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(Occasional Paper

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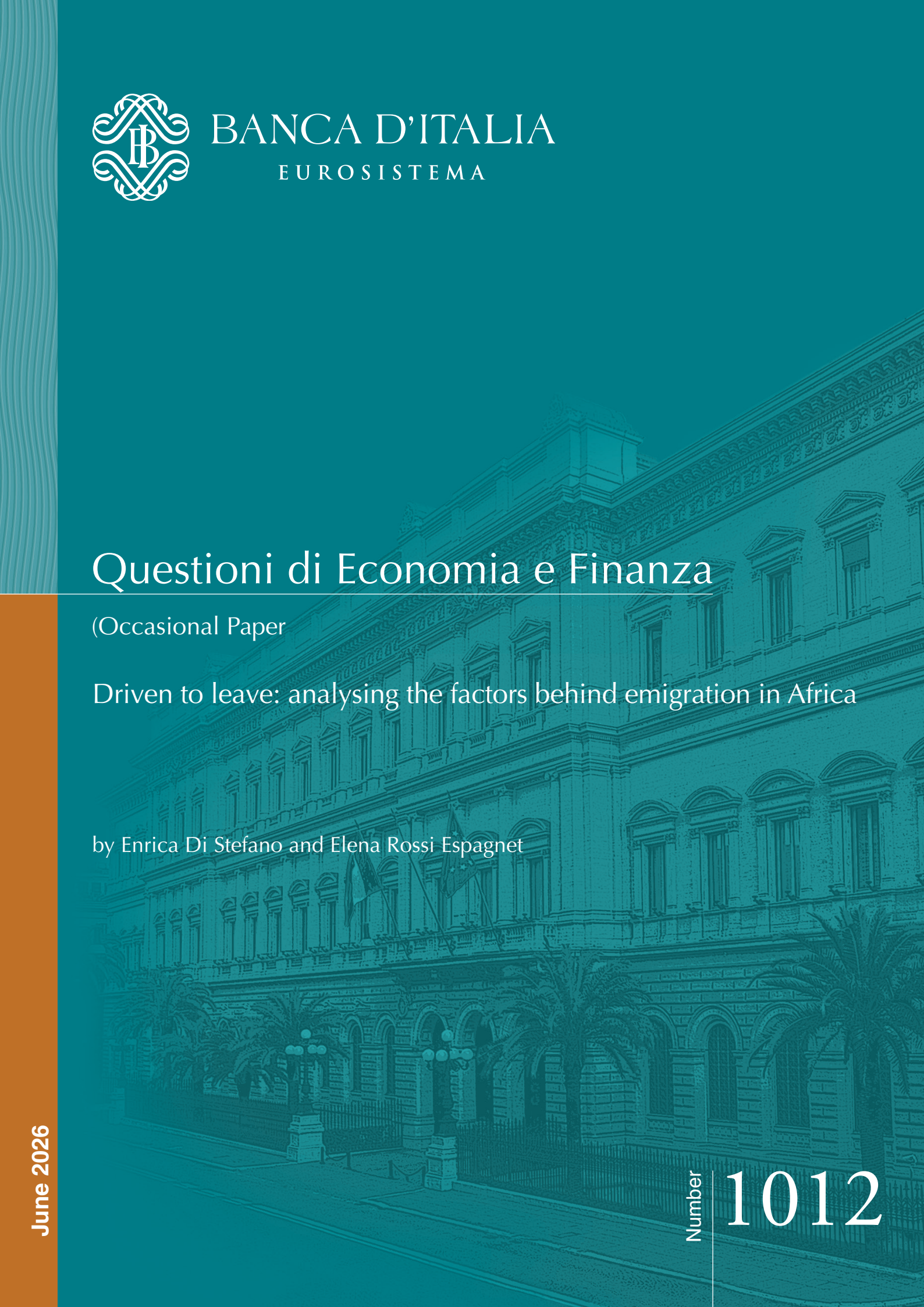
by Enrica Di Stefano and Elena Rossi Espagnet



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ISSN 1972-6643 (online)

Designed by the Printing and Publishing Division of Banca d'Italia

DRIVEN TO LEAVE:
ANALYSING THE FACTORS BEHIND EMIGRATION IN AFRICA

by Enrica Di Stefano* and Elena Rossi Espagnet**

Abstract

In recent years, emigration from Africa has increased significantly, especially towards the European Union, where it has received increasing media and political attention. This paper contributes to the debate by exploring the drivers of this phenomenon. Using a decomposition methodology, we first isolate the change in the stock of emigrants that can be ascribed to shocks in the countries of origin, that is, how much their domestic conditions incentivize emigration, regardless of destination. We also isolate the role of the EU in attracting African migrants. We find that for African countries, domestic shocks have increasingly contributed to outflows from the continent over time. In contrast, the attraction exerted by the EU is positive, but relatively small. We then explore the role of several types of domestic shock in driving the origin component. An econometric analysis over a large set of countries around the world suggests that a growing labour force, higher per capita GDP, and worsening labour market conditions increase the incentive to emigrate in most countries, including those in Africa. Conversely, while higher exposure to natural disasters is generally associated with a lower propensity to emigrate, this is not true for Africa, where the correlation turns slightly positive.

JEL Classification: F22, J61, N37.

Keywords: migration, Africa, EU, migration drivers.

DOI: 10.32057/0.QEF.2026.1012

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The views expressed in this paper are those of the authors and do not necessarily represent those of the Bank of Italy.

1 Introduction

The number of migrants born in Africa and residing in the European Union (EU) has more than doubled from 1990 to 2020, as well as their share relative to the EU population, although with significant differences across member countries. These trends have fueled a debate in the EU on what drives the African immigration and how to manage the challenges it poses.

