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Asylum Flows in the EU Context: Lessons from Gravity

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Abstract

The present paper aims to identify the impact of geographical, institutional, and sociopolitical factors as regards the magnitude and the direction of asylum seekers in the European Union between 2000 and 2018. The approach is based on the application of gravity model using Ordinary Least Squares (OLS) and Poisson Pseudo-Maximum Likelihood (PPML) estimators. The analysis incorporates a set of institutional variables, in order to assess the impact of the gradual EU enlargement process as well as the differentiated policies on granting asylum among the EU members. The strong presence of refugees in destination countries can be interpreted as an indication of various favorable conditions for granting asylum to persons of the same nationality. The results suggest that the role of migration networks tends to substitute the lack of an integrated EU immigration policy. Finally, either in geographical or institutional terms, E.U. appears as a non-homogeneous space for asylum seekers.

Keywords: *Asylum flows; Gravity model; Panel data; Poisson pseudo maximum likelihood*

Introduction

The recent intensification of refugee flows has been one of the main points of debate among the members of the European Union, intending to arrive at a mutually acceptable practice for the reception of newcomers, as well as an equitable sharing of all related responsibilities (Angeloni, 2019; De Vreese, 2017; Guild et al., 2015a; Hatton, 2017). With regard to the southern EU members, which became the gateways for the main bulk of refugee flows originating from the Greater Middle East (mostly from Syrian Arab Republic, Afghanistan, Iraq), it seemed that these developments caught the local authorities unprepared (Beirens, 2018). The often understaffed national asylum services in the host countries, the heterogeneity of asylum structures among EU members, but also the unexpected flow of people fleeing war zones over the last decade, are largely responsible for the so-called "refugee crisis" of the recent years. Taking into account the current re-intensification of refugee flows along the eastern EU borders, it becomes clear that the adoption and implementation of appropriate reception policies require a true comprehension and evaluation of the factors lying behind the forced migration patterns in the common European space.

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In such a context, this paper aims to assess the "pull" and "push" factors that shape the mobility patterns of asylum seekers inside the EU territory during the 2000-2018 period, by applying the augmented gravity model methodology, as the latter has evolved over time. The main source of data is the UNHCR database related to asylum seeker and refugee populations during the 2000-2018 period. Gravity models are common methodological tools to capture the impact of a wide range of factors influencing human mobility and, therefore, refugee flows. The case of the European Union is of particular interest to the extent that the expanding EU territory, as it was shaped by the accession of new members during the last two decades, received the main bulk of refugee populations coming from the conflict zones in the Greater Middle East. The study of factors shaping forced migration flows favours a better diagnosis of "thrombosis" events – that is, "hampering the free flow", if we borrow the term from the medical sciences – in human mobility between countries of origin and destination, and ultimately the formulation of appropriate migration policies.

In particular with regard to the role of migrant networks on human mobility, it could be argued that migrant networks act as an information medium for potential asylum seekers about any favourable reception policies for refugees in countries of destination. *Ceteris paribus*, the more urgent it is to escape the country of origin, the more essential the role of social networks between migrants becomes, and this seems all the more important, if taking into account the emerging role of social media around the globe. If social networks are frequently based on strong ties, the development of social media is also reinforcing latent ties that allow asylum migrants to deal with information insecurity in migration decision-making (Dekker et al., 2018:2). Given that asylum application and granting procedures differ among EU members, the present paper ultimately tries to shed light on the interplay between these opposing forces, namely the encouraging effect of migrant networks and the discouraging effect of the institutional discontinuities arising from differentiated asylum policies across the European Union.

Background

During the first years of the economic crisis (2009-2012), the refugee population in the European Union remains stable at around 1.4 million, accompanied by a significant population decline to about 1 million between 2012 and 2013. From 2014 onwards, the refugee population is growing rapidly, reaching about 2.5 million in 2018. This recent sharp rise in asylum applications towards the EU members, especially after 2014, has taken the national reception and registration services by surprise, especially those in the Mediterranean Europe, which have been the main gateways for refugee populations. At the same time, the deaths of thousands of people from drowning mostly in the Mediterranean and the Aegean Sea have raised in the most appalling way the issues of accessibility of the Union for asylum seekers, as well as the coordination problems between Member States.

Figure 1. Refugee and asylum seeking population (%) in EU28

Top 10 countries of origin, 2013-2017

Refugees (% of total)	2013	2014	2015	2016	2017	Asylum seekers (% of total)	2013	2014	2015	2016	2017
Syrian Arab Rep.	6.30	11.69	19.71	33.27	34.36	Afghanistan	9.04	7.29	13.28	20.44	15.61
Iraq	10.55	9.52	8.86	8.73	8.92	Syrian Arab Rep.	7.53	12.12	19.45	13.21	10.45
Various/Unknown	8.94	8.62	8.56	6.78	6.40	Various/ Unknown	3.01	7.68	6.93	4.04	2.58
Afghanistan	8.45	8.68	7.99	7.64	9.61	Iraq	3.66	3.47	9.14	10.15	8.21
Somalia	8.23	7.13	5.88	4.45	4.20	Pakistan	8.87	4.30	3.74	4.43	4.72
Serbia & Kosovo (1999)	3.45	3.00	2.30	1.60	1.20	Nigeria	3.32	3.65	3.05	4.72	6.79
Turkey	4.39	3.62	2.80	1.91	1.66	Serbia & Kosovo (1999)	5.82	8.33	5.15	1.90	1.24
Russian Federation	6.25	5.36	4.21	2.80	2.29	Iran (Islamic Rep.)	3.67	2.52	2.43	4.10	3.19
Eritrea	4.37	4.90	5.56	5.47	5.45	Russian Federation	6.48	4.39	2.26	2.59	2.95
Iran (Islamic Rep.)	4.84	4.60	4.01	3.20	3.55	Eritrea	2.46	4.99	3.01	2.58	3.12
Total of Top 10	65.77	67.10	69.89	75.84	77.65	Total of Top 10	53.87	58.74	68.45	68.14	58.87

Source: UNHCR, own calculations.

