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Europe and the recent influx of asylum seekers: the EU Member States capability to grant international protection

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Abstract

Asylum applications in European Union (EU) Member States have had a nonhomogeneous tendency over the past decade, with an unequal distribution of refugee burdens within the EU, a solidarity deficit, and a lack of uniformity in the EU Member States' refugee protection systems. By using Eurostat data on 26 EU Member States and considering the period 2010–2021, divided into three sub-periods (2010–2013, 2014–2017, 2018–2021), the paper aims to describe the State's capability to grant international protection and to detect some factors significantly associated with the rate of international protection (RIP). It is an original measure that scales the recognition of protection status to the destination country's population size. The RIP can be decomposed into three multiplying indicators related to the impact of protection applications, to the administrative effectiveness, and to the willingness of States to grant international protection. We conducted symmetric multivariate analyses, identifying groups of countries with similar granting asylum patterns among EU Member States and assessing the changing approaches of these States during the 2015–2016 refugee crisis, which falls within the second sub-period considered in our analysis. In the 2014–2017 sub-period, more than half of the countries were characterised by administrative ineffectiveness and/or closure in the processing of asylum applications. Conversely, Sweden, Germany, Austria and Malta were largely committed to refugee protection. The adopted regression model confirms the association of selected destination country factors with the State capability to grant international protection to asylum seekers, together with the negative role played by distance.

Introduction

Asylum applications in European Union (EU) Member States[1] have had a nonhomogeneous tendency over the past decade. In the wake of the Arab Springs, escalating political instability and violent conflicts in the Middle East and North Africa led to large-scale displacement from the region. Although most asylum seekers[2]

[1] In the paper, the term 'State' is used with a political exception (i.e. a community organized under a government in a specific territory). While the term 'country' is used with a geographical or a more generic exception.

[2] 'Asylum seekers' concern those 'persons who seek protection from persecution or serious harm in a country other than their own and awaits a decision on the application for refugee status under relevant international and national instruments' as defined in the European Migration Network (EMN) Asylum and Migration Glossary (https://home-affairs.ec.europa.eu/networks/european-migration-network-emn/emn-asylum-and-migration-glossary_en).

remained in their neighbouring countries, hundreds of thousands continued their journey in search of protection in countries that were further afield, including EU Member States (Angeloni & Spano, 2018; Benassi et al., 2022; Van Wolleghem & Sicakkan, 2023). As a result, the flow of asylum seekers to Europe, particularly from Syria, Afghanistan and Iraq, began to steadily increase and peaked in 2015/2016, reaching over 2.5 million. However, applications for asylum[3] in the EU dropped to around 500,000 in the next few years before increasing again in 2019 and reaching more than 692,000 in 2021 (an amount three times higher than 2010). From 2010 to 2021, the distribution of asylum applications in Europe was very uneven, and the outcome of applications for asylum, as well as the granting procedures, varied widely across EU Member States.

In this research, we wondered whether it would be possible to identify groups of countries with similar patterns among EU Member States in terms of their approaches towards asylum seekers and, if so, whether these groups remained stable over time, particularly during the 2014–2017 sub-period that can be referred, to a certain extent, to the 2015–2016 refugee crisis (RQ1). To this aim, we introduced an original measure: the rate of international protection (RIP). The RIP allows us to adjust the recognition of protection status to the destination country's population size; that is, to measure the State capability[4] to grant international protection[5] to asylum seekers and to rank these countries according to average impact. The RIP can also be broken into three multiplying indicators capable of measuring specific information on the impact of protection applications and recognition, the administrative effectiveness,[6] and the willingness of States to grant international protection. To answer RQ1, we adopted a symmetric multivariate analysis strategy, combining factor analysis into principal components, and a hierarchical aggregate cluster analysis, that considers RIP and its components in the three sub-periods considered (between 2010 and 2021). Moreover, we wondered which factors mostly related to the destination country could be significantly associated with the RIP in Europe in the period of 2010–2021 and also before (2010–2013 sub-period), during (2014–2017 sub-period) and immediately after (2018–2021 sub-period) the 2015–2016 refugee crisis. (RQ2). We attempt to answer RQ2 by adopting a regression model that allows us to study the variability of our dependent variable (RIP) in function of a set of indicators.

[3] 'Application for asylum' is the 'application made by a foreigner or a stateless person which can be understood as a request for protection under the Geneva Refugee Convention and Protocol or national refugee law' as defined in the EMN Asylum and Migration Glossary (https://home-affairs.ec.europa.eu/networks/european-migration-network-emn/emn-asylum-and-migration-glossary_en). In the text, we also use the expression 'asylum application' instead of 'application for asylum'.

[4] The State capability refers to the institutional-bureaucratic machinery used to make and implement public decisions (Anaya-Muñoz & Murdie 2021). The centrality of institutional-bureaucratic ability in defining the State capability has been stressed by several authors (Acemoglu et al., 2015; Krasner & Risse 2014; Zhou, 2012). This understanding of the State capability coincides with the 'bureaucratic capabilities' approach used by Cole (2016) and with Hendrix's notion of 'bureaucratic/administrative capacity' (Hendrix & Young 2014; Hendrix 2010), which is found to be particularly important in explaining the role of the State capability to grant international protection to asylum seekers.

[5] With 'international protection' we intend the 'protection that encompasses refugee status,subsidiary protection status and national protection status' as defined, for the European context, in the EMN Asylum and Migration Glossary (https://home-affairs.ec.europa.eu/networks/european-migration-network-emn/emn-asylum-and-migration-glossary_en).

[6] We use the term 'effectiveness' as according to Van Wolleghem and Sicakkan (2023), referring to the quality of policy-making, thus the general administrative capacity.

The paper proceeds as follows. In the next section, we describe the background of our research and present the theoretical framework. In the 'Data and methods' section, we describe the data used, proposed indicators and methods of analyses, and in the following section we present the results of the quantitative analyses. The last section concerns the discussion of the research questions, concluding remarks and the limitations of our analyses, as well as some research and policy implications.

Theoretical background

European legal and political framework for asylum procedures

The 2015–2016 refugee crisis[7] highlighted the deficiencies of the Common European Asylum System (CEAS), which was clearly not equipped to handle such an influx. The Tampere European Council had promoted the idea of a CEAS since 1999 with the long-term goal of creating a common asylum procedure and a uniform status for those who were granted asylum that would be valid throughout the European Union (see Commission of the European Communities, 2000). However, in the first phase of the CEAS (1999–2004), only common minimum standards for national asylum polices were established.[8] Since 2009, several negotiations have tried to reform the CEAS and proceed with the harmonisation process. Nevertheless, the asylum laws adopted in 2013 essentially confirmed the status quo (Tsourdi & Costello, 2021). Although there were some signs of progress towards more uniform asylum procedures across EU Member States (Parusel, 2015), European countries still applied the CEAS rules in different ways in 2015 and—even now—the EU does not appear to be a homogeneous space for asylum seekers, as legislative designs and administrative practices differ from country to country (Karkanis et al., 2022).

Due to this long-standing heterogeneity, Triandafyllidou and Gropas (2014) have proposed a typology of EU Member States based on their migration experiences and regimes and a typology of migration pathways, distinguishing between Old Host Countries, Recent Host Countries, Emigration Countries and Small Island Countries. The Old Host Countries are mainly the North-Western European countries, which in many cases have seen a decline in immigration entries in the last decades, despite having received the highest proportion of migrants and refugees in Europe in the past. The Recent Host Countries changed their position from emigration to immigration countries in the 1980s, receiving increasing numbers of immigrants and asylum seekers, especially in the first two decades of the twenty-first century. According to the authors, this is the case for Southern European countries. The Emigration Countries are countries that are still mainly characterised by mass emigration, also because they tend to close their borders to the irregular migratory flows (including asylum seekers) and rarely implement the *acquis communautaire*. In this latter group, however, an increase in 'irregular' immigrants can be observed. The Central-Eastern European countries belong to this group.

[7] 'Refugee crisis' refers to the humanitarian emergency and political crisis occurred in Europe since 2015, when an 'unprecedented' peak in arrivals of asylum seekers was registered in the European territory. Therefore, in the paper, by 'refugee crisis' we only refer to the period 2015–2016, which corresponds to the peak of mass forced migrant arrivals. However, also our analysis shows that the 'refugee crisis' resulted in a European Union's crisis: an economic, political, ideological and moral crisis (see Rivera, 2016).