In this paper, we contribute to this debate along several dimensions. First, we apply the decomposition method proposed by Amiti and Weinstein (2018) to migration stocks and isolate the increase in the stock of emigrants from Africa due to shocks in the countries of origin versus shocks in the countries of destination, particularly the EU, or due to global shocks, common to both origin and destination countries. As far as we know, this methodology has been applied to migration data only in another work by Beltran and Hadzi-Vaskov (2023) that investigates the effect of climate change on cross-border migration of emerging economies. In here, we focus on emigration from Africa and on the role exerted by the EU in attracting those migrants. Our second contribution is to explore the drivers of the origin component arising from the decomposition, i.e. of the incentive to emigrate, regardless the destination. We rely on the existing empirical literature to select the potential drivers (Czaika and Reinprecht, 2022). In particular, population at origin, especially working-age, is typically found to push emigration, and its role may increase in the future. Population in emerging economies is growing, leading excess supply of workers, especially in South Asia and Sub-Saharan Africa. Simultaneously, advanced economies will continue aging, therefore increasing the demand for working-age migrants. The two forces together may likely increase the migration from poor to rich countries in the coming decades. Among economic drivers, income levels and income gaps – that persist between high-income and low-income countries in both low- and high-skill occupations – are found to be important in shaping migration (Vanderkamp, 1971; Bertoli and Fernández-Huertas, 2013; Ortega and Peri, 2013). Income inequality and poverty in origin countries, especially low-income, is a powerful push factor as moving to a richer country offers an opportunity to escape poverty. However, several studies suggest a nonlinear, inverted U-shaped relationship, between GDP per capita and emigration rates (Adams and Page, 2003; Letouzé et al., 2009; De Haas, 2010; Djajic, Kırdar and Vinogradova, 2016; Clemens, 2014). At low per capita income levels, an increase in the latter allows people to afford the migration costs. However, if income increases enough, people's living standards improve and the incentive to leave their country of birth reduces until the relation turns negative. The poorest of the poor, however, tend to migrate internally, as they are unable to afford the costs associated with moving abroad. Indeed, migration costs are another key element that affect the decision to leave a country. They tend to increase with geographic distance and with the restrictiveness of migration policies, while previously-established diaspora networks may lower them. In more recent years, the role of environmental drivers has also received increasing attention (IMF, 2020). Other aspects that may lead to forced displacement include individual motives, political and institutional aspects such as legal barriers, and security issues including conflict and violence. The remainder of the paper is organized as follows. The next session proposes an overview of the main patterns of emigration from Africa to the EU over the period 1990-2020. Section 3 describes the decomposition method. Section 4 uses the results of the decomposition to draw insights on African emigration to the EU. Section 5 focuses on the origin component and

proposes an econometric analysis of its drivers. The last session concludes.

2 Main patterns of the emigration from Africa to the European Union

According to the International Migration Statistics of the United Nations (IMS, 2022) between 1990 and 2020, the number of Africans residing outside of their country of birth doubled, from almost 21 million to more than 40 (Tab. 1, last column). Over the same period, the number of those residing in the EU more than doubled from 4.1 to 9.2 million, concentrated in few EU countries.

Table 1: African emigration by destination area

Year	Africa	Asia	Europe (ex. EU)	EU	Latam	N. America	Oceania	World
Thousands of people:								
1990	13,431	1,778	566	4,117	19	549	162	20,621
2000	12,753	2,165	909	4,888	20	1,116	229	22,080
2010	14,571	3,427	1,421	7,328	28	1,984	435	29,194
2020	20,918	4,720	1,844	9,181	49	3,269	588	40,567
% of world total:								
1990	65.1	8.6	2.7	20.0	0.1	2.7	0.8	100.0
2000	57.8	9.8	4.1	22.1	0.1	5.1	1.0	100.0
2010	49.9	11.7	4.9	25.1	0.1	6.8	1.5	100.0
2020	51.6	11.6	4.5	22.6	0.1	8.1	1.4	100.0
1990-2020 change (pp)	-13.6	+3.0	+1.8	+2.7	+0.0	+5.4	+0.7	
% of population at destination:								
1990	2.1	0.1	0.2	1.0	0.0	0.2	0.6	0.4
2000	1.6	0.1	0.3	1.1	0.0	0.4	0.7	0.4
2010	1.4	0.1	0.5	1.7	0.0	0.6	1.2	0.4
2020	1.6	0.1	0.6	2.1	0.0	0.9	1.4	0.5
1990-2020 change (pp)	-0.6	+0.0	+0.4	+1.1	+0.0	+0.7	+0.8	+0.1

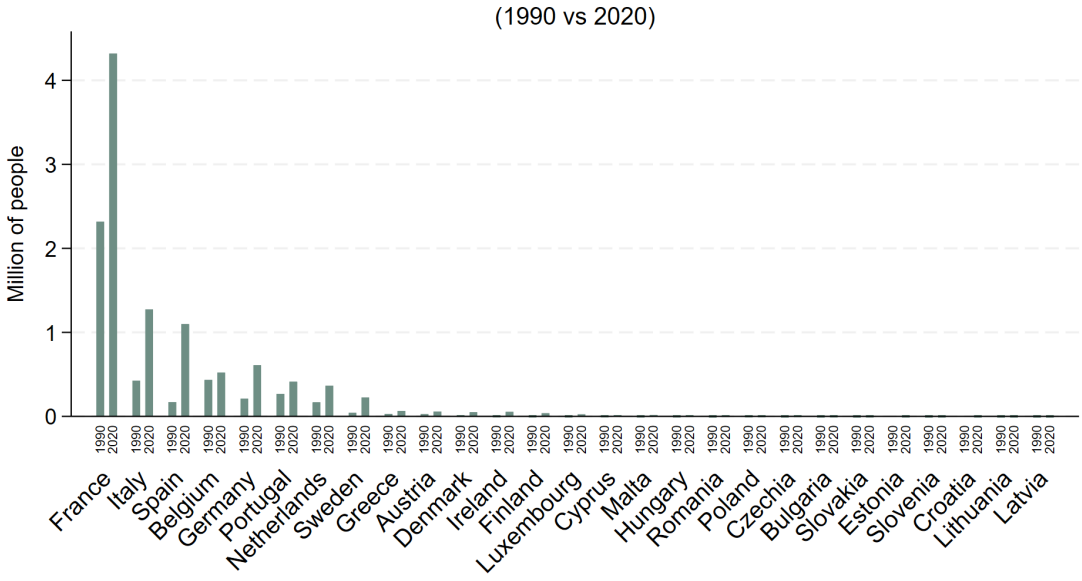
Source: IMS (2022), selected years.

In 1990, the 5 largest recipients (France, Belgium, Italy, Portugal, and Germany) were hosting 88 percent of the 4 million African-born residing in the EU, with more than half of them staying in France. By 2020, the African communities had increased everywhere, but the distribution of migrants remained very uneven (Fig. 1). In terms of composition, most of those migrants came from northern Africa, although the share from western Africa increased (Fig. 2).[1]

Despite the size of these numbers, from a broader perspective, the wave of African immigration in the EU is not as exceptional as it may seems. To begin with, over the same period African communities in other areas of the world increased at a higher rate than in the EU (Tab. 1). By almost 6 times in Northern America, by 3.2 times in non-EU European countries, by 2.7 times in Asia, compared to a doubling in the EU. Moreover, the percentage of people emigrating from Africa remained broadly stable in percentage of the population at origin, while increasing relative to the population at destination, especially in the EU and in Northern America (Tab. 1).