The uneven distribution of responsibilities with regard to asylum procedures has been a point of friction between the southern EU members and their Central European partners (Bräuninger, 2018). Decision-making processes for granting asylum vary both in terms of recognition rates and the speed of issuance per country. In Sweden, for example, the recognition rate for Iraqi asylum seekers in 2016 is estimated at 27%, which is significantly higher, however, in the case of France (82%) and Italy (97%). The rates also vary considerably in terms of asylum granted to Afghans, while being normalised between EU members when it comes to Syrian refugees. The individual weaknesses in the countries' registration and reception procedures exist both before and after the onset of the global financial crisis (Beirens, 2018).

Another important aspect of the "2015 refugee crisis"[5] is that the amplification of refugees flows towards the European Union has been accompanied by a significant change in the composition of the ethnic origin of newcomers (Figure 1). As for the origin of asylum seekers, the UNHCR data indicate two main groups of countries: The Greater Middle East area countries, which account for the largest share of the new asylum demands and, to a lesser extent, sub-Saharan Africa countries. The above findings are directly related to the repulsive effect of war conflicts in the countries of origin, which are accompanied by the disrespect of human rights and civil liberties, as well as the threat of malnutrition incidents. An increasingly significant share of asylum applications comes from overpopulated areas of the world, in countries where infrastructure is under critical pressure due to sharp demographic growth (Nigeria, Pakistan).

[5] See Guild et al. (2015b) concerning the significance of this crisis.

Policy Framework

Recent discussions between member states at the EU level with regard to the refugee reception framework were intended to respond promptly to the urgency developments. Prior to the intensification of refugee flows to the European continent, the Dublin III Regulation, as part of the revisions of the Common European Asylum System in 2013, generally identifies the first country of entry as the EU member state responsible for examining asylum applications (European Commission, 2016). More precisely, it comprises a set of criteria which finally determines the assignment of responsibilities for asylum procedures between Member States. The Dublin IV recast is designed to ensure balanced allocation of refugee population along the EU territory, as well as drastically reducing secondary migration flows (Tubakovic, 2017; Lukić Radović & Čučković, 2018). The EU-Turkey deal sets out exactly a "population swap" mechanism in order to curb undocumented immigration, in the context of the so-called "one-to-one" initiative[6], which in turn was not without criticism (Rygiel, Baban & Ilcan, 2016).

The Common European Asylum System (CEAS) was aimed at creating a coherent system to ensure that decisions on applications for international protection are taken efficiently and fairly, and finally, to streamline the asylum process in Member States. It appears, however, that the Asylum Procedures Directive (recast)[7] "*has promoted further fragmentation of asylum procedures depending on the location – previous and current – of the applicant or the presumed content of his or her applicant*" (Asylum Information Database, 2016a:8). This procedure has finally led to different rules and time limits for these processes, despite the fact that the Directive stipulates that Member States must "*ensure that the examination procedure is completed within six months of the filling of the application*"[8] (Asylum Information Database, 2016b:2). In practice, some countries fail to apply properly the CEAS rules, while those applying properly do not come to proper conclusions in order to propose more efficient solutions at EU level (Guild et al., 2015b:4; García-Juan, 2020). However, Parusel (2015) testifies some evidence of progress in terms of more uniform asylum procedures across Member States. The above institutional changes, combined with the shortcomings resulting from their implementation, are those mainly affect the choices of asylum seekers regarding their desired country of destination.

The different recognition rates for asylum approvals create additional incentives for intra-EU refugee movements. Several EU members their objections to the allocation mechanisms – especially the Visegrád group countries – and the implementation of border controls within the Schengen area (Bräuninger, 2018), reflecting the policies of repelling refugee flows instead of providing international protection (Koca, 2019). However, Syed Zwick (2019) argues that the disintegration of the European asylum systems started before the "2015 refugee crisis", having its roots in the different migration policies between Germany and the EU border countries. In this context, it is widely reported that there exists significant room for differentiations of the common policy framework between Member States (Beirens, 2018). As an example, especially for the year 2016, the maximum duration of the admissibility process

[6] The "one-to-one" initiative stipulates that one person in need of protection can be resettled from Turkey to a EU member country as one person arrived irregularly in Greece is returned to Turkey.

[7] Directive 2013/32/EU of the European Parliament and of the Council of 26 June 2013 on common procedures for granting and withdrawing international protection (recast), OJ 2013 L180/60

[8] Recast Asylum Procedures Directive, Article 31(3)

is set at 14-15 days in Bulgaria and Hungary, while the corresponding duration for Germany during the same year is extended to 90 days (Asylum Information Database, 2016b:2).