[8] In this phase, the EU established for the first time a number of principles in relation to procedures for international protection, to reception conditions, and to the refugee definition from which its Member States could not derogate.

The islands of Malta and Cyprus form the last group of countries in Triandafyllidou and Gropas' typology (Small Island Countries), both of which have been characterised by increased immigration, as both transit and host countries, since the 1990s.

The 2015–2016 refugee crisis accentuated these general existing differences and intensified tensions among EU Member States, showing that the EU is not a 'monotopia' (Ambrosini, 2018, p. 92). To deal with this emergency, the EU institutions made efforts to launch some short-term and emergency measures, including: a resettlement programme for the distribution of asylum seekers within the EU and the so-called hot-spot approach, aimed at supporting EU coastal countries in receiving asylees. These attempts were not sufficient to address the unequal distribution of refugee burdens within the EU. Southern Europe (particularly Italy and Greece), which traditionally served as a transit point for asylum seekers on the move to reach Northern-Western Europe, could not cope with the unprecedented number of asylum applications. Most of the North-Western countries, which were the intended destination for most asylum seekers, applied the Dublin Regulation[9] (transferring the asylees to the countries of first entry) and did not significantly enforce the resettlement (exceptions are Germany and Sweden). Central-Eastern Europe, particularly the Visegrad group (Hungary, Poland, the Czech Republic and Slovakia), rejected any form of resettlement of asylum seekers and specifically excluded the transit of asylum seekers via their route (the Balkan route). In sum, almost all the EU Member States have reacted restrictively (but to varying degrees) to the 2015–2016 refugee crisis by increasing and tightening border controls and reducing rights for asylum seekers and refugees (Diop-Christensen & Diop, 2022; Niemann & Zaun, 2018). Hungary was among the countries that took the hardest stance, erecting fences on its border with Serbia and Croatia and resisting any kind of EU-level negotiations on burden sharing. On the opposite side, Germany and Sweden (Thielmann, 2018) called for a more human rights-based response and voluntarily shouldered higher burdens.

Thus, the differences in both asylum distribution and procedures have mobilised a number of scholars in different research fields ranging from law and economics to sociology and politics to figure out the different positions of EU Member States in granting asylum and to describe the factors associated with the variation in their commitment and capability to grant a form of international protection to asylum seekers.

Measures and indicators on asylum seekers and refugee protection

The body of literature on asylum seekers and refugees displays some heterogeneity in terms of purposes of investigation, measures, and indicators. The earliest empirical analyses were focused on stock data (Moore & Shellman, 2006), while the most recent analyses have concentrated on flow data (Diop-Christensen & Diop, 2022; Hatton, 2009, 2017; Keogh, 2013).

In the analyses on refugee stocks, scholars have considered several measures, such as the number of internally displaced persons in a given country (Schmeidl, 1997); the

[9] 'Dublin Regulation' refers to 'the Regulation establishing the criteria and mechanisms for determining the Member State responsible for examining an asylum application lodged in one of the Member States by a third-country national' as defined by UNHCR.
(https://www.unhcr.org/media/dublin-regulation#:~:text=Regulation%20establishing%20the%20criteria%20and,by%20a%20third%2Dcountry%20national).

number of refugees accepted into the international asylum system (Gibney et al., 1996); or these two measures together (Davenport et al., 2003).

Concerning flow data, scholars have mainly analysed asylum applications (Andersson & Jutvik, 2023; Bertoli et al., 2022; Di Iaso & Waba, 2023; Diop-Christensen & Diop, 2022; Hatton, 2009, 2017; Keogh, 2013; Neumayer, 2005a), which is the number of asylum applications registered in a destination country in a given year, or, alternatively, have taken a dyadic approach and examined the number of asylum applications by origin and destination countries in a given year (Di Iaso & Waba, 2023; Diop-Christensen & Diop, 2022).

In addition, to analyse the willingness of States to grant international protection, scholars have generally used the recognition rate,[10] that most researchers and institutions, including the United Nations High Commissioner for Refugees (UNHCR) and the European Union Statistical Office (Eurostat), calculate as the percentage of positive decisions out of the total number of decisions in a year (e.g., Brekke, 2017; Hatton, 2023; Leerkes, 2015; Neumayer, 2005b; Van Wolleghem & Sicakkan, 2023).

Vink and Meijerink (2003) adopted asylum applications as an *indicator of asylum burden* and recognition rates as an *indicator of asylum policy*. In their work, asylum applications are calculated as a relative measure (i.e. the number of applications related to the total population in the destination country per year) rather than as an absolute measure (i.e. asylum applications raw data). In the view of these authors, this provides 'a more realistic image of the share taken by each country' (Vink & Meijerink, 2003, p. 304). Recognition rates, instead, are computed as the ratios between the number of positive decisions and the total number of asylum applications in a given destination country per year. Therefore, their operationalisation of the recognition rate is different from the one used by most researchers, UNHCR, and Eurostat (see footnote 10). Vink and Meijerink (2003) indeed argued that the generally used recognition rates are not the best measure for analysing the generosity of national asylum policies, as they are not readily comparable because countries vary widely in their approach to calculating the total number of asylum decisions.

Neumayer (2005b, p. 51) supports this operationalisation, affirming that 'the theoretically correct recognition rate is the percentage of asylum claims recognised relative to the number of asylum claims lodged'. However, applications 'are not decided during the period they were lodged, and no data on the application date of most claims are available'. Thus, he follows UNHCR and Eurostat practice and computes recognition rates as a measure of the share of successful decisions rather than the share of successful applications.

Since accepted decisions concern the recognition of different forms of (international or national) protection,[11] a number of scholars (Brekke, 2017; Hatton, 2023; Leerkes, 2015; Neumayer, 2005b; Van Wolleghem & Sicakkan, 2023) have conducted separate

[10] Eurostat defines the recognition rate (in procedures for international protection) as 'the number of positive decisions on applications for international protection as a proportion of the total number of decisions issued for each stage of the procedure (i.e. first instance and final on appeal) in the reference period under review' (https://home-affairs.ec.europa.eu/networks/european-migration-network-emn/emn-asylum-and-migration-glossary/glossary/recogni-tion-rate-procedures-international-protection_en) Last access: October 10, 2024.

[11] We intend any form of international or national protection granted to asylum seekers, i.e., in the European context, refugee status, subsidiary protection status and national protection status.

statistical analyses of the rate of decisions granting refugee status[12] under the Geneva Refugee Convention[13] and those granting other forms of international protection.

Given the heterogeneity in recognising asylum among European countries (both EU and European Free Trade Association (EFTA) countries), Leerkes (2015) applied statistical techniques to improve the comparability of European recognition rates by adopting two different alternative recognition rates: the 'adjusted' recognition rate and the 'expected' recognition rate. The adjusted recognition rate provides the estimated percentage of positive first-instance decisions in each EU/EFTA country, assuming the same composition of the asylum-seeker population—that is to say, all decisions—with respect to country of citizenship, age, and sex in each single country (Leerkes, 2015). This is a particularly useful relative measure, obtained by a direct standardisation, for ranking countries in terms of restrictiveness and for illustrating the extent of international differences that remain among EU/EFTA countries after holding constant the measured international differences in the composition of asylum-seeker populations. The 'expected' recognition rate gives the expected percentage of positive decisions in each EU/EFTA country under the assumption that the probability of asylum seekers obtaining a positive decision in that country is equal to the (average) probability of obtaining a positive decision in the entire EU/EFTA area by country of citizenship, age and gender. According to Leerkes (2015), the use of expected rates compared with observed rates (the observed recognition rate is the rate normally reported by Eurostat), corresponding to an indirect standardised ratio, is particularly useful when trying to estimate how many more, or fewer, positive decisions were made in a given country than would be expected in a similar situation applying a European (statistical) standard.

In synthesis, scholars consider recognition rates as the best available indicator of State willingness to grant international protection to asylum seekers (Holzer et al., 2000; Mascini & Van Bochove, 2009; Neumayer, 2005b), and it is the most used measure to compare national asylum systems and their convergence. However, the recognition rate is inappropriate for comparing the capability of States to grant international protection to asylum seekers (Leerkes, 2015; Vink & Meijerink, 2003) because it does not consider the concrete impact of refugees on the destination countries nor the 'carrying capacity' of the countries. Bearing in mind these issues, we introduced in our analysis the RIP: an original measure of the State capability to grant international protection and, consequently, to establish the degree of commitment of EU Member States. Further details are reported in the next section on 'Data and methods'.