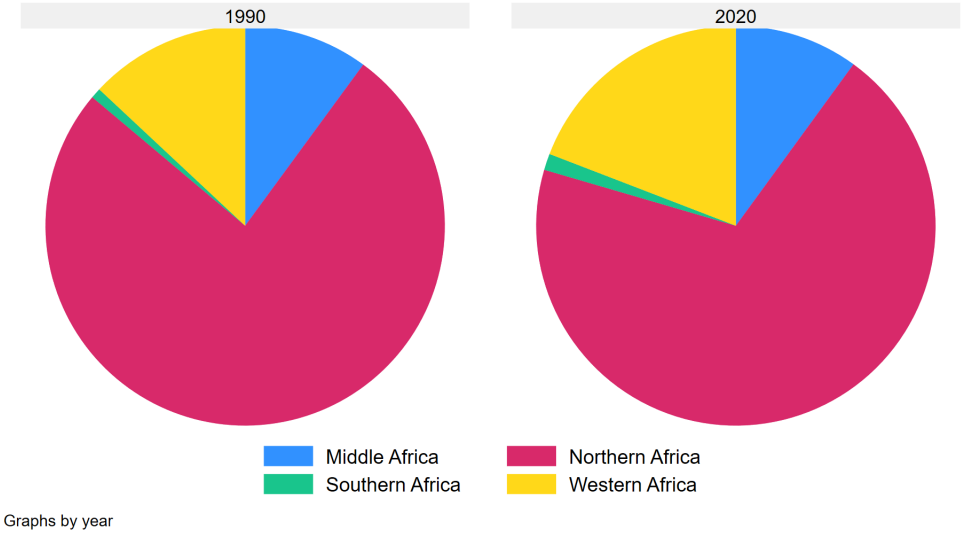
[1]Northern Africa includes: Algeria, Egypt, Libya, Morocco, Sudan, and Tunisia. Western Africa includes: Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, Gambia, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Saint Helena, Senegal, Sierra Leone, and Togo.

Figure 1: African communities in the EU



Source: Elaborations on IMS (2022).

Figure 2: African migration into the EU by area of origin



Source: Elaborations on IMS (2022).

This fact is consistent with the underlying demographic trends of these regions. According to the UN Population Prospects, the African population increased from 638 million to almost

Table 2: Foreign-born resident in the EU by origin

Region of Origin	Thousands of people		Change 1990-2020		Distribution	
	(1990)	(2020)	(Th. of people)	(%)	(1990)	(2020)
Africa	4,117	9,181	5,064	123.0	27.2	24.9
Asia	4,444	11,807	7,363	165.7	29.4	32.0
Non-EU European countries	4,877	9,526	4,649	95.3	32.2	25.8
Latam and Caribbean	808	4,800	4,000	493.1	5.3	13.0
Northern America	447	738	291	65.3	3.0	2.0
RoW (excl. EU)	442	881	439	99.4	2.9	2.4
World (excl. EU)	15,134	36,926	21,792	144.0	100.0	100.0

Source: UN (2022), selected years.

1.4 billion in the 30 years to 2020 and will increase by more than 1 billion by 2050. Even under the assumption that the share of African population emigrating to the EU will remain at around 0.7 percent, an additional 70 million Africans may move to the EU in the next 30 years. This, combined with an already shrinking EU-born population would mechanically increase the share of African communities in the EU.

To conclude, the increase of immigration from Africa into the EU is not as exceptional as absolute figures may suggest. Nevertheless, the African community in the EU is currently the world largest and increased both in absolute term and relative to the population at destination over the last 30 years. It is therefore not surprising that the phenomenon is receiving increasing attention by media and policy makers, especially in some EU countries. Looking ahead, the potential for larger inflows of migrants from Africa in the EU is significant. Demographic trends will certainly play an important role, but is not possible at this stage to quantify their contribution relative to economic and non-economic drivers. A task we turn to in the remainder of the paper.

3 Exploring the drivers of emigration from Africa

The choice of emigrating may be driven by conditions either at origin that push people to leave their home country or at destination that make other countries more attractive. In order to disentangle the relative role of each component we exploit the decomposition method proposed by Amiti and Weinstein (2018).

In particular, consider a world where people can migrate from N^o countries of origin to N^d countries of destination. A general empirical model for the decomposition of the growth in the stock of migrants born in a country $o \in N^o$ and residing in some other country $d \in N^d$ at any time t can be written as:

$$\Delta \log M_{o,d,t} = O_{o,t} + D_{d,t} + \epsilon_{o,d,t} \tag{1}$$

where $O_{o,t}$ is the share of the overall change that occurs due to shocks in the country of origin, $D_{d,t}$ measures the role of shocks in the country of destination, and $\epsilon_{o,d,t}$ is an error term with zero mean.[2] The intuition behind the model is straightforward. It says that the stock of migrants may change either because people in o have an incentive to leave, regardless the

[2]While this specification does not explicitly considers the role of bilateral idiosyncratic shocks, Amiti and Weinstein (2018) show that it is equivalent [..].

destination, or because country d became more attractive to migrants, regardless their origin. The first factor may change for instance for shocks to the domestic labor markets, disposable income, conflicts, natural disasters, or other local amenities. Instead, the destination factor may be affected by changes of economic conditions in the hosting country, cross-border regulations, etc. In every period, the change in the stock of emigrants from country o can be written, exploiting the translog aggregating structure, as

$$E_{o,t} \equiv (log \sum_{d} M_{o,d,t} - log \sum_{d} M_{o,d,t-1}) \approx \sum_{d} \phi_{o,d,t} \Delta \log M_{o,d,t} \tag{2}$$

where

$$\phi_{o,d,t} \equiv \frac{1}{2} \left(\frac{M_{o,d,t}}{\sum_d M_{o,d,t}} + \frac{M_{o,d,t-1}}{\sum_d M_{o,d,t-1}} \right)$$

The element $\phi_{o,d,t}$ measures the $(t, t-1)$ mean share of emigrants from o that reside in d over the total number of emigrants from o.

