Driven to Leave: Analyzing the factors behind emigration in Africa*

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Abstract

In recent years, emigration from Africa increased significantly, especially to the European Union, where it 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 changed that can be ascribed to domestic shocks, *i.e.* how much domestic conditions incentivize emigration, regardless the destination. We also isolate the role of the EU in attracting African migrants. We find that in Africa, the domestic component is generally higher than in most countries, positive and increasing over time. On the contrary, the attraction exerted by the EU is positive but relatively small. Then, we explore the role of several types of domestic shocks in driving the domestic component. Our econometric analysis suggests that growing labor force, lower per capita GDP and worsening labor market conditions, as well as a higher exposure to natural disasters in the country of origin are associated with higher incentives to emigrate. In Africa, the sensitivity to labor force dynamics and to natural disasters are found to be higher than elsewhere.

Keywords: Migration; Africa; EU; Migration drivers.
JEL Codes: F22, J61, N37.

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 isolate how much of the

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

increase in the stock of emigrants from Africa is due to shocks in the countries of origin versus shocks in the countries of destination, particularly the EU, or at the global level. 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, with a focus on the role exerted by the EU in attracting those migrants. Our second contribution is to perform a regression analysis to explore further how demographic, economic and labor market characteristics drive the origin component. We relate to the huge existing empirical literature on the drivers of migration (Czaika and Reinprecht, 2022). Our original contribution is to explore the role of well-known drivers in affecting specifically the domestic component, i.e. the incentive to emigrate, regardless the destination. 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 will 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 very 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 works suggest that the relation is not linear. Some Authors find evidence of an inverted-U relationship between emigration and per capita income (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 migrations. 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 have 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 the emigration from Africa to the EU over the period 1990-2020. Section 3 describes the decomposition method. Section 4 shows the results of the decomposition for the emigration from Africa, as well as the regression analysis. 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	

Source: IMS (2022), selected years.

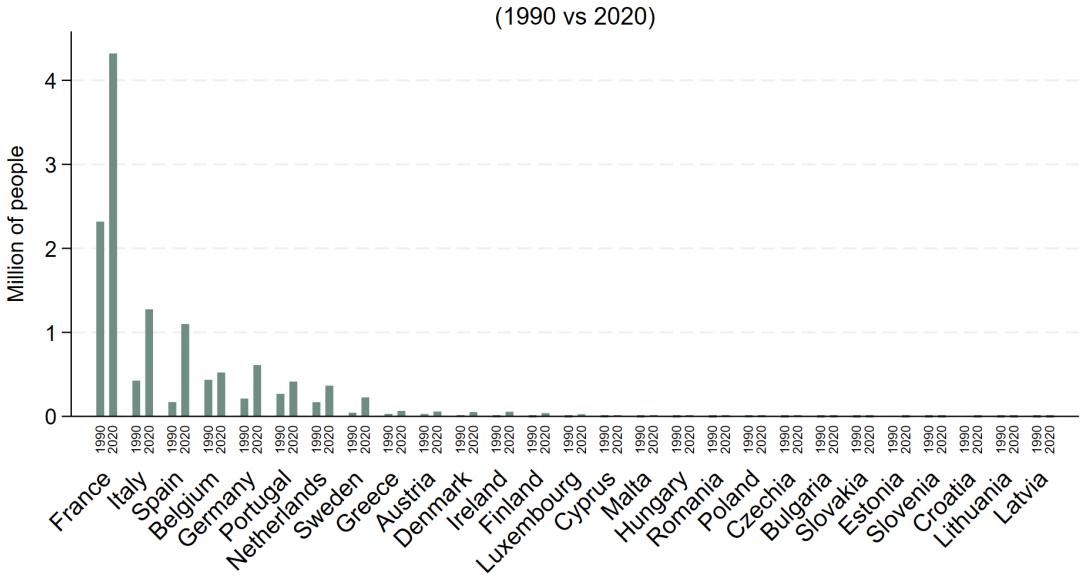
In 1990, the 5 largest recipients (France, Belgium, Italy, Portugal, and Germany) were hosting 88 percent of the 4 million African-born residing in the EU, with France hosting more than half of them. By 2020, the African communities had increased everywhere (Fig. 1), but the distribution of migrants remained very uneven with 19 EU members still hosting less than 1 percent of the total. In terms of origin, most of those migrants originated from northern Africa, although the share from western Africa increased.[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, African communities in other areas increased at a higher rate than in the EU over the same period (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 (Tab. 2). On the contrary, it increased in percentage of the population at destination, especially in the EU and in Northern America.

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 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%, 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.

[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).

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

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

Source: UN (2022), selected years.

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 African migration issue 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

A generally accepted idea is that the choice of emigrating may be driven by either shocks at origin that push people to leave their home country or by shocks 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 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 d over the total number of emigrants from o.

Combining 1 and 2, 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:

$$\begin{cases} E_{o,t} = O_{o,t} + \sum_d \phi_{o,d,t} D_{dt} = EO_{o,t} + ED_{o,t} \\ I_{d,t} = D_{d,t} + \sum_o \theta_{o,d,t} O_{o,t} = ID_{d,t} + IO_{d,t} \end{cases} \tag{3}$$

where $\phi_{o,d,t}$ was defined above 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 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

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

the conditions in 3 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 (2013) and express country-level factors in terms of deviations from the median level. In particular, the first line in 3 can be written as:

$$E_{o,t} = (O_{o,t} - \bar{O}_t) + \sum_d \phi_{o,d,t}(D_{d,t} - \bar{D}_t) + (\bar{O}_t + \bar{D}_t) = \bar{EO}_{o,t} + \bar{ED}_{o,t} + G_t \tag{4}$$

Where $\bar{EO}_{o,t}$ 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 $\bar{ED}_{o,t}$ 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 as destination for o. A positive value of $\bar{ED}_{o,t}$ 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 common factor that affects both countries of origin and destination.