Determinants of asylum migration and recognition rates

Previous research has largely focused on determinants of asylum flows between countries and the variation in the willingness of States to grant international protection.

[12] The 'refugee status' is the legal status of refugees recognised to asylum seekers 'by States under the criteria in Art. 1A of the Geneva Refugee Convention and Protocol, and entitled to the enjoyment of a variety of rights under that Convention' as defined in the EMN Asylum and Migration Glossary (https://home-affairs.ec.europa.eu/networks/european-migration-network-emn/emn-asylum-and-migration-glossary_en).

[13] The 'Geneva Refugee Convention' is 'the UN multilateral treaty which is the key legal document defining who is a refugee and who is not, the rights of refugees and the legal obligations of States towards them' as defined in the EMN Asylum and Migration Glossary (https://home-affairs.ec.europa.eu/networks/european-migration-network-emn/emn-asylum-and-migration-glossary_en).

Some studies have only considered the refugees' origin countries (Davenport et al., 2003), others only the destination countries (Holzer & Schneider, 2002; Holzer et al., 2000; Keogh, 2013; Vink & Meijerink, 2003), still others have used a gravity model approach (Di Iaso & Waba, 2023; Hatton, 2023; Karkanis et al., 2022; Qi & Bircan, 2023), and some a dyadic approach (Andersson & Jutvik, 2023; Hatton, 2009, 2017, 2023; Leerkes, 2015; Neumayer, 2005b; Toshkov, 2014; Van Wolleghem & Sicakkan, 2023).

Extensive studies on asylum flows towards the EU have found that the destination country perspective is significantly associated with per capita Gross Domestic Product, asylum stock, and asylum policy (measured by a policy index or the annual recognition rate) in the destination country (Holzer & Schneider, 2002; Holzer et al., 2000; Keogh, 2013; Vink & Meijerink, 2003).

Di Iaso and Waba (2023) examined the impact of several variables on asylum seekers' choices in the EU destination country and found that the strongest pull factor is migrant networks, both in terms of previous asylum applicants and of the stock of immigrants already living in the destination country. Karkanis et al., (2022, p. 132) considered the impact of the refugee crisis on asylum seeker flows in Europe from a long-term perspective and confirmed the positive effect of the strong presence of refugees in the destination country as an 'inner attractive force' for new asylum applications. Conversely, Keogh (2013) showed that refugee stock did not have a significant association with asylum seeker flows.

Some scholars have highlighted the usefulness of adopting a gravity model approach to estimate forced migration patterns and to model asylum flows (Di Iaso & Waba, 2023; Echevarria & Gardeazabal, 2016; Iqbal, 2007; Karkanis et al., 2022; Qi & Bircan, 2023), considering demographic and geographical factors, among others. The mass variable of the gravity model is population size: 'the population of the country of origin measures the size of the potential number of people "at risk", while the population of the destination country measures its capacity to host refugees' (Echevarria & Gardeazabal, 2016, p. 276). Geographical distance is a discouraging factor of asylum flows because it proxies 'the cost that refugees face when moving from the origin to the asylum country' (Echevarria & Gardeazabal, 2016, *p*. 276; see also Karkanis et al., 2022).

The variation in the willingness of States to grant international protection has puzzled several researchers examining differences among EU Member States over time (Holzer et al., 2000; Leerkes, 2015; Neumayer, 2005b; Toshkov, 2014; Vink & Meierinik, 2003) particularly during the refugee crisis (Hatton, 2023; Van Wolleghem & Sicakkan, 2023). Taking a destination country perspective, these analyses demonstrate that some factors in destination contexts—'extraneous' to the legal decision-making process—influence the recognition rate and, thus, contribute to the existing heterogeneity across countries.

Holzer et al. (2000) found that individual characteristics of asylum seekers and the situations in their countries of origin only partly explain the variation across destination countries. Thus, the characteristics of individual applicants are not the only factors contributing to the differences in the recognition of international protection. In addition to them, scholars have focused on specific factors related to the destination

countries, such as the number of previous asylum applications, economic incentives, the number of refugees already living in the destination country, the asylum policies of the destination country, the presence of far-right parties in political majorities, and the position of the government and far-right parties in elections.

As concerns the dyadic approach, demographic, economic, and administrative–legal factors have a particular influence on asylum recognition rates (Hatton, 2023; Neumayer, 2005b; Toshkov, 2014). Neumayer (2005b) analysed 14 EU Member States plus Norway and Switzerland in the pre-CEAS period (1980–1999) and found that Geneva recognition rates (recognition of the refugee status according to the 1951 Geneva Convention) are influenced by external factors, such as the unemployment rate in the destination country and previous asylum applications from the same origin country, which are both negatively associated with the recognition rate. Toshkov (2014) extended the analysis to the first period of the CEAS (1987–2010) and inspected the dynamic and reciprocal effects of recognition rates and asylum, concluding that higher recognition rates may lead to more applications and more applicants may lead to lesser recognition rates. Finally, Hatton (2021, 2023) and Van Wolleghem and Sicakkan (2023) analysed the present phase of the CEAS to investigate the legal–administrative processes leading to asylum decisions. Studying asylum applicants from 65 countries of origin towards 20 European destination countries from 2003 to 2017, Hatton (2023) found that the CEAS facilitated an overall increase in recognition rates and that some of the persistent differences among EU Member States may be due to different bureaucratic frameworks for implementing asylum policy. In contrast, Van Wolleghem and Sicakkan (2023) examined the influence of administrative effectiveness and the experience with asylum issues in the EU28 in the period 2000–2018 and showed their positive impacts on recognition rates. They also asserted the importance of administrative effectiveness to limit the impact of government preferences and, thus, to guarantee a broader willingness of States to grant international protection to asylum seekers.

In our regression analyses, we evaluated the role played by specific factors in the variability of our proposed indicator (RIP). In defining the independent variables, we took into account the cited literature, although the RIP has a somewhat different meaning compared to the dependent variables considered in the literature so far. In particular, we considered geographical proximity, migration networks, the level of wealth, and the migration policy of the destination countries.

Data and methods

The data used refer to EU countries and comes from national statistical sources. These data are standardised according to the Regulation (EC) No 862 of the European Parliament and of the Council on '*Community statistics on migration and international protection*' and are collected and disseminated by Eurostat. In detail, the data used on international protection concerned, on the one hand, asylum applications and, on the other, asylum decisions.[14] The period under consideration spanned from 2010 to 2021,

[14] We sum up first and final decisions for each type of decision (positive decisions—in some cases classified by type, such as positive decisions granting Geneva Convention status, humanitarian status or subsidiary protection status—and negative decisions).

and all EU countries were considered in the first instance, although it was necessary to exclude the United Kingdom and Croatia due to the lack of some information relating to the beginning and/or end of the period. To construct some of the indicators proposed here, it was also necessary to acquire data on the total resident population at the beginning and end of each of the years considered. The entire period was divided into three sub-periods of four years each: 2010–2013; 2014–2017; and 2018–2021.

The rate of international protection (RIP) and its components

The data used allowed us to calculate indicators on international protection for each four-year sub-period. The RIP in country i in the period t (RIP_i^t) is the ratio between the number of positive (first instance plus final instance on appeal) decisions (PD_i^t) and the number of person-years (PY_i^t) lived by the total resident population in that country in the same sub-period[15] (Forte & Strozza, 2021). Thus,

$$\mathrm{RIP}_i^t = \frac{\mathrm{PD}_i^t}{\mathrm{PY}_i^t}, \tag{1}$$

with i that varies from 1 to n (n = 26 countries) and t that corresponds to three different sub-periods of four years each: 2010–2013, 2014–2017 and 2018–2021. For each country, the RIP is expressed per 10,000 resident population. If we look at Eq. (1), we can appreciate that this ratio is similar to an immigration rate (where the numerator does not derive, or partially derive, from the total resident population placed in the denominator) and expresses the impact of recognition of protection status on the country's population. Thus, it allows us to adjust the recognitions of protection statuses to the destination country's population size and to rank these countries according to such average impact.

