly Street, Dokki, Giza, Egypt · PO Box: 12311
+202 333 18 600 · https://erf.org.eg/

IEMed.
European Institute of the Mediterranean

Carrer Girona, 20 · 08010 Barcelona · Spain
+34 93 244 98 50 · https://www.iemed.org/

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