Similarly, the change in the stock of immigrants to a country d can be written as

$$I_{d,t} \equiv (log \sum_{0} M_{o,d,t} - log \sum_{o} M_{o,d,t-1}) \approx \sum_{o} \theta_{o,d,t} \Delta \log M_{o,d,t} \tag{3}$$

and

$$\theta_{o,d,t} \equiv \frac{1}{2} \left(\frac{M_{o,d,t}}{\sum_o M_{o,d,t}} + \frac{M_{o,d,t-1}}{\sum_o M_{o,d,t-1}} \right)$$

measures the $(t, t-1)$ mean share of immigrants to d from o over the total number of immigrants in d.

Combining 1 and 3, and exploiting the fact that $E[\sum_d \phi_{o,d,t} \epsilon_{o,d,t}] = 0$ we can chose the $O_{o,t}$'s and the $D_{d,t}$'s to satisfy the following system of conditions:

$$\begin{cases} E_{o,t} = O_{o,t} + \sum_d \phi_{o,d,t} D_{dt} = EO_{o,t} + ED_{o,t} \\ I_{d,t} = D_{d,t} + \sum_o \theta_{o,d,t} O_{o,t} = ID_{d,t} + IO_{d,t} \end{cases} \tag{4}$$

where $\phi_{o,d,t}$ and $\theta_{o,d,y}$ were defined above. measures the $(t, t-1)$ mean share of immigrants in d from o over the total number of immigrants in d. Notice that $\sum_d \phi_{o,d,t} = 1$ and $\sum_o \theta_{o,d,t} = 1$. It is important to stress that the conditions in 4 uniquely identify the origin and destination shocks up to a numeraire. The choice of the numeraire does not change countries' relative position, but it does affect the interpretation of the numbers, as they measure the deviation from the numeraire itself. In order to make the results of the decomposition more informative, we followed Amiti and Weinstein (2018) and express country-level factors in terms of deviations from the median level. The first line in 4 can be written as:

$$E_{o,t} = (O_{o,t} - \bar{O}_t) + \sum_d \phi_{o,d,t} (D_{d,t} - \bar{D}_t) + (\bar{O}_t + \bar{D}_t) = E\bar{O}_{o,t} + E\bar{D}_{o,t} + G_t \tag{5}$$

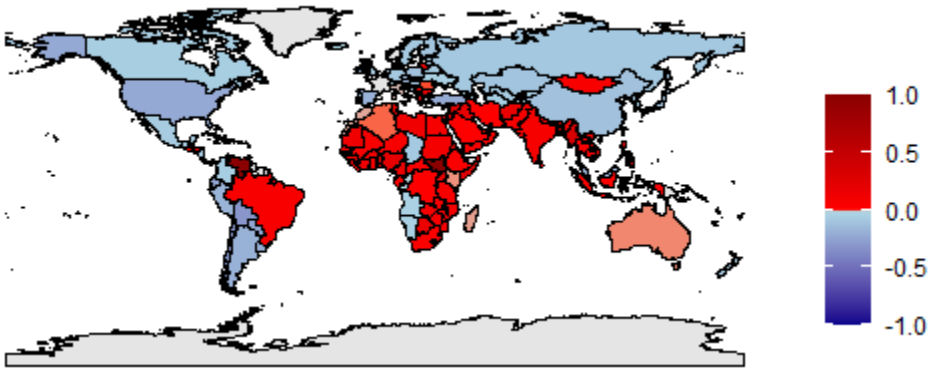
Where $\bar{O}_t$ is the median shock in the country of origin o at time t, and $\bar{D}_t$ is the median shock in the country of destination d. Hence, $E\bar{O}_{o,t}$ measures how much shock in the origin country o have pushed the local population to emigrate, regardless the destination. Shocks that would affect the origin component include changes in the demographic characteristics

such as the total population or the size of the labor force, or shocks to the domestic economic conditions, as well as to other non-economic factors that would affect the level of living conditions at origin. Whenever $\bar{EO}_{o,t}$ is positive, it means that the incentive to emigrate from o due to domestic factors is above the median level observed in year t. Symmetrically, the element $E\bar{D}_{o,t}$ measures the weighted contribution to the change in the stock of *emigrants* from o due to shocks in the countries of destination, weighted by the relative importance that each of them has as a destination for o. A positive value of $E\bar{D}_{o,t}$ indicates that the attraction of migrants from o due to shocks in destination countries is above the median level observed in year t. Finally, the element G_t can be interpreted as a global factor that affects both countries of origin and destination.

4 The decomposition of the Africa-EU migration patterns

We used the IMS (2022) data on bilateral migrant stocks to solve the system in 5 and separate the role of shocks at the origin, destination, and global level in shaping outflows from countries of origin. The decomposition is computed year by year for all countries in the sample. Recall that whenever the domestic component is positive, it means that the incentive to emigrate due to domestic shocks is above the median level.[3] Fig. 3 shows the results for all countries in the sample in 2020.[4] For most EU members, the domestic component is lower than the median level, suggesting that the incentive to emigrate from them due to domestic shocks is lower than the level observed in most countries. On the contrary, in Africa it tends to be above median, with few exceptions.

Figure 3: Origin component by country

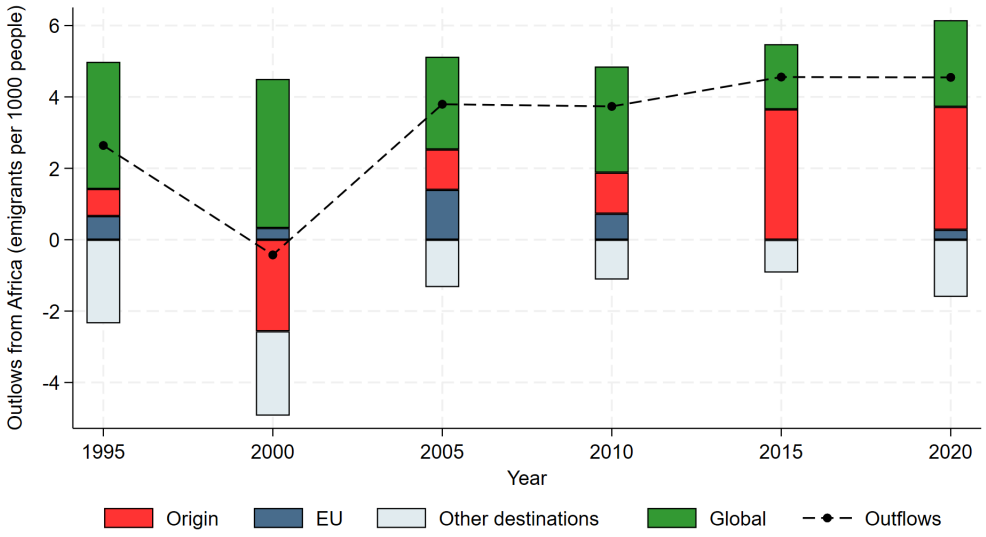


Source: Authors' elaborations. *Note*: Decomposition of the variation in bilateral stocks from 2015 to 2020, the last available year. The red color indicates countries whose origin component is above the median, the blue color indicates countries whose origin component is below the median.