The objectives of the European Pact 2020, proposed in September 2020, focus mainly on the revision of the Dublin Regulation, establishing a compulsory solidarity mechanism between members in the event of refugee crises, but also accelerating border deportations through the activation of readmission agreements with third countries, among others (EPRS, 2021). The plan envisages the creation of legal pathways for the movement of refugee populations by establishing partnerships with third countries involved (European Commission, 2020). The question that arises, however, concerns the extent to which the above policies will be finally implemented in the months to come, and especially in the midst of a pandemic crisis and the uncertainty it causes in decision-making of immigrants.

Methodology and data

The particular characteristics of forced migration, as well as the multiple factors lying behind refugee movements, have been the subject of an increasing number of studies, and even more so given the magnitude of refugee flows in the EU, especially after 2014 (Iqbal, 2007; Ruiz & Vargas-Silva, 2013; Echevarria & Gardeazabal, 2016; Malaj & de Rubertis, 2017). Iqbal (2007) uses the augmented gravity model methodology to capture the factors that determine forced migration patterns. Barthel & Neumayer (2015) introduce the refugee stock variable in order to capture migrant network effects on the number of asylum applicants. Ramos and Suriñach (2013) focus on within EU-27 migratory flows before and after the EU enlargement, in order to assess future pressures due to migration from EU neighbouring countries (ENC) to EU countries. Based on the existing literature, the employment of the gravity model has become a commonly accepted methodological choice, despite the inherent weaknesses arising from the omission of determinants for which there are insufficient data.

In the present study, the UNHCR data employed here concern asylum seeker and refugee populations regarding 189 countries or territories of origin and destination during the 2000-2018 period. As it was pointed out in other relevant studies (Karkanis, 2019), asylum applications represent the number of persons willing to acquire the refugee status in destination countries, while the refugee stock represents the "cumulative trace" of approved asylum applications of earlier years. Assuming the destination countries as closed systems (no inflows or outflows) during a year, new asylum approvals entail an increase in the refugee population and a simultaneous decrease in asylum applications. However, in practice, the number of "pending" applications depends both on "outflows" (either approvals or rejections) and "inflows" (new asylum demands). Thus the refugee population size can be considered as an indicator of the likelihood of new asylum approvals.

While the first step of the analysis aims at capturing the "pull" and "push" factors that determine the mobility of asylum seekers to destination countries worldwide during the period 2000-2018, the second step concerns exclusively the member states of the European Union as exclusive destination countries. This implies that the samples of the second step concern only the 28 EU countries as destinations, by the time that they became EU members and until 2018. At the same time, the samples do not include asylum applications from persons originating from another EU member state so as not to affect the empirical results. In the second step, the analysis is limited to the 2008-2017 period because of lack of data related to the EU members' recognition rates.

At the technical level, with regard to the Ordinary Least Squares (OLS) regressions, the White's heteroskedasticity-consistent covariance matrix estimator is applied in order to address the problem of heteroscedasticity issues (Santos Silva & Tenreyro, 2006). The regressions were also checked for robustness by applying the standard bootstrap methodology for resampling into 1000 samples (Efron, 1979; Efron & Tibshirani, 1993; Davison & Hinkley, 1997). Due to the comparatively large number of zero-value observations, the employment of the Poisson Pseudo Maximum Likelihood (PPML) estimator was also considered necessary, as is usually the case in similar studies (Santos Silva & Tenreyro, 2006; Shepherd, 2016).

Model specification

In the model, the dependent variable T_{do} represents the *annual number of pending cases regarding asylum applications in country of destination (d) from country of origin (o)*, regardless of whether asylum seekers will finally receive a positive or negative answer from the national authorities (Phillips, 2015; UNHCR, 2010). The introduction of the T_{do} variable, as well as of the R_{do} explanatory variable, the latter measuring the refugee stock regarding persons of the same nationality with asylum seekers in the country of destination (d), raise the problem of zero values. Hence, the econometric analysis is conducted by specifying three different conditions: i) by excluding zero-value observations related to asylum applications ($T_{do} > 0$ and 62,605 observations), ii) by excluding zero-value observations related to asylum applications, but also to refugee stock ($T_{do} > 0$ and $R_{do} > 0$ and 45,612 observations), and iii) by producing the natural log of the variables $(1 + T_{do})$ and $(1 + R_{do})$, in order to include zero-value observations in the final sample (Santos Silva & Tenreyro, 2006; Helpman, Melitz, & Rubinstein, 2008). The latter case (including $T_{do}=0$ observations) comprises the largest number of observations (90,106). As regards the second step, the samples under the i) $T_{do}>0$, ii) $T_{do}>0$, $R_{do}>0$, and iii) $1+T_{do}$, $1+R_{do}$ conditions comprise 16,071, 13,522, and 22,474 observations, respectively. The generalized form of the model is described by the following gravity equation:

$$\begin{aligned}\mathrm{Ln}(T_{do}) = {} & \beta_0 + \beta_1 \mathrm{Ln}(\mathrm{dist}_{do}) + \beta_2 \mathrm{contig}_{do} + \beta_3 \mathrm{llocked}_d + \beta_4 \mathrm{island}_d + \\ & + \beta_5 \mathrm{coltie}_{do} + \beta_6 \mathrm{lang}_{do} + \beta_7 \mathrm{Ln}(\mathrm{GDPpc}_o) + \beta_8 \mathrm{Ln}(\mathrm{TR}_d) + \\ & + \beta_9 \mathrm{Ln}(R_{do}) + \beta_{10} \mathrm{Ln}(\mathrm{Pop}_d) + \beta_{11} \mathrm{Ln}(\mathrm{Pop}_o) + \beta_{12} \mathrm{EUadj}_d + \\ & + \beta_{13} \mathrm{RoL}_d + \beta_{14} \mathrm{CLib}_o + \beta_{15} \mathrm{RecRate}_d + \varepsilon\end{aligned}$$