The RIP_i^t can be broken into three multiplying indicators (Forte & Strozza, 2021): the rate of asylum applications (RAA_i^t), the ratio of decisions to applications (RD_i^t), and the share of positive decisions on total decisions (SP_i^t). Thus,

$$\mathrm{RIP}_i^t = \frac{\mathrm{PD}_i^t}{\mathrm{PY}_i^t} = \frac{A_i^t}{\mathrm{PY}_i^t} \cdot \frac{D_i^t}{A_i^t} \cdot \frac{\mathrm{PD}_i^t}{D_i^t} = \mathrm{RAA}_i^t \cdot \mathrm{RD}_i^t \cdot \mathrm{SP}_i^t, \tag{2}$$

with A_i^t as the total number of asylum applications and D_i^t as the total number of decisions.

The RAA_i^t expresses the average annual impact of asylum applications on the arrival population and depends on various factors, including the attractiveness of the country for asylum seekers in terms of geographical and cultural proximity and the possibility of recognition of international protection. It should be noted that RAA_i^t is the same of the 'indicator of asylum burden' proposed by Vink and Meijerink (2003), previously introduced. The RD_i^t takes values around 1, which are less than 1 if the decisions are less than the applications and greater than 1 otherwise. This indicator calculated over a 4-year sub-period gives us an idea of the State's responsiveness and, therefore, effectiveness with respect to the stresses deriving from the applications registered.

[15] For each 4-year sub-period the number of Person Years (PY) is obtained as sum of the mean population of each year belong to each 4-year sub-period considered.

However, it should be considered that while values much lower than 1 express poor responsiveness and effectiveness, those greater than 1 may be determined by different causes. Negative decisions could certainly generate appeals and thus the need for more than one decision for the same applicant. The values can also be greater than 1 when the applications presented in the previous period are more numerous than those presented in the period under consideration, with a high number of decisions taken in the period following the application period.

The SP_i^t corresponds to the 'recognition rate' adopted by Eurostat and UNCHR: an indicator frequently used in the literature (see 'Theoretical background' section), which provides a measure of the degree of successful decisions depending on a plurality of factors widely examined by scholars (Hatton, 2023; Leerkes, 2015; Neumayer, 2005b; Toshkov, 2014; Van Wolleghem & Sicakkan, 2023). Within certain limits, it expresses the 'degree of openness' of the country towards the recognition of international protection.

In sum, the value of the RIP_i^t is linked to the impact of the applications, the capability of the State to promptly respond to the applications, and the degree of openness of the country.

Further indicators that allow us to qualify the type of protection granted are the proportion of positive asylum decisions based on the Geneva Convention, humanitarian status, and subsidiary protection status. Of these, it was decided to exclusively consider the proportion of recognitions based on the Geneva Convention (PG_i^t), obtained as the ratio between the number of recognitions according to the Geneva Convention and the total number of positive decisions: an indicator that takes into account the importance of the cases in which the broadest form of international protection is recognised. The statistical analyses used the entire system of proposed indicators or only the indicator that expressed the commitment to refugee protection of the EU Member States, depending on the needs.

Symmetric multivariate analysis

For the 26 EU Member States under consideration, the five described indicators were separately calculated for each of the three sub-periods that were previously indicated. We decided to adopt a symmetric multivariate analysis strategy that involved the combination of principal component analysis (PCA) and hierarchical cluster analysis (HCA) to verify the link between the indicators and, above all, evaluate the positioning of the countries in the three sub-periods, highlighting the changes that occurred during the refugee crisis (included in 2014–2017 sub-period in our analysis). A total of 78 statistical units, corresponding to the 26 countries in each of the three sub-periods, were considered with a constant weighting scheme (each country = 1), placing the three 26 countries × 5 indicators matrices one below the other. The PCA allows us to reduce the dimensions through the extraction of a reduced number of factors (those with an eigenvalue greater than 1) that are linear combinations of the five elementary indicators considered (RIP, RAA, RD, SP and PG). The HCA with Ward's (grouping) method applied on the factor scores of the countries allowed us to arrive at a partition of the countries into groups of countries with similar patterns with respect to their positioning on the extracted factors, thereby minimising the variability within the groups and maximising that between groups. A classification of the countries in the three periods was derived in

terms of impact and effectiveness/openness with respect to refugees, with the possibility of verifying the countries that have changed their membership grouping over time and in which direction. This analytical approach allowed us to answer the first research question (RQ1) of whether it would be possible to identify groups of countries with similar patterns among Member States over time in their capability to grant international protection and, if so, whether these groups remained stable during and after the refugee crisis (i.e. 2014–2017 sub-period, in our analysis).

Asymmetric multivariate analysis

We tried to develop an original approach to model the variability of the dependent variable (RIP_i^t). To this aim, we adopted a classic ordinary least squares (OLS) regression model in which the dependent variable and all the independent variables are expressed in logarithmic form. These latter are related to different dimensions as explained below.

For the computation of the first independent variable (*pop10*), we preliminary identified the top ten countries of citizenship of asylum seekers (flows) in the period 2010–2021 in the 26 EU countries, namely: Syria, Afghanistan, Iraq, Pakistan, Nigeria, Russia, Albania, Kosovo, Eritrea, and Somalia. Then, we measured the demographic dimension of these ten countries in terms of resident population (stock) in each of the 26 EU destination countries investigated. Therefore, for each EU destination country (*i*), we computed the period (2010–2021) weight of these ten resident foreign communities. This variable (*pop10*) can be considered a *proxy* of the mass of the main origin countries for the asylum seekers flow as well as a sort of attraction to the country of recognition. In other words, *pop10* allows us to assess the relevance of the migration networks in shaping the RIP.

A second independent variable (*distpop10*) is related to the concept of geographical proximity which is the distance between country of origin and country of destination of asylum seekers. For each of the ten most important origin countries (already defined in the description of the *pop10* variable), we computed the distance between their geographical barycentre and the geographical barycentre of each of the 26 EU countries, expressing the distance in kilometres. Thus, for each of the 26 EU countries, we computed the variable called *distpop10* as an arithmetic mean of the ten distances.[16]

We considered adding two independent variables (Alaimo et al., 2023; Hatton, 2023): per capita Gross Domestic Product (GDP) and Migration Integration Policy Index (MIPEX).[17] These two independent variables can act as attractor to asylum seekers flows. The first one refers to the economic opportunities and to the level of wealth. The second to the attention given by the country to manage the process of integration of the new arrivals.

Thus, we ran the following OLS regression model:

[16] It should be noted that, even if we do not estimate any kind of migration flow neither used origin destination flow, the two independent variables 'pop10' and 'distpop10' remind to the idea of the gravitational model (Di Iaso & Waba, 2023; Hatton, 2023; Karkanis et al., 2022; Qi & Bircan, 2023). So, in a certain sense our OLS model can be considered as a sort of 'pseudo' gravity model.

[17] MIPEX is a composite index introduced to evaluate and compare the national policies enhanced by 50 countries (including all EU Member States) to promote migrants' integration. It encompasses 167 policy indicators in eight different policy areas (labour market mobility, family reunion, education, political participation, long-term residence, access to nationality, anti-discrimination and health). The data are available in the Migration Integration Policy Index Database (various years).

$$\log(\text{RIP}) = \beta_0 + \beta_1 \log(pop10) + \beta_2 \log(distpop10) + B_3 \log(GDP) + B_4 \log(\text{MIPEX}) + \varepsilon, \quad (3)$$

which was estimated for the entire period (2010–2021, i.e. *pooled*) and for each of the three sub-periods (2010–2013, 2014–2017 and 2018–2021).