[3]Recall that in this specification, country-level factors measure the deviations from the median levels, which are not constant over time. As a consequence, we can compare the relative size of each component to the other two year by year, but the comparison across different observation years is less informative.

[4]The $\bar{EO}_{o,2020}$ in the notation introduced above.

Figure 4: Outflows from Africa by types of shock



Source: Authors' elaborations.

Note: Following the notation introduced in section 3, the y-axis shows the outflows from Africa in $(t-1,t)$ every 1,000 African-born at the beginning of the period ($E_{o,t}/N_{o,t-1}$ with $o \in$Africa); the red bars measure the origin component ($\bar{ED}_{o,t}/N_{o,t-1}$); the light blue bars measure the destination component ($\bar{ED}_{o,t}/N_{o,t-1}$); the navy bars measure the EU destination component ($\bar{ED}_{EU,t}/N_{EU,t-1}$); and the green bar measures the global component ($G_t/N_{o,t-1}$).

Another way to analyze the results of the decomposition is to look at the relative contribution of the origin, destination, and global components to the overall outflows in each period. Figure 4 shows this decomposition for African countries, expressing the outflows as migrants per 1,000 people at the origin. The dashed line measures the 5-year change in the stock of African emigrants; the red bars measure the contribution from shocks at origin; the dark blue bars measure the change due to shocks in the EU; the light blue ones the contribution of shocks in other non-EU destinations; and finally, the green bars quantify the role of the global component in each year.[5] From 1990 to 2020, the stock of people emigrated from Africa increased by 3 to 5 people per 1,000 people every 5 years, except for a small reduction observed in 1995-2000. Global shocks contributed positively to the increase in all years, promoting a general increase in the world stock of emigrants. These shocks may include lowering transportation costs or better diplomatic international relations that made legal emigrations easier, as well as tighter international economic integration that could increase labor mobility. The contribution of shocks in the origin countries has also been positive in most years and relatively larger than that of the other components more recently. Turning to the role of shocks at destination, the gray bars suggest that shocks

[5]We separated the role of shocks in the EU from the role of shocks in other destinations by decomposing the destination component as follows:

$$\bar{ED}_{o,t} = \sum_{d \in EU} \phi_{o,d,t}(D_{d,t} - \bar{D}_t) + \sum_{d \notin EU} \phi_{o,d,t}(D_{d,t} - \bar{D}_t) = \bar{ED}_{EU,t} + \bar{ED}_{Other,t} \tag{6}$$

in non-EU destination countries reduced outflows from Africa. In contrast, shocks in the EU contributed positively, although to a limited extent.[6] In summary, in Africa domestic shocks contributed to the outflows from the continent positively and relatively more than in most other countries. Also, the push from shocks in country of origin was larger than the contribution from shocks that affected also (or only) countries of destination, as measured by the destination and global components, respectively. One limit of the exercise is that it does not provide indications on the underlying factors driving the different components. An issue that we address in the next section for the origin component, which appears to be the largest contributor in the case of Africa.

5 Regression analysis of the origin component

The decomposition exercise isolates the outflows due to shock in the countries of origin. We refer to this as the *origin component*. In what follows, we explore the specific shocks that drive this component. The econometric model is:

$$M_{o,t} = \beta_0 + \beta^{\intercal} X_{o,t-1} + T_t + A_{o,t} + u_{o,t} \tag{7}$$

where our dependent variable is the number of outflows due to shocks in the country of origin as a share of the previous period population[7]. The matrix $X_{o,t-1}$ includes lagged migration shares, economic indicators, labor market dynamics, and measures of environmental stresses. The model also includes year fixed effects (T_t) and geographic fixed effects($A_{o,t}$) to control for unobserved heterogeneity. Table 3 contains the descriptive statistics of the variables for the whole sample and for the subsample of African countries.

Table 3: Summary statistics of covariates

	All countries					African countries	
Variable	**Obs.**	**Mean**	**Std. Dev.**	**Min**	**Max**	**Obs.**	**Mean**
Ratio of migrants to lagged population	873	0.001	3.0	-31.76	42.19	279	0.28
Share of population living abroad in -1	734	0.08	0.08	.00	8.48	234	0.05
Δ Labor force relative to Δ Population	873	1.01	17.09	-94.61	492.24	279	0.31
Δ Log(Labor Force)	873	0.89	0.87	-0.32	0.84	279	0.14
Log(GDP per capita)	843	8.08	1.63	4.47	11.63	275	6.81
Δ Log(GDP per capita)	843	0.19	0.35	-1.70	1.75	275	0.11
Unemployment rate	873	8.15	6.05	0.14	34.92	279	9.22
Δ Unemployment rate	873	0.15	3.02	-14.5	17.1	279	0.077
Log(Damage from natural disasters per capita) in -1	819	-2.88	3.14	-14.40	3.08	266	-3.00

[6] In order to test the stability of our results, we also run alternative decompositions. One excludes the Syrian Republic to exclude that results could be driven by the exceptional outflows registered from this country in 2011; the other excludes also other extreme migration events. In both cases, the dynamics of the main exercise are confirmed. Details provided in the appendix.

[7] $M_{o,t} = \frac{\bar{EO}_{o,t}}{Pop_{t-1}}$, following the notation introduced above.