The first set of time-invariant variables relates to the effect of geographical factors (Appendix A) on asylum flows. The first two variables refer to the geographical distance (Mayer & Zignago, 2011), which is directly related to the discouraging effect of migration costs (Lewer & Van den Berg, 2008), as well as the contiguity dummy which is widely employed to reflect common border sharing effects (CEPII database, $dist_{do}$ and $contig_{do}$ variables, respectively). The rest other two variables aim to assess the impact of other geography-related characteristics regarding destination countries, such as landlockedness and insularity ($llocked_d$ and $island_d$ variables). The second set is composed by the colonial tie and common ethnic language dummies, which also derive from the CEPII database ($coltie_{do}$ and $lang_{do}$ variables). These are introduced to capture the effect of historical and cultural ties between host and origin countries, a pair of variables that are commonly used in similar empirical studies (Ramos & Suriñach, 2013; Aburn & Wesselbaum, 2017). Finally, the per capita GDP variable in origin

countries ($GDPpc_o$) may be considered as an outward migration resistance term, especially if incomes are too low to overcome migration costs (Figueiredo, Renato Lima, & Orefice, 2015).

The introduction of variables accounting for the degree of restrictive immigration measures/policies is a common practice (Bertoli & Fernández-Huertas Moraga, 2013) in order to reduce omitted variable bias. Consequently, two time-variant variables have been introduced to capture the effect of restrictive immigration policies. The first is the total refugee stock in a country (TR_d), regardless the origin country of the refugees (UNHCR data). The role of communication networks (social media) is decisive for the direction of asylum seekers. Information costs may vary over time, reflecting the evolving role of migrant networks, which are often represented in augmented gravity equations by the migrant or refugee stock (Barthel & Neumayer, 2015). As it becomes necessary to create variables depending on the origin and destination country pairs, the use of UNHCR data will additionally contribute to avoiding any discrepancies that are often encountered between official national data and those of Eurostat (Mouzourakis, 2014).The second variable is an indicator of the legal framework in host countries (Rule of Law, RoL_d variable), which reflects the level of institutional quality and the destination countries' compliance with national laws and international conventions.

Some of the time-variant variables introduced in this study mainly relate to the demographic factors, producing an attractive or discouraging effect, depending on whether they refer to destination or origin countries, respectively. From the pull side, the destination's total population size (Pop_d) represents the market size of host countries, as persons are likely to seek asylum in EU countries with eventual more robust market conditions. From the push side, the origin country's total population size (Pop_o) reflects the demographic pressures exerted on the urban infrastructures of the less developed countries. The still high fertility pattern but also the ongoing urbanisation finds the infrastructure – public or private – in the urban centres unprepared, maintaining an inhospitable living environment and thus encouraging the decision to immigrate. Even if the refrain effect of these pressures can be approached through various demographic variables other than population size (Backhaus, Martinez-Zarzoso & Muris, 2015), most of gravity models for human mobility retain the population size variable (for example, Dedeoğlu & Genç, 2017).

The forced displacement of persons and their families is largely due to the deprivation of basic freedoms in their homelands. The discouraging effect of the socio-political factors in origin countries is represented here by a civil liberties indicator ($CLib_o$ variable), provided by the Freedom House database, which ranges between the values 1 and 7. The civil liberties indicator is composed of four distinct components, evaluating freedom of expression and belief, associational and organisational rights, rule of law, and personal autonomy and individual rights. At the empirical level, Echevarria & Gardeazabal (2016) find a positive effect of the degree of civil liberties in destination countries on the number of refugees who settled in these countries, which turns to be negative when it comes for origin countries (Karemera, Iwuagwu Oguledo, & Davis, 2000). In the present study, and in order to facilitate the interpretation of the empirical results, the corresponding explanatory variable becomes equal to the reverse value of the *CL rating* score (Appendix A). In this way, the lower the value of the $CLib_o$ variable, all other determinants being constant, the lower the performance of the origin countries in terms of respect for their citizens' civil liberties.

The first step of the analysis – worldwide destinations – additionally includes an institutional dummy variable with the aim to confirm a relationship between the EU enlargement process and the attraction of new asylum applications (Latek, 2019). The value of the EU member adjacency dummy variable ($EUadj_d$) equals the number of neighbors of an EU destination country, provided that the former are also EU members during each year under study. Otherwise, it takes zero values when destination countries are not yet EU members or island countries or even they have entered the EU but they do not neighbour other EU members. This variable, thus aims to assess the effect of the spatially expanding European Union during the last two decades – most importantly the enlargement of 2004 – combined with any resulting spatial and institutional continuities it may entail, on the direction of asylum flows. As regards the second step, the recognition rate variable ($RecRate_d$) aims at detecting policy barriers among the EU destination countries, especially with regard to reception policies and asylum procedures, recalling that the second-step analysis refers exclusively to the period 2008-2017. Relevant data on an annual basis are available from the Migration Policy Institute (MPI).