Preliminary, further regression models were estimated by alternatively employing the different components of the RIP—see Eq. 2—as additional independent variables. The results of these adding models, however, were not found to be useful and/or better than those presented here in terms of both parsimony (the use of additional explanatory variables did not significantly improve the model's performance) and multicollinearity (the use of additional explanatory variables often posed multicollinearity problems, even significant ones). At least in some cases, these further estimates verified the statistical robustness of our results.[18]

Results

Descriptive analysis of indicators on international protection in the EU

In the period 2010–2021, approximately 7,423,000 asylum applications were registered in the 26 EU countries considered, of which more than half occurred during the 2014–2017 sub-period. Over the entire period, there were 2,653,000 first positive decisions to which a further 577,000 final positive decisions were added. Recognitions of international protection represented 39% of all decisions and 43.5% of applications made. The impact of the recognitions over the entire period was six new refugees recognised on average per year per 10,000 inhabitants, with marked differences among the 26 countries and in the three sub-periods considered. In the 2010–2013 sub-period, the value of RIP is on average approximately two recognitions, which becomes almost ten in the 2014–2017 sub-period and drops to less than seven in the 2018–2021 sub-period. Table 1 allows a more detailed analysis of what happened in the three sub-periods based on the joint reading of the five indicators. In the first sub-period, there were only two recognitions (RIP) compared to seven applications on average per year per 10,000 inhabitants (RAA), despite the decisions taken being more numerous than the applications made (RD = 1.13). This is because the percentage of recognitions of international protection (SP) are only 25% of the applications examined. Furthermore, only 45% of the recognitions granted refugee status according to the Geneva Convention (PG). During the refugee crisis (2014–2017 sub-period in our analysis), the applications are more than twenty-one on average per year per 10,000 inhabitants (RAA) and give rise to almost ten recognitions (RIP). Since the number of decisions taken are almost equal to the number of applications made (RD) and the share of recognitions rises to 46% of the applications examined (SP). The proportion of recognitions according to the Geneva Convention (PG) also grows to 56%. In the third sub-period, the value of the RAA drops to less than fourteen applications and the RIP to less than seven recognitions on average per year per 10,000 inhabitants, with a particularly high ratio between decisions and applications (RD = 1.31) and an intermediate proportion of positive outcomes (SP = 37%) between the values of the first and second sub-periods. The proportion of refugees recognised

[18] They are not included here in the results, but are available on reasonable request from the authors.

according to the Geneva Convention (PG) is also intermediate compared to the two previous sub-periods. The impact of the increasing number of applications for asylum during 2014–2017 sub-period is evident and it seems to have brought about a significant change compared to the past with effects even in more recent years.

The analysis by sub-period and EU macro-areas (Table 1) allows us to note some similarities but also some changes over time. The areas most involved in the refugee protection are the Northern and Western ones, which are also those with the highest impact of applications for protection (RAA) and with the highest values of the decision-to-application ratio (RD). However, in the last sub-period, the Northern area recorded a smaller impact in terms of applications and recognitions compared to both the Western and Southern areas. In fact, the latter is the only area that in the transition from the second to the third sub-period experienced an increase in applications and recognitions on average per year per 10,000 inhabitants. In the three sub-periods considered, the Eastern area remains the least involved in refugee protection with an extremely low impact of applications (RAA) and recognitions (RIP), also attributable to the low ratio of decisions per application (RD) and the very low proportion of positive outcomes of the applications examined (SP).

The analysis by macro-areas of the EU, however, provides a summary framework that is not capable of considering the heterogeneity among countries, as shown in

Table 1 Indicators on international protection in the EU areas[(a)] for the 2010–2013, 2014–2017 and 2018–2021 sub-periods (rates per 10,000 inhabitants and ratios and proportions)

Sub-periods and EU macro-areas[(a)]	Indicators				
	RIP	RAA	RD	SP	PG
2010–2013					
North	7.81	20.00	1.09	0.36	0.31
West	2.76	10.61	1.22	0.21	0.59
South	1.17	3.10	1.08	0.35	0.19
East	0.30	2.28	0.56	0.24	0.27
Total EU[(b)]	*2.02*	*7.02*	*1.13*	*0.25*	*0.45*
2014–2017					
North	20.62	38.84	0.99	0.54	0.41
West	17.31	31.92	1.17	0.46	0.63
South	3.49	12.12	0.71	0.41	0.23
East	0.71	9.31	0.21	0.36	0.59
Total EU[(b)]	*9.71*	*21.42*	*0.98*	*0.46*	*0.56*
2018–2021					
North	6.25	10.86	1.74	0.33	0.52
West	9.82	19.02	1.39	0.37	0.54
South	6.67	15.13	1.18	0.37	0.33
East	0.36	2.28	0.61	0.26	0.42
Total EU[(b)]	*6.59*	*13.68*	*1.31*	*0.37*	*0.48*

(a) North: Denmark, Finland, Ireland, and Sweden; West: Austria, Belgium, France, Germany, Luxembourg, and The Netherlands; South: Cyprus, Greece, Italy, Malta, Portugal, and Spain; East: Bulgaria, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia. (b) Excluding the UK and Croatia. RIP = rate of international protection (per 10,000 inhabitants); RAA = rate of asylum applications (per 10,000 inhabitants); RD = ratio decisions on applications; SP = share of positive decisions on total decisions; PG = proportion of Geneva Convention status on total recognitions

Source: own elaboration on Eurostat data

Fig. 1. Without going into individual details, Sweden, Germany, Austria (three North-Western countries) and Malta had the highest impact during the 2014–2017 sub-period from applications for protection (RAA) and the highest values of the decision-to-application ratio (RD). Nevertheless, these countries did not have the same patterns in terms of applications and recognitions in the third sub-period, when Cyprus, Greece and Malta (three Southern countries of whom two are islands) emerged in terms of impact of applications (RAA). An interesting exception in the second sub-period is represented by Hungary, with a significant rate of asylum applications (RAA) but a very low rate of international protection (RIP). The ratio decisions on applications (RD) significantly increases in the third sub-period (among the others) in Finland, Sweden, Italy and Hungary, while it decreases in the last two sub-periods in Ireland, Cyprus and Romania. The share of positive decisions on total decisions (SP) is significantly higher in the third sub-period in almost all EU Member States (see Bulgaria, the Netherlands, Austria and Malta), with few exceptions (e.g., Ireland, France, Italy and Greece). Thus, the analyses of indicators on international protection do not show clear geographical patterns outlining a great heterogeneity among EU countries as resultant from different situations and strategies. Next, the symmetric multivariate analysis will help us to provide a clearer synthetic picture.

Clustering EU countries in a synthetic picture

The analysis of the correlation between the five proposed indicators (Table 2), calculated on the dataset of the 26 countries for the three sub-periods (78 statistical units in total), allows us to appreciate the direction and magnitude of the links. As expected, the linear relationship between RIP and RAA appears positive and strong (0.755). However, the value of the RIP depends at least in part on the value of the RAA. In other words, if the incidence of applications for protection is higher in a given country, then the incidence of recognitions on the population of that country will generally also be higher than in other countries. All other linear correlations between the elementary indicators

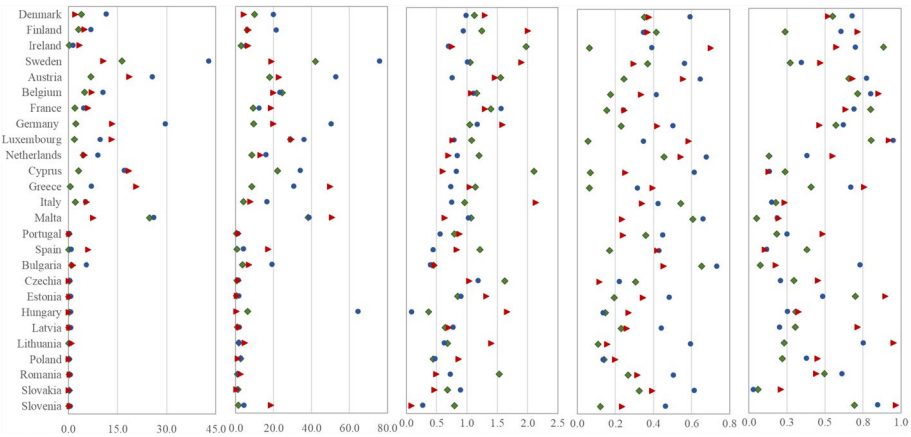

Fig. 1 Indicators on international protection in selected EU countries[(a)] for the 2010–2013, 2014–2017 and 2018–2021 sub-periods (rates per 10,000 inhabitants and ratios and proportions). *Note*: [(a)] excluding the UK and Croatia. RIP = rate of international protection; RAA = rate of asylum applications; RD = ratio of decisions to applications; SP = share of positive decisions on total decisions; PG = proportion of recognitions based on Geneva Convention. Source: own elaboration on Eurostat data

Table 2 Correlation matrix between the elementary indicators of the 78 statistical units (26 EU countries by the three sub-periods)

Indicators (symbol and description)	RIP	RAA	RD	SP	PG
RIP = rate of international protection	1.000	**0.755**	0.122	**0.452**	0.009
RAA = rate of asylum applications	**0.755**	1.000	− 0.089	0.139	− 0.018
RD = ratio decisions on applications	0.122	− 0.089	1.000	− 0.204	0.141
SP = share of positive decisions on total decisions	**0.452**	0.139	− 0.204	1.000	− 0.118
PG = proportion of recognitions based on Geneva Convention	0.009	− 0.018	0.141	− 0.118	1.000

Values are bold when the correlation is significant at the 0.01 level (two-tailed)

Source: own elaboration on Eurostat data

have a negligible magnitude with the only exception of the positive correlation value between RIP and SP (0.452), which is statistically significant. Therefore, the impact of international protection on the country's population is linked to the share of positive decisions on total decisions (SP). At the same time, the extent of the link is not particularly high, indicating that the value of the RIP also depends on other factors. In essence, it expresses the actual impact of recognitions on the population, which does not depend solely on the State's more-or-less restrictive decisions regarding the acceptance (or rejection) of applications. Finally, the negative direction of the correlation between RD and SP (-0.204, sign. 0.073) expresses some inverse connection between decision-making effectiveness and the positive outcome of decisions taken.