The results of the econometric analysis are shown in table 4. Columns (1)-(4) consider the role of emigration patterns, labor market dynamics, and economic conditions. Columns (5)-(6) extend the analysis to explore the impact of natural disaster. Both types of regressions are run both on the whole sample and on subsets by per capita income level. The results suggest that emigration is persistent over time on average consistently with the literature on network effects in migration Beine, Docquier and Özden (2015), the lagged share of the population living abroad is a strong predictor of current emigration, particularly in low-income and middle-low-income countries (columns 2-3). Labor market pressures, captured by changes in the labor force relative to changes in the population and its interaction with unemployment, also emerge as important drivers, aligning with findings by Hatton and Williamson (2005) on the economic push factors of migration. GDP per capita in the previous period negatively correlates with emigration, on average (Column 1). For the whole sample, the coefficient on the lagged value of Log(GDP per capita) is 0.54; this means that a 1% increase in GDP per capita is associated with a 0.0054 percentage point decrease in the emigrant-to-population ratio over the next five years; not a small effect, considering that the average level of the dependent variable is 0.001. In columns 2-5 we run the same regressions grouping countries by per capita income level (columns 2-5). Consistently with the previous literature (Clemens (2014) and Berthiaume et al. (2021), among others), we find evidence that the relation between emigration and per capita income has an inverted-U shape. In particular, the correlation is positive and significant in countries with per capita income below the 10th percentile, while it turns negative at higher income levels. As income increases further, the coefficient reduces and eventually becomes not statistically significant. The impact of natural disasters, proxied by per capita damage, is significantly negative. An explanation for this could be that due to the natural disaster, potential emigrants can no longer afford to pay the cost of an international migration. Interestingly, the interaction of this coefficient with the Africa dummy suggests that this effect is instead close to zero or even slightly positive for African countries Therefore, rather than being associated to a contraction in emigration, in Africa environmental shocks pair with a slight expansion of emigration. This finding aligns with the literature on climate-induced migration, which emphasizes the heightened vulnerability of African populations to environmental stressors due to limited adaptive capacity and institutional support. While the direct effect of disaster damage is negative overall, the positive interaction for Africa implies that in these contexts, disasters may exacerbate existing socio-economic fragilities, prompting migration as a coping strategy.

Table 4: Regression analysis

	(1) All	(2) L	(3) ML	(4) MH	(5) H	(6) All	(7) L,ML,MH
Share of population living abroad in -1	7.83***	48.80***	9.21***	-6.38**	-2.78*	2.84§	15.58***
	(1.41)	(4.26)	(2.80)	(3.19)	(1.62)	(1.77)	(2.85)
Δ Labor force relative to Δ Population	0.00**	-0.31	0.00*	-0.05	0.01	0.00§	0.00**
	(0.00)	(1.57)	(0.00)	(0.05)	(0.03)	(0.00)	(0.00)
Δ Log(Labor Force)	-4.64*	-6.21	-13.52***	-9.92§	3.12§	-5.35*	-9.77**
	(2.43)	(7.53)	(3.73)	(6.71)	(1.99)	(3.03)	(3.92)
Δ Labor force X Unemployment rate	0.75***	-0.79	1.10***	0.90§	-1.38***	0.91***	2.19***
	(0.22)	(1.66)	(0.41)	(0.60)	(0.28)	(0.27)	(0.48)
Log(GDP per capita) in -1	-0.54***	2.25**	-1.37***	-0.93**	0.02	-0.49***	-0.15
	(0.12)	(1.03)	(0.36)	(0.46)	(0.29)	(0.14)	(0.33)
Δ Log(GDP per capita)	0.20	30.55**	-11.16**	7.16	-8.68	-0.16	0.76
	(1.41)	(14.63)	(4.66)	(12.54)	(7.72)	(1.60)	(3.14)
Log(GDP p. c.) in -1 X Δ Log(GDP p. c.)	0.06	-5.42**	1.65**	-0.79	0.82	0.12	0.04
	(0.18)	(2.56)	(0.65)	(1.48)	(0.75)	(0.20)	(0.44)
Unemployment rate	-0.05*	0.11	-0.08	-0.10**	-0.01	-0.04	-0.19***
	(0.03)	(0.22)	(0.06)	(0.05)	(0.02)	(0.03)	(0.07)
Δ Unemployment rate	0.04§	-0.02	0.15***	-0.01	-0.08***	0.04	0.21***
	(0.03)	(0.32)	(0.05)	(0.05)	(0.02)	(0.03)	(0.06)
Log(Damage from natural disasters per capita) in -1						-0.28***	-0.23***
						(0.04)	(0.05)
Africa dummy X Log(Damage from nat. dis. per capita)						0.32***	0.29***
						(0.09)	(0.10)
Observations	619	50	249	166	154	397	182

Standard errors in parentheses. In columns titles indicate the income group considered in the regression.
§ p<0.15, * p<0.10, ** p<0.05, *** p<0.01
Note: 'All' stands for 'All countries'; 'L' for 'Low income', i.e. countries with per capita income in the 10th percentile; 'ML' for 'Medium-Low', i.e. countries with per capita income between the 10th and the 50th percentile; 'MH' for 'Medium-High', i.e. countries with per capita income between the 50th and the 75th percentile; 'H' for 'High', i.e. countries with per capita income above the 75th percentile.

6 Concluding remarks

African emigration remains a central issue in EU policy debates, particularly in member states with large African communities. This paper uses the UN dataset on bilateral migrant stocks over 1990–2020 to explore migration patterns and drivers, with a particular focus on the migrations from Africa to the EU. First, we decompose changes in migrant stocks to isolate the share attributable to origin-country shocks, as opposed to destination or global shocks. We find that in Africa, origin-related factors are generally larger, positive, and increasing over time. This has important policy implications because when origin shocks dominate, the most effective policies would be those directed at improving the domestic conditions of potential emigrants. Instead, tightening the barriers at entry in destination countries would likely have only a limited effect on total outflows, while potentially redirecting destinations and increasing irregular migration, which complicates labor market integration and may strain diplomatic relations. Second, we analyze the determinants of the origin component. Our results indicate that migration networks, demographic pressures, labor force growth, high unemployment, and low GDP per capita amplify emigration incentives, especially in low- and middle-income countries. Conversely, natural disasters typically reduce migration globally but could induce a slightly positive increase in emigration from Africa—a critical finding given the continent's vulnerability to climate change. Much remains to be done to fully understand the phenomenon. For instance, the analysis could be expanded to explore the drivers of destination-specific shocks within the EU and other destination countries, as these factors may significantly shape migration dynamics and policy effectiveness. We leave this for future research.