In the second step – EU destinations – the recognition rate variable ($RecRate_d$) has been additionally included in the model in order to approach, at least indirectly, the different asylum policy framework and implementation in hosting countries. As mentioned above, despite the recast Asylum Procedures Directive, EU countries present significant differentiations regarding their application procedures, especially with regard to the duration of the admissibility process. Consequently, the recognition rate variable aims at capturing the effect of differentiating refugee reception policies and asylum procedures of the Member States.

Results

The empirical results include both OLS and PPML regressions under the three conditions mentioned in the previous Section (Tdo>0, Tdo>0 and Rdo>0, 1+Tdo and 1+Rdo). The model is characterized by a low degree of predictability and this is usually reflected in relatively moderate interpretative values in gravity models for forced migration (Figures 2 and 3). No collinearity issues were detected between the explanatory variables of the final regressions presented here. Overall, the sign of the coefficients estimated through these two approaches (OLS and PPML) does not differ substantially, with the exception of two cases: the recognition rate variable (RecRated) and the civil liberties dummy (CLibo).

The role of geographical proximity between origin and destination countries is quite ambiguous in the case of forced migration. It seems that although the impact of geographical distance is well documented in discouraging human mobility (Tuccio, 2017). However, the existence of a common border between origin and destination countries also exerts a discouraging effect, unlike the commonly reported findings reported in gravity models for economic migration (Letouzé et al., 2009; Cattaneo & Bosetti, 2017). The sign of the corresponding variable is positive only in the first case, where the zero observations of the T_{do} variable are excluded from the sample, as well as the R_{do} variable. The reasons behind the corresponding elasticity's negative sign may be due to the fact that the evolving diplomatic relations between neighbouring countries over time increase the likelihood of reforms in destination countries' institutional framework, which will form the framework for the refugees' expulsion back to the neighbouring origin countries. Asylum seekers seem reluctant to settle in adjacent countries either because they fear that they are always at risk of expulsion

to their neighbouring country of origin or even because they believe that their chances of asylum assignment are usually limited ("near, but not very near"). It should be noted, however, that this finding is likely to be biased by the fact that in this particular case study, given the fact that EU destinations that share a common border with origin countries are mainly the Balkan and former Soviet Union countries which are generally not the main destinations for asylum seekers worldwide.

Figure 2. Results: Worldwide destinations

Estimator :	OLS	OLS	OLS	PPML	PPML	PPML
Dependent Variable :	$\ln(T_{do} > 0)$	$\ln(T_{do} > 0)$	$\ln(1+T_{do})$ $\ln(1+R_{do})$	$\ln(T_{do} > 0)$	$\ln(T_{do} > 0)$	$\ln(1+T_{do})$
		$\ln(R_{do} > 0)$			$\ln(R_{do} > 0)$	$\ln(1+R_{do})$
Ln($dist_{do}$)	-0.709***	-0.333***	-0.243***	-0.298***	-0.120***	-0.182***
	(-60.574)	(-27.550)	(-30.421)	(-62.60)	(-27.75)	(-35.73)
$contig_{do}$	0.222***	-0.822***	-0.449***	0.048***	-0.342***	-0.410***
	(4.720)	(-18.329)	(-11.870)	(2.99)	(-23.99)	(-20.81)
$llocked_{d}$	-0.088***	-0.162***		-0.025***	-0.039***	
	(-3.921)	(-7.580)		(-2.69)	(-5.18)	
$island_{d}$	0.085***		0.132***	0.028***		0.107***
	(3.516)		(7.505)	(2.58)		(9.41)
$coltie_{do}$	0.407***	0.101**	-0.575***	0.128***	0.035***	-0.243***
	(8.142)	(2.308)	(-12.155)	(8.82)	(2.72)	(-10.16)
$lang_{do}$	0.433***	0.241***	0.277***	0.174***	0.088***	0.177***
	(21.494)	(12.297)	(17.455)	(22.81)	(13.74)	(20.72)
Ln($GDPpc_{o}$)	-0.268***	-0.098***	-0.061***	-0.110***	-0.033***	-0.045***
	(-39.912)	(-15.195)	(-12.769)	(-40.62)	(-14.52)	(-15.12)
Ln(TR_{d})	0.174***	0.041***	0.074***	0.734***	0.092***	0.482***
	(47.953)	(10.311)	(30.189)	(44.66)	(5.53)	(24.62)
Ln(R_{do})		0.552***	0.454***		1.581***	1.828***
		(143.425)	(126.660)		(132.89)	(122.05)
Ln(Pop_{d})	0.291***	0.130***	0.109***	1.150***	0.437***	0.613***
	(45.385)	(19.185)	(23.211)	(43.89)	(18.28)	(20.64)
Ln(Pop_{o})	0.280***	0.184***	0.154***	1.139***	0.606***	0.945***
	(56.090)	(35.437)	(40.592)	(57.05)	(33.18)	(40.04)
$EUadj_{d}$	0.030***	-0.009**	-0.091***	0.002*	-0.005***	-0.040***
	(5.916)	(-2.069)	(-22.673)	(1.69)	(-4.28)	(-22.02)
RoL_{-d}	0.656***	0.148***	0.185***	0.286***	0.067***	0.143***
	(77.200)	(16.182)	(28.003)	(78.98)	(19.87)	(34.15)
$CLib_{o}$	-1.769***	-0.103*	-0.257***	-0.938***	-0.072***	-0.317***
	(-36.880)	(-1.849)	(-7.942)	(-34.80)	(-3.13)	(-11.92)
Durbin-Watson	1.575	1.457	1.275			
Adjusted R^2	0.253	0.511	0.397	0.269	0.477	0.353
Observations	62,605	45,612	90,106	62,605	45,612	90,106