A principal component analysis (PCA) was applied to reduce the dimensions to be considered, which made it possible to define two factors with an eigenvalue greater than one that explain almost 64% of the total variability (Table 3). The first factor, which is strongly positively correlated with RIP and RAA (0.962 and 0.858, respectively) and less strongly with SP (0.514), expresses the impact of protection applications and recognitions. The second factor, positively correlated with SP and PG (respectively, 0.769 and 0.643) and negatively with RD (-0.506), represents the administrative effectiveness and openness of the EU Member States with respect to the granting of the broadest form

Table 3 Results of factor analysis in principal components: factor loadings of indicators on asylum protection concerning 26 EU countries by the three sub-periods (Varimax rotation).

Indicators (symbol and description)	Factors	
	1st: Demand and recognition impact	2nd: Effectiveness and openness
RIP = rate of international protection	0.962	0.062
RAA = rate of asylum applications	0.858	0.029
RD = ratio decisions on applications	0.514	− 0.506
SP = share of positive decisions on total decisions	0.042	0.769
PG = proportion of recognitions based on Geneva convention	0.023	0.643
Variance (%)	38.6	25.3
Cumulate variance (%)	38.6	63.9

Source: own elaboration on Eurostat data

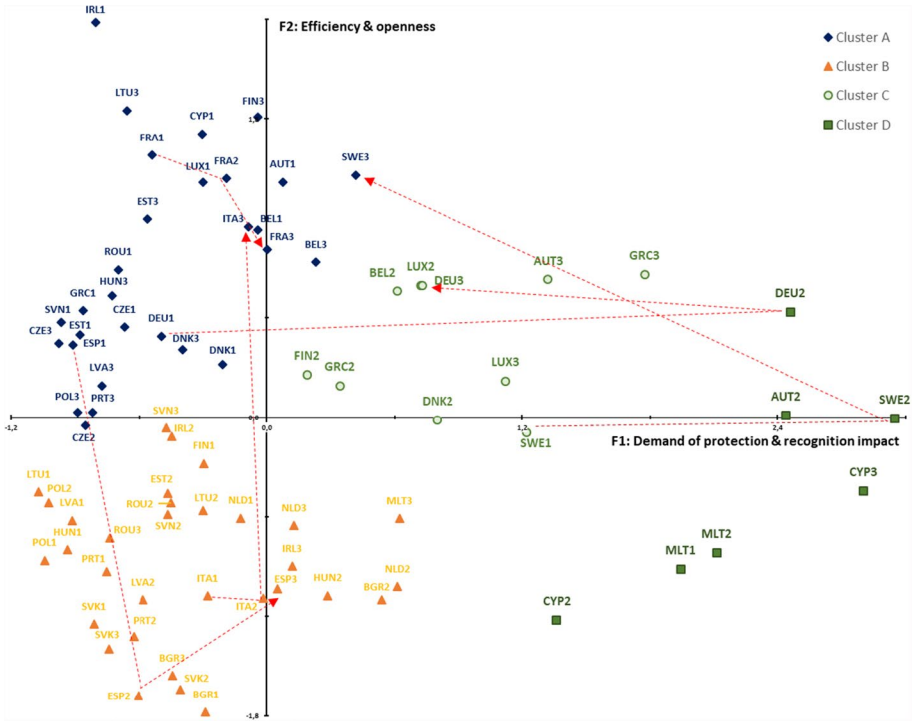

Fig. 2 Projection of units (26 EU countries by three sub-periods) on first (F1) and second (F2) factor axes of analysis in principal components. The units are distinguished by cluster to which they belong based on the results of the hierarchical aggregative cluster analysis. Abbreviations: North: Denmark (DNK), Finland (FIN), Ireland (IRL), and Sweden (SWE); West: Austria (AUT), Belgium (BEL), France (FRA), Germany (DEU), Luxembourg (LUX), and The Netherlands (NLD); South: Cyprus (CYP), Greece (GRC), Italy (ITA), Malta (MLT), Portugal (PRT), and Spain (ESP); East: Bulgaria (BGR), Czechia (CZE), Estonia (EST), Hungary (HUN), Latvia (LVA), Lithuania (LTU), Poland (POL), Romania (ROU), Slovakia (SVK), and Slovenia (SVN). The number 1, 2 and 3 are used to indicate, respectively, the 2010–2013, 2014–2017, and 2018–2021 sub-periods. Source: own elaboration on Eurostat data

of international protection.[19] It therefore appears possible to examine the approaches of EU countries over the three sub-periods considered through their positioning on the two factorial axes that summarise the five elementary starting indicators (Fig. 2).

The application of the hierarchical cluster analysis (HCA) with Ward's (clustering) method on the factorial scores on the two extracted axes made it possible to identify four clusters that are different from each other and internally as homogeneous as possible from the 78 statistical units made up of the 26 EU countries in the three sub-periods considered. For each cluster, Table 4 shows its barycentre on the factorial plane, given by the combination of their central points on the first (F1) and second (F2) axes, and the number of statistical units distinctly belonging to each group for the period (first, second and third sub-period) and by macro-area to which the individual countries belong (North, West, South or East area of EU).

[19] The negative correlation of RD with the second factor is due to the fact that countries with lower effectiveness and openness are sometimes the ones making more decisions, as they are affected by a higher number of appeals. In fact, it is important to note that RD can exceed one, as the number of decisions may be greater than the number of applications due to appeals, and also due to pending applications across different sub-periods. Therefore, this is a direct effect of the low propensity to accept asylum applications at the first instance. This result, as previously noted, is linked to the negative correlation between RD and SP, which emerges—although not particularly strong—in the linear correlation table of elementary indicators (Table 2).

Table 4 Names and centres of the clusters on the first two factor axes and number of units (26 EU countries by the three sub-periods) for the sub-periods considered and geographical macro-area

Cluster of countries by sub-period	F1: Demand and recognition impact	F2: Effectiveness and openness	Sub-periods			Macro-area				Tot
			1st	2nd	3rd	N	W	S	E	
A = Effectiveness/openness with low impact	−0.479	0.930	14	2	13	5	8	5	11	29
B = Ineffectiveness/closeness with low impact	−0.372	−0.900	10	14	8	3	3	7	19	32
C = High impact and effectiveness/openness	0.884	0.460	1	5	4	3	5	2	0	10
D = Highest impact with intermediate effectiveness	2.424	−0.394	1	5	1	1	2	4	0	7
Total	0.000	0.000	26	26	26	12	18	18	30	78

Abbreviations: 1st period: 2010–2013; 2nd period: 2014–2017; 3rd period: 2018–2021; N: North; W: West; S: South; E: East (see Table 1)

Source: own elaboration on Eurostat data

Group A, composed of 29 statistical units, has its barycentre in the second quadrant and is particularly characterised by the strongly positive value assumed on the second factorial axis. These are units that have as their specific element effectiveness in procedures and/or openness towards the acceptance of asylum applications with an important weight of positive outcomes that guarantee the broadest international protection. Group B, composed of 32 statistical units, is placed in the third quadrant with a strongly negative value on the second factorial axis: an aspect that differentiates it from the previous group. Like group A, the impact of recognitions is extremely limited, but ineffectiveness in procedures and the closure or lack of openness towards full recognition of international protection are the specific elements that characterise the statistical units in this group.