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A Appendix

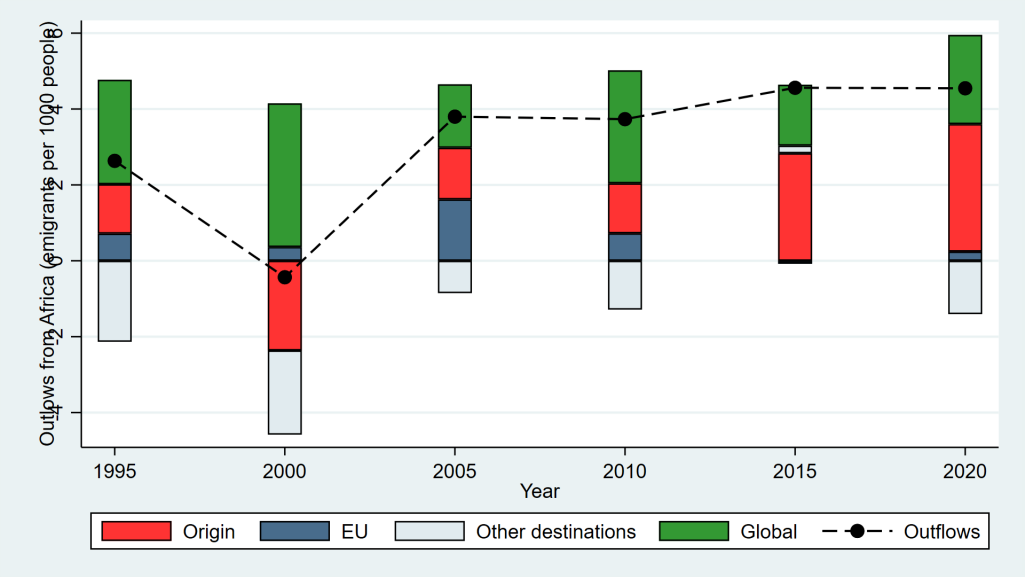
A.1 Data

The primary data source on cross-border migration is the United Nations International Migration Database. This is part of the Global Migration Database, a comprehensive collection of empirical data on the number of international migrants by country of birth and citizenship, sex and age as enumerated by population censuses, population registers, nationally representative surveys, and other official statistical sources from more than 200 countries and territories in the world. In particular, we used the estimates of the bilateral stocks of migrants provided from 1990 to 2020 with a 5-year interval. Data is available for 238 countries and territories by gender, but in this paper, we use the total number of migrants. The estimates for population and working-age population are from the World Population Prospects Database published by the Population Division of the Department of Economic and Social Affairs of the United Nations. We consider the working age population data, i.e. people between 15 and 64 years old. The estimates for per capita real GDP level and growth rates are from the April 2023 World Economic Outlook database of the International Monetary Fund. We consider the level in USD of per capita GDP at the beginning of each period of time and its average growth rate in the previous five years. Data on the unemployment rate are from the World Bank and are collected from the Modelled Estimates and Projections database from the International Labour Organization. We consider, both the level of unemployment rate at the beginning of the quinquennium and the change in unemployment rate over the previous five years. Finally, we use the International Disasters Database to get data on natural disasters. The dataset contains data on the occurrence and impacts of over 26,000 mass disasters worldwide from 1900 to the present day. The database is compiled from various sources, including United Nations agencies, non-governmental organizations, reinsurance companies, research institutes, and press agencies. We compute the number of affected people (net of deaths) in percent of the total population and the damage per capita measured by the economic costs caused by the natural disaster divided by the current population.

A.2 Sensitivity analysis on sample composition

Emigration patterns vary significantly across countries and years. In particular, during the period 1990-2020 several migration crises materialized and there is a possibility that those isolated episodes may have driven the results of the analysis. To address this concern, we perform two alternative decompositions in which we drop those episodes. In the first one, we drop Syria. The Syrian refugee migration crisis began in March 2011 as a result of a violent government crackdown on public demonstrations. In 2015 a record 1.3 million migrants applied for asylum in the EU, Norway and Switzerland, mostly from Syria. Fig. A.5 shows the results. Figures change almost exclusively for the year 2015, confirming that the impact of the Syrian migrations affected the results for that year but not for the others. Looking at the immigrations into the EU, when Syrian inflows are excluded, the increase in the stock of immigrants for 2015 drop to almost zero, suggesting that Syrian migrations were crowding out migrations from other areas. From the African countries perspective, in

Figure A.5: Outflows from Africa by types of shock - Excluding Syria



Source: Elaborations on IMS (2022). *Note*: The notation and the variables definition is the same described in the main text.

2015 the attraction from the EU drops to zero.

In a second exercise drop all countries that underwent dramatic emigration episodes (including Syria). In particular, the countries dropped are: Albania, Bhutan, Central African Republic, Ecuador, Eritrea, Gabon, Madagascar, Rwanda, Sierra Leone, South Sudan, Syria, and Venezuela.

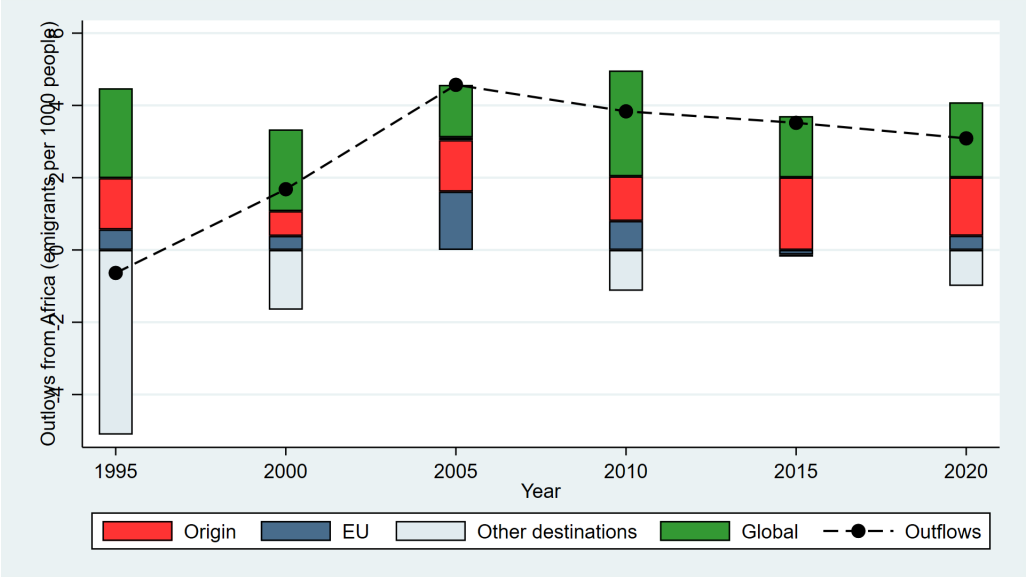
Figure A.6 confirms that the results are qualitatively consistent with the findings in the paper. In particular, the signs of the origin, destination and global components do not change.