Note: OLS Estimations use White's heteroskedasticity-consistent covariance matrix estimator. T-Statistics in parentheses. The superscript *** means p<0.01, ** p<0.05, * p<0.10. The subscripts *d* and *o* stand for destination and origin countries, respectively.

The estimated positive effect for island destination countries is rather unexpected, but in the case of EU destination countries, it can be explained by the fact that two out of three island countries (Cyprus and Malta) are geographically located in the Mediterranean, on the southeastern border of the European Union. These countries, in turn, constitute key gateways to asylum seekers originating mainly from countries or territories located in the Greater

Middle East and sub-Saharan Africa. This attractive effect certainly does not reflect peoples' choices of settling on an island country, but rather the desperate need to approach, albeit at an early stage, the periphery of the common European space. As expected, the coefficient for the island origin countries' dummy was proved to be statistically insignificant and finally was excluded from the final regressions.

As for the $llocked_d$ dummy, the negative sign in the case of worldwide destination countries, which do not have access to the sea, reflects the usual impact of migration costs on human mobility (Kim & Cohen, 2010). In contrast, the positive sign for EU destination countries can be largely justified by the fact that some of the entry gates for asylum seekers into the European Union are landlocked countries, mainly located on the eastern borders of the common European space. The positive signs for insularity and landlockedness clearly describe, at the same time, the geography of the EU periphery but also the main refugee transit routes towards the EU. Finally, the results with regard to both cases of worldwide and EU destinations once more confirm that linguistic and cultural ties between origin and host countries exert the expected encouraging role in attracting new asylum applications.

Population sizes traditionally function as attraction and repulsion factors in destination and origin countries, respectively, for new asylum applications, as commonly reported in similar studies (Iqbal, 2007; Poot et al., 2016). The main bulk of refugee flows originates from countries that are geographically located in the Greater Middle East area and the sub-Saharan Africa, which refers to a profile of less developed countries and, in most cases, in the early stages of demographic transition.

The role of communication networks (European Asylum Support Office, 2016) between persons who have already obtained refugee status in destination countries and their compatriots at home (*network effects*), providing useful information about the living standards across countries, is also confirmed in the present study. In a recent study implemented on 2,454 asylum-related migrants located in five countries, it clearly appears that, when migrants are not forced to flee in emergency situations to a neighbouring country, social media has a true impact on mobility decisions, especially "future decisions about where to move to in Europe" (Merisalo & Jauhiainen, 2020:194). The refugee stock variable (R_{do}) represents the effect of human networks on mitigating information asymmetries with regard to the reception policies and asylum granting procedures in destination countries. Indirectly, it is also an indicator that reflects the likelihood of an asylum application from persons of the same nationality being approved, which further stimulates new asylum applications from the same country of origin.

This finding may justify the negative sign of the coefficient related to the recognition rate variable ($RecRate_d$) in the case of the EU destination countries (Figure 3). This assertion is reinforced by the fact that the exclusion of the R_{do} variable – first and fourth column – coincides with the inversion of the recognition rate coefficient's negative sign into a positive one. It should be reminded that the latter variable expresses the global approval rate of persons seeking asylum in destinations, regardless of origin country. Thus it becomes clear that the strong presence of refugees in destination countries (*refugee stock*) proves by itself the favourable conditions for granting asylum to persons of the same nationality. When comparing standardized (beta) coefficients in similar studies, the results confirm the systematically attractive effect of the R_{do} variable, compared to all other determinants (Karkanis, 2019). It is the factor that incorporates the positive effect of both favorable

immigration policies in host countries and social networks established between migrants, along with the multiplier effect of the constantly increasing use of social media platforms.

For collinearity reasons, the total refugee stock variable (TR_d) was finally included only in the first-step analysis (worldwide destinations). The empirical findings simply confirm the positive impact of the strong presence of refugees as an "inner attractive force" for new asylum applications. This finding confirms that it is not only the favourable asylum policies towards specific ethnic groups of refugees that matter, but the overall favourable host culture prevalent in several destination countries.