The remaining two groups, which are characterised by the high impact of asylum applications and recognitions, consist of a relatively small number of statistical units. Group C, located in the first quadrant, consists of 10 statistical units, while group D, with its barycentre in the fourth quadrant, consists of 7 statistical units in total. Group C combines high impact of recognitions with high administrative effectiveness and significant openness of the countries belonging to it. Group D is characterised by a very high impact of recognitions mainly concerning countries with small population sizes.

The projection of the units on the first factorial plane, highlighting the membership of the different groupings, allows us to appreciate the articulation of the situation with the differences in time and space (Fig. 2). In the first sub-period (2010–2013), the countries are densely concentrated in groups A and B (14 and 10 of 26, respectively), pointing to the limited impact of international protection status granted. The only exceptions are Sweden and Malta, which belong to groups C and D, respectively.

In the second sub-period (2014–2017), the situation radically changes. More than half of the countries (14 countries to be exact) are placed in Group B, which is characterised by administrative ineffectiveness and/or closure in the processing of the dramatically increased applications for protection (three times those of the previous sub-period). In fact, the 9 countries that already belonged to this group in the previous sub-period are joined by 5 more countries from group A. Only 2 countries are in group A (France and Czechia), while a total of 10 countries are in groups C and D. Thus, EU countries had different responses to the strong pressure from the high number of asylum applications most probably also due to the different administrative effectiveness. In many cases, administrative effectiveness decreased (lower ratio of decisions taken to applications lodged) and, in other cases, effectiveness and openness remained at medium–high levels and the impact of the number of international protection status granted increased (e.g., in some Northern European countries) or became extraordinarily high (e.g., in Germany, Austria and Sweden). The situation in the third sub-period seems to be somewhat similar to the first sub-period, with the highest number of countries placed in group A followed by group B (13 and 8 countries, respectively). But the first sub-period group is the same as the third sub-period group for only eight countries. Many countries moved from group A to group B (4 cases) or, vice versa, from group B to group A (7 cases). The latter transition is also due to an increase in the number of decisions made compared to the number of applications registered, probably due to the catching up of delays accumulated during the refugee crisis (in the second sub-period). In addition, among

the countries that were the most effective and/or open (group A), some even had a strong impact in the third sub-period from protection status recognitions on the local population.

There are clear differences between the countries of the four geographical regions of the EU. Particularly significant is the case of the Eastern European countries, all of which joined the Union with the Eastern enlargements of the 2000s. These countries never appeared among those belonging to groups C and D in any of the three sub-periods. They were all in group A and, especially, in group B, the cluster characterised by administrative ineffectiveness, closure to asylum applications, and low impact on their population of the recognition of international protection status.[20] Meanwhile, only countries belonging to the other three regions appeared in groups C and D. Those from Southern Europe were characterised by their predominant presence in group B (Italy and Spain in two of the three sub-periods) and their important presence in groups C (Greece for the second and third sub-periods) and D (Cyprus and Malta for two of the three sub-periods). Basically, there was limited impact of recognitions and little openness in countries with a larger population size and very strong impact of international protection in those with a smaller population size. Western and Northern European countries had a greater presence in group A, which is characterised by administrative effectiveness in processing cases and openness to the recognition of international protection. In the refugee crisis (second sub-period), some of these countries were placed in groups C and D, signalling their commitment to receiving refugees. The path of Germany and Sweden on the first factorial plane appears significant (Fig. 2). These are two EU Member States that had a continued commitment to processing applications which was matched during the 2014–2017 sub-period by a strong impact of protection status recognitions on their populations.

Modelling the rate of international protection (RIP)

So far, we have analysed the behaviour of countries in relation to the RIP and its internal components over time, finding similarities and differences among them. To answer RQ2, now we are going to evaluate the role played by certain factors in the variability of RIP using classical regression models. In presenting the results (Table 5), we start with the pooled regression model that refers to the entire period (2010–2021). It shows a discrete explanatory power: more than 60% of the variance of the dependent variable (Log RIP) is explained by the model. All independent variables were statistically significant (p-value < 0.05), thus confirming the goodness of the approach followed. Collinearity statistics (tolerance and variance inflation factor, VIF) seem to rule out multicollinearity problems.

The signs associated with the net regression coefficients (β) show a system of relationships consistent with the initial hypotheses and remain stable from one model to the next, thus indicating substantial robustness of the estimates. In the 2010–2021 period, the effect of attraction exerted by the mass of foreigners residing in EU countries with citizenship from one of the ten main origin countries of asylum

[20] This state of affairs has changed more recently with the crisis resulting from the Russian invasion of Ukraine, which has led to a large influx of Ukrainian refugees, mainly in EU's neighbouring countries, who have been granted temporary protection by the EU (Council of the European Union, 2022). Of course, this situation covers a period that is not considered in our analysis.

Table 5 Determinants of the RIP for the period 2010–2021, and sub-periods 2010–2013, 2014–2017, and 2018–2021. OLS model

Determinants [(a)]	β	*p*-value	Tolerance	VIF
2010–2021				
Log pop10	0.403	< .001	0.939	1.065
Log distpop10	− 0.443	< .001	0.562	1.778
Log GDP	0.605	< .001	0.710	1.409
Log MIPEX	0.205	0.038	0.562	1.781
R^2	*0.62*			
2010–2013				
Log pop10	0.326	0.039	0.928	1.078
Log distpop10	− 0.453	0.023	0.596	1.677
Log GDP	0.606	0.002	0.688	1.455
Log MIPEX	0.187	0.336	0.568	1.762
R^2	*0.57*			
2014–2017				
Log pop10	0.418	0.003	0.917	1.091
Log distpop10	− 0.577	0.003	0.504	1.983
Log GDP	0.678	< .001	0.677	1.478
Log MIPEX	0.241	0.148	0.556	1.799
R^2	*0.70*			
2018–2021				
Log pop10	0.482	< .001	0.951	1.052
Log distpop10	− 0.455	0.015	0.51	1.961
Log GDP	0.623	< .001	0.661	1.514
Log MIPEX	0.234	0.168	0.563	1.777
R^2	*0.68*			

(a) A comprehensive description of the 'Determinants' is included in the subsection 'Asymmetric multivariate analysis'

Sources: own elaboration on Eurostat data and Migrant Integration Policy Index Database (various years)

seekers flow (*Log pop10*) is verified, as the sign associated with the net regression coefficient of this variable is positive. Similarly, the friction effect exerted by the mean distance between the ten most important countries of origin of asylum seekers and that of destination (*Log distpop10)* is verified as negative. Positive (net) effects on the dependent variable are exerted by the other two variables that proxy, respectively, the wealth (wellbeing) of the destination countries (*Log GDP)* and their degree of openness with respect to policies oriented toward the integration of resident foreigners (*Log MIPEX*), where β equals, respectively, to 0.605 and to 0.205. Again, both variables are to be considered as attracting flows of refugees and asylum seekers. The results of the model confirm this hypothesis: the signs associated with these variables are positive, thus indicating a net positive impact on the dependent variable, all other conditions being equal.

Summing up, we can say that the variable reflecting the attraction exerted by the foreign resident population belonging to the most significant origins of asylum seekers (*Log pop10*), the variable related to the wealth of the destination country (*Log GDP*), and the variable related to its degree of openness towards the integration process of the foreign population (*Log MIPEX*) qualify as net attraction factors—that is, net of the influence of the other variables on the dependent variable. On the contrary,

the variable relative to geographical distance (*Log distpop10*) could be qualified as a friction factor to asylum seekers flows.

Of course, this is the result of a pooled model that indistinctly takes all temporal observations into account. To verify possible temporal heterogeneity, we also estimated different models for each of the three sub-periods (2010–2013, 2014–2017 and 2018–2021), as shown in Table 5. The explanatory power of the individual models, as is inevitable, contracts slightly even though the value of R-square never falls below 0.5. At worst, the models still explain more than half of the variance of the dependent variable.

The greatest explanatory power (0.70) is recorded in relation to the second sub-period (2014–2017), that is, the one most affected by the effects of the 2015–2016 refugee crisis. The signs of the net regression coefficients all remain consistent with what is recorded in the pooled estimates. In this same sub-period, the statistical significance of the mass proxy variable (*Log pop10*) and the geographical distance proxy variable (*Log distpop10*) increases their significance (from a p-value < 0.1 to a p-value < 0.001). Conversely, the proxy variable of the country integration policy (*Log MIPEX*) is no more statistically significant. The variable related to the wealth of the destination country (*Log GDP*) remains highly significant.