A.3 Countries by income level

The countries included in the UN International migration are grouped into four income levels (high, medium-high, medium-low, and low), following the the World Bank classification.

High-income countries include: Mayotte, Réunion, Hong Kong, Macao, Taiwan, Japan, Republic of Korea, Brunei Darussalam, Bahrain, Cyprus, Israel, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates, Czechia, Hungary, Poland, Romania, Slovakia, Denmark, Estonia, Faroe Islands, Finland, Guernsey, Iceland, Ireland, Isle of Man, Jersey, Latvia, Lithuania, Norway, Sweden, United Kingdom, Andorra, Croatia, Gibraltar, Greece, Italy, Malta, Portugal, San Marino, Slovenia, Spain, Austria, Belgium, France, Germany, Liechtenstein, Luxembourg, Monaco, Netherlands, Switzerland, Aruba, British Virgin Islands, Cayman Islands, Curaçao, Guadeloupe, Martinique, Puerto Rico, Saint Barthélemy, Saint Martin (French part), Sint Maarten (Dutch part), Turks and Caicos Islands, United States Virgin Islands, Panama, Chile, Uruguay, Bermuda, Canada, Greenland, Saint Pierre and Miquelon, United States of America, Australia, New Zealand, New Caledonia, Guam, Northern Mariana Islands, French Polynesia, Falkland Islands.

Figure A.6: Outflows from Africa by types of shock - Excluding extreme episodes



Source: Elaborations on IMS (2022).
Note: The notation and the variables definition is the same described in the main text.

Upper-middle-income countries include: Equatorial Guinea, Gabon, Libya, Botswana, Namibia, South Africa, Kazakhstan, Turkmenistan, China, Malaysia, Thailand, Armenia, Azerbaijan, Georgia, Iraq, Jordan, Turkey, Belarus, Bulgaria, Republic of Moldova, Russian Federation, Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, Serbia, Costa Rica, Guatemala, Mexico, Argentina, Brazil, Colombia, Ecuador, Guyana, Paraguay, Peru, American Samoa.

Lower-middle-income countries include: Djibouti, Kenya, United Republic of Tanzania, Zimbabwe, Angola, Cameroon, Congo, Algeria, Egypt, Morocco, Tunisia, Eswatini, Lesotho, Benin, Côte d'Ivoire, Ghana, Mauritania, Nigeria, Senegal, Kyrgyzstan, Tajikistan, Uzbekistan, Mongolia, Bangladesh, Bhutan, India, Iran, Nepal, Pakistan, Sri Lanka, Cambodia, Indonesia, Lao People's Democratic Republic, Myanmar, Philippines, Viet Nam, Lebanon, State of Palestine, Ukraine, El Salvador, Honduras, Nicaragua, Bolivia.

All other countries in the sample are **low-income**. Low and middle-income countries include low-, upper-middle-, and lower-middle-income countries.

A.4 Geographic areas

Geographic areas are defined following the UN Statistical Division classification as: Eastern Africa, Middle Africa, Northern Africa, Southern Africa, Western Africa, Central Asia, Eastern Asia, South-Eastern Asia, Southern Asia, Western Asia, Eastern Europe, Northern Europe, Southern Europe, Western Europe, Central America, South America (including Caribbean), Australia and New Zealand, and Northern America.

Africa vs Low- and Middle-Income Countries

	Coefficient	Std. Err.	z	$P > \|z\|$	95% CI
Overall difference:					
Low- and Middle-Income Countries	0.16	0.11	1.44	0.15	[-0.06, 0.38]
Africa	0.26	0.09	2.80	0.01	[0.08, 0.45]
Difference	-0.10	0.15	-0.69	0.49	[-0.39, 0.19]
Endowments	-0.14	0.76	-0.18	0.86	[-1.64, 1.36]
Coefficients	0.12	1.17	0.10	0.92	[-2.17, 2.41]
Interaction	-0.08	1.37	-0.06	0.95	[-2.76, 2.60]
Details:					
Endowments					
ICRG Political Risk Index	-0.24	0.08	-2.88	0.00	[-0.40, -0.08]
FE Northern Africa	0.21	0.10	2.22	0.03	[0.03, 0.40]
Coefficients					
Δ labor force (pp)	0.19	0.08	2.41	0.02	[0.04, 0.35]
Unemployment rate	-0.85	0.50	-1.70	0.09	[-1.83, 0.13]
FE Year 2010	-0.12	0.08	-1.48	0.14	[-0.27, 0.04]
FE Northern Africa	0.21	0.10	2.22	0.03	[0.03, 0.40]
Interactions					
FE Northern Africa	-0.21	0.10	-2.22	0.03	[-0.40, -0.03]

Note: In the detailed section, only statistically significant coefficients are reported. Complete table available on request.

Africa vs High-Income Countries

	Coefficient	Std. Err.	z	$P > \|z\|$	95% CI
Overall difference:					
High-Income countries	-0.52	0.14	-3.54	0.00	[-0.80, -0.23]
Africa	0.26	0.09	2.80	0.01	[0.08, 0.45]
Difference	-0.78	0.17	-4.50	0.00	[-1.12, -0.44]
Endowments	-8.68	9.61	-0.90	0.37	[-27.51, 10.15]
Coefficients	0.73	0.46	1.60	0.11	[-0.17, 1.64]
Interaction	7.17	9.62	0.75	0.46	[-11.69, 26.03]
Details:					
Endowments					
ICRG Political Risk Index	-1.03	0.26	-3.92	0.00	[-1.55, -0.52]
FE Northern Africa	0.21	0.10	2.22	0.03	[0.03, 0.40]
Coefficients					
Labor force in % of population	-4.87	1.96	-2.48	0.01	[-8.71, -1.02]
FE Year 2010	0.14	0.08	-1.78	0.08	[-0.15, 0.30]
FE Northern Africa	0.21	0.10	2.22	0.03	[0.03, 0.40]
Constant	5.07	2.50	2.03	0.04	[0.17, 9.96]
Interactions					
Eastern Europe	-0.14	0.08	-1.68	0.09	[-0.31, 0.02]
FE Northern Africa	-0.21	0.10	-2.22	0.03	[-0.40, -0.03]
Southern Europe	-0.35	0.11	-3.08	0.00	[-0.57, -0.14]
Western Europe	-0.19	0.11	-1.79	0.07	[-0.40, 0.02]

Note: In the detailed section, only statistically significant coefficients are reported. Complete table available on request.