Figure 3. Results: EU destinations

Estimator :	OLS	OLS	OLS	PPML	PPML	PPML
Dependent Variable :	$\ln(T_{do} > 0)$	$\ln(T_{do} > 0)$	$\ln(1+T_{do})$	$\ln(T_{do} > 0)$	$\ln(T_{do} > 0)$	$\ln(1+T_{do})$
		$\ln(R_{do} > 0)$	$\ln(1+R_{do})$		$\ln(R_{do} > 0)$	$\ln(1+R_{do})$
Ln($dist_{do}$)	-1.179***	-0.404***	-0.399***	-0.460***	-0.161***	-0.269***
	(-47.319)	(-17.834)	(-21.432)	(-54.08)	(-20.88)	(-27.20)
$contig_{do}$	-1.461***	-1.271***	-0.743***	-0.470***	-0.387***	-0.355***
	(-8.131)	(-8.401)	(-5.896)	(-7.70)	(-8.25)	(-6.60)
$llocked_d$	0.269***	0.109***	0.167***	0.107***	0.042***	0.072***
	(6.797)	(3.490)	(6.484)	(7.32)	(4.02)	(5.31)
$island_d$	0.815***	0.068*	0.334***	0.305***	0.015	0.174***
	(15.864)	(1.713)	(10.580)	(14.20)	(1.04)	(9.61)
$coltie_{do}$	0.578***	0.171***	-0.286***	0.140***	0.014	-0.132***
	(8.276)	(2.906)	(-3.796)	(6.99)	(0.84)	(-4.32)
$lang_{do}$	0.498***	0.301***	0.281***	0.197***	0.134***	0.186***
	(9.347)	(6.672)	(5.367)	(11.34)	(9.68)	(8.39)
Ln($GDPpc_o$)	-0.328***	-0.129***	-0.084***	-0.135***	-0.054***	-0.074***
	(-25.538)	(-11.997)	(-9.114)	(-27.70)	(-14.00)	(-13.93)
Ln(R_{do})		0.667***	0.569***		1.932***	2.334***
		(112.768)	(90.370)		(107.14)	(100.97)
Ln(Pop_d)	0.684***			2.609***		
	(49.544)			(50.78)		
Ln(Pop_o)	0.353***	0.127***	0.116***	1.391***	0.515***	0.839***
	(39.312)	(15.220)	(16.820)	(40.34)	(17.12)	(20.15)
RoL_d	0.899***	0.068***	0.243***	0.360***	0.045***	0.191***
	(34.648)	(3.024)	(12.931)	(31.88)	(5.56)	(16.31)
$CLib_o$	-2.210***	0.399***	0.238***	-1.326***	0.085*	-0.048
	(-24.129)	(3.862)	(4.001)	(-25.08)	(1.92)	(-1.00)
$RecRate_d$	0.038***	-0.018***	0.052***	-1.030***	-0.008***	0.024***
	(5.400)	(-2.898)	(9.918)	(-8.10)	(13.28)	(8.35)
Durbin-Watson	1.650	1.810	1.749			
Adjusted R^2	0.303	0.598	0.479	0.335	0.583	0.466
Observations	16,071	13,522	22,474	16,071	13,522	22,474

Note: OLS Estimations use White's heteroskedasticity-consistent covariance matrix estimator. T-Statistics in parentheses. The superscript *** means p<0.01, ** p<0.05, * p<0.10. The subscripts *d* and *o* stand for destination and origin countries, respectively.

Beyond the direct refrain effect of conflicts (Weber, 2019), the socio-political context together with severe poverty certainly complicates the living conditions in origin countries. The lack of respect for individual civil liberties, as well as the economic pressures through high unemployment rates and poverty, may contribute to the deterioration of living conditions for

local populations, resulting in the displacement of persons from their places of origin, in order to seek asylum for themselves and their families abroad. From the "pull" side, the national governments' compliance with national laws and international conventions, expressed here by the Rule of Law variable (RoL_d), does matter for attracting new asylum applications.

Ceteris paribus, the improving geographical and institutional interconnectivity among EU members, as it evolves through the enlargement process, does not seem to contribute to the increase of asylum applications, as long as the lack of a common understanding with regard to asylum procedures still persists. The coefficient of the EU member adjacency dummy ($EUadj_d$) takes a negative sign, when including zero-value observations (third and sixth column) or at least the corresponding variable for refugee stock (second and fifth column, Figure 2). In the absence of the decisive role of migrant networks (first and fourth column), the elasticity receives by exception a positive sign. This implies that the potentially encouraging effect of migrant networks seems to be offset by the institutional discontinuities caused by the differentiated asylum procedures among Member States. The empirical results therefore highlight the urgent issue of equitable sharing of all responsibilities related to the reception of asylum seekers, particularly in light of the recent intensification of refugee flows.

The positive impact of establishing institutional "continuities", as they are sought to be shaped by the EU enlargement, seem not to be achieved in the case of asylum seeker flows towards the European Union. The reception framework of persons being expelled from their homeland is more in line with the individual immigration policies implemented by the EU members as destination countries. This fact is reflected in the positive effect, on the one hand, of the recognition rates for granting asylum, regardless of the country of origin, and on the other hand, of the strong presence of refugee populations having the same ethnic background as asylum seekers. As a result, it is the heterogeneity itself, in terms of perception and implementation of immigration policies between the Member States, that enhances intra-Community migratory flows and, consequently, secondary migration.

Conclusions and Policy implications

The empirical findings suggest that the geographic factor does not affect asylum flows in the same way as it is generally the case for migratory movements due to economic reasons. Along with the discouraging role of the geographical distance, fleeing to an adjacent country seems not the best option, as is the case for economic migration (Letouzé et al., 2009; Ramos & Suriñach, 2013), given the persons' general fear of deporting back to their neighbouring countries of origin. The economic and/or political situation of the adjacent countries can be a repelling factor even if they are culturally closer. Although the number of asylum applications is comparatively smaller in countries with no access to the sea, the case of the EU as destination is particular. Most of the EU landlocked countries are located on the eastern border, being inherently very important terrestrial gateways for refugees, and therefore for new asylum applications. However, we must not overlook the fact that these EU eastern countries as well as now Western Balkan countries with initiating accession processes with the EU are not only gateways for transiting refugees, but are also the origin of lots of asylum requests (Kosovo, Albania, Serbia etc.).

Population sizes in destination and origin countries play the traditional role of attraction and resistance factor, respectively, for asylum seekers. *Ceteris paribus*, the more intense the presence of refugees in destination countries and, even more so, of refugees originating from the same

country, the greater the number of asylum applications from persons of the same nationality. Refugees in destination countries are thus acting as an internal "attractive force" for new asylum applications. At the institutional level, the encouraging role of favourable immigration policies, evidenced by the presence of refugees in destination countries of the same nationality as asylum seekers, as well as the alignment with national laws and international conventions, is confirmed. From the "push" side, the lack of respect for civil liberties aggravates the context of living conditions of persons in their countries of origin.

This paper tried to shed light on the interplay between the encouraging effect of migrant networks and the discouraging effect of the institutional discontinuities arising from the differentiated asylum policies among the EU members. As regards the relationship between the refugee population and new asylum applicants from the same ethnic origin, it could be argued that the role of migration networks tends to substitute the lack of integrated immigration policy in the EU. However, this does not neglect the efforts undertaken to conclude a common strategy, such as the EU cooperation with African states and transit countries, in order to encourage voluntary returns (Bräuninger, 2018). Any further EU enlargement policies must work simultaneously to harmonize national migration strategies and asylum procedures between Member States, with the aim of reducing secondary migration within the common European space. So far, the European Union seems not a homogeneous space for asylum seekers, either in geographical terms or institutional terms. The gradually improving geographical and institutional interconnectivity through the enlargement process of the last two decades is not applied, in practice, in the case of persons in need of international protection.

Among the limitations of the study, the gravity model is a widely accepted methodological choice in the relevant literature, even though it is not always based on solid assumptions, and this is truer in forced migration studies. Modeling the flows of asylum seekers in the retro perspective can hardly predict and therefore take into account the impact of more recent emergency developments, such as the pandemic crisis, increasing undernourishment in underdeveloped countries (Afghanistan, Yemen) or even the new border struggles on the eastern borders of the European Union (Poland, Belarus). Technical issues related to data fullness or even to the impact of other factors which could not be included in the analysis, justify the moderate or, in some cases, the satisfactory interpretative value of the different regressions presented here. Especially with regard to the current pandemic, the constantly changing national health protection guidelines further increase insecurity and make it difficult for migrants to make safe decisions for themselves and their families (Otto, 2020).

In view of the above results, it would make sense to expand the field of analysis by attempting to consider eventual future evolutions for both countries of origin and destination. The UN population projections suggest that the demographic pressures – in the coming decades – will intensify in sub-Saharan Africa while at the same time, the ongoing demographic aging process in many of the EU older member states is expected to accelerate the need to attract human resources in order to maintain the economic growth. Consequently, and in accordance with the 1951 Refugee Convention, the guarantee of a common framework of movement within the EU territory for persons displaced from their origin countries will be increasingly essential. Despite the setbacks during the EU enlargement process, efforts to adopt common reception and asylum procedures among the members are critical in order to ensure the safer

movement of people along the European continent, thus sending a clear message to the EU candidate countries about the need to align with this common objective.

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Appendix A.

"Pull" and "push" factors of the augmented gravity model for human mobility

Variable	Description	Source
T_{do}	Asylum seeker population (natural logs)	UNHCR database
$dist_{do}$	Geographical distance (natural logs)	CEPII GeoDist database
$contig_{do}$	Dummy variable for contiguity (0/1)	CEPII GeoDist database
$llocked_d$ / $island_d$	Dummy variable for landlocked / island destination countries (0/1)	Own calculations
$coltie_{do}$	Dummy variable for colonial ties between origin and destination country (0/1)	CEPII GeoDist database
$lang_{do}$	Dummy variable for common ethnic language in destination countries (0/1)	CEPII GeoDist database
Pop_d / Pop_o	Population size of destination/origin country (natural logs)	UNCTADStat database
R_{do}	Refugee stock in destination country by origin country (natural logs)	UNHCR database
TR_d	Total refugee population in destination country (natural logs)	UNHCR database
$GDPpc_o$	Per capita GDP of origin country, US constant dollars, 2010 prices (natural logs)	UNCTADStat database
$EUadj_d$	Dummy variable, equal to the number of an EU member's other EU neighbour partners, zero for non-EU destinations or non-EU neighbours	Own calculations, http://europa.eu/european-union/
$RecRate_d$	Recognition rate in destination country (% of total applications)	Migration Policy Institute
RoL_d	Rule of Law index in destination country (between about -2.5 and 2.5)	World Governance Indicators
$CLib_o$	Civil liberties index in origin country $\frac{1}{CL\ rating}$, range between 0 and 1	*Freedom in the World* survey, Freedom House