In summary, we can say that during the refugee crisis, the number of applications tends to grow and to have a direct impact on the RIP. The regression models tell us that the pressure generated by the growth in applications is strictly linked to distance, migration networks, wealth, and openness toward the integration policies of the destination countries. This implies that the impact of the applications is a key variable in estimating the effect of recognition on the population of the destination countries. These countries are therefore primarily interested in containing the number of applications (that is to say, the only variable that can be managed by countries, at least in the first phase of the process) through more intense border control and boosting the redistribution of applications between different countries.

Discussion and conclusion

The paper aimed to first describe the capability of EU Member States to grant international protection and, second, to evaluate the role of certain factors in the demographic impact of recognising international protection.

A large part of the existing literature, that aimed at assessing the openness or non-openness behaviour of receiving countries toward asylum seekers, has used the recognition rate as a reference indicator (Brekke, 2017; Hatton, 2023; Leerkes, 2015; Neumayer, 2005b; Van Wolleghem & Sicakkan, 2023; Vink & Meijerink, 2003), which is generally measured as the statistical composition ratio between positive decisions and total decisions taken on applications for asylum. This indicator is also used by UNHCR and Eurostat. In this article, we point out the need to also use indicators that take into account the demographic dimension of these countries in the analysis of the behaviour of receiving countries. To this end, we proposed the rate of international protection (RIP), calculated as a demographic rate with the positive decisions on asylum applications in a given period as the numerator and the person-years of the country's residents in the same given period as the denominator. This indicator expresses the average annual impact of recognitions of any form of protection on the population of the receiving country. It was

then shown how this indicator (RIP) can be decomposed as the product of the rate of asylum applications (RAA) by the ratio of decisions to applications (RD) and the share of positive decisions (SP), which express, respectively, the impact or pressure of applications for protection, the administrative effectiveness and the willingness of the state to grant international protection. The third of these indicators is none other than the so-called recognition rate. A fifth was also added to these four indicators: the proportion of recognitions according to the Geneva Convention (PG) relativised to the total number of positive decisions. This system of indicators has been used to describe the behaviour of the 26 EU countries over the three sub-periods considered in the analysis, highlighting changes that emerged particularly during the period of the refugee crisis with significant differences in terms of geographical areas of the destination countries considered.

The proposed system of indicators, which includes the RIP, the three components into which it has been decomposed (RAA, RD, and SP), and the PG, has made it possible to verify how the approach of different EU countries in managing asylum applications has changed over the three sub-periods considered (RQ1), adopting an analytical multivariate symmetric approach. The analysis outlined two principal results.

First, the composition of the clusters by countries of destination changes over the three sub-periods. The transition from one cluster to another is particularly significant in the second sub-period (characterised by the refugee crisis) in which we can observe a particularly high concentration of countries in the cluster characterised by ineffectiveness or closeness with low impact (Cluster B). In the same sub-period, we noticed a higher number of countries, compared to the other two sub-periods, belonging to clusters characterised by high impact of applications and recognition (Cluster C and D). Summarising, we observe that several countries changed their behaviours over time (Diop-Christensen & Diop, 2022; Niemann & Zaun, 2018) with an increasing number of EU Member States characterised by a closure in the processing of applications for protection.

Second, despite these changes, the typology of EU countries proposed by Triantafillou and Gropas (2014) is in line with our classification even if it is obtained by using a different approach and it is related to the previous time-period. The typology proposed by the two authors is formed by the old host countries (belonging to the Northern and Western areas), the recent host countries (mainly from the Southern area), the emigration countries (Eastern area), and the Islands of Malta and Cyprus, which formed a small group of their own.

Concerning our second research question (RQ2) the adopted regression model confirmed the association of selected factors (Di Echevarria & Gardeazabal, 2016; Iaso & Waba, 2003; Karkanis et al., 2022) to the State capability to grant international protection. Moreover, the refugee crisis linked to the peak in the number of asylum applications and positive decisions on asylum applications accentuated both the magnitude and the significance of these associations. The results suggest that, even though the reforms may favour harmonisation between national asylum systems, it should be considered that there are structural factors not directly dependent on CEAS legal framework (i.e. the migration networks, the geographical proximity, the level of wealth and the national policies oriented towards the immigrant integration of the destination countries) which has proved to affect the capability of Member States to grant international protection as well as the differences between national asylum systems. This aspect has a series of

implications that are strictly related to the behaviours adopted and actions taken by countries during the refugee crisis in order to reduce the number of applicants.

Our study has some limitations that is important to underline. First, in the sub-periods observed there is a composition effect of refugees by country of origin which is not controlled by the available information. The analysis only considers the destination countries and not those of origin as is often done in the literature; thus, the refugees differ along these sub-periods in terms of their demographic characteristics and migratory background. This might affect the willingness of States to grant international protection to asylum seekers. Second, the heterogeneity within the groups could have been greater in the symmetric analyses if others had been added to the five indicators that were used. Moreover, the analysis of principal components reduces the heterogeneity among countries, despite providing a synthetic picture. Third, with regard to the regression model, it will be interesting in the future to consider additional factors as well as adopting the origin–destination approach with adding information by origin country.

The results of our analysis confirm that the distribution of refugee burdens is unequal within the EU and that the CEAS system still suffers from a 'structural solidarity deficit' (Tsourdi, 2021, p. 157), with a significant worsening in the refugee crisis period.

From an empirical point of view, the use of the RIP allows for measuring the impact of international protection recognitions on the population of the receiving country, thus enabling the evaluation of countries' efforts based on their demographic size. As already observed (Toshkov, 2014), there is a strong (and direct in our case) link between the RIP and the RAA, as the impact of recognition depends on the pressure that the country has received in terms of applications, which is often related to its geographical location and—as proved by the regression analysis and coherently with previous findings (Di Iaso & Waba, 2003; Karkamis et al., 2022)—to other characteristics of the destination country like the administrative effectiveness and political willingness to process the received applications (RD), as well as its openness in terms of granting some form of protection for processed applications (SP). Therefore, focusing solely on the recognition rate, which in our article is referred to as the share of positive decisions (SP), does not provide a comprehensive picture of the situation and can lead to misleading interpretations. From this perspective, the article proposes a system of indicators capable of analytically monitoring the actions of different EU countries in response to asylum applications, considering their demographic size, which obviously, in some cases, limits their capacity to act. In our view, this system of indicators can serve as a useful tool for official European statistics, as it can, as mentioned, act as a monitoring and analytical evaluation tool for a phenomenon that, at present and based on available indicators, cannot be measured (and interpreted) in a comprehensive way.

From the point of view of policy implications, we underlined that there is still a need for a fair distribution of responsibilities and uniformity among the refugee systems of EU Member States. Therefore, questions need to be asked about what can be done to make the CEAS work. The legislative proposals in the New Pact on Migration and Asylum (Commission of the European Union, 2020) are designed to take some steps in this direction (see Vitiello, 2023). Among the various policy reforms that have been pushed forward, some regulations—the Screening Regulation, the Asylum Procedures Regulation (APR), the Asylum and Migration Management Regulation (RAMM) and the Crisis

and Force Majeure Regulation—have been proposed and are currently under discussion with the intention of replacing some of the main CEAS directives. Additionally, a new solidarity mechanism has recently been introduced, which is mandatory but allows EU Member States some flexibility in choosing the type of contribution to make, with the aim of providing some form of support to the frontline EU countries. However, approaches to achieving a fair sharing of responsibilities that differ from those under the New Pact could be further evaluated. For instance, EU institutions could enhance financial and personnel support for national asylum systems, and they could finally decide to establish a single area of asylum, where there is mutual recognition of positive asylum decisions among Member States and people in need of protection can move freely from one Member State to another with equal recognition of rights, as was decided recently in the case of Ukrainians.

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Author contributions
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Availability of data and materials
The data used in this research are derived from different online sources that can be downloaded with corresponding documentation for use by researchers from the links of Eurostat (https://ec.europa.eu/eurostat/data/database), MIPEX (https://www.mipex.eu/download-pdf), and World Bank (https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD).

Declarations

Ethics approval and consent to participate
Obtaining ethic approval is not applicable.

Competing interests
The authors have no conflict of interest to declare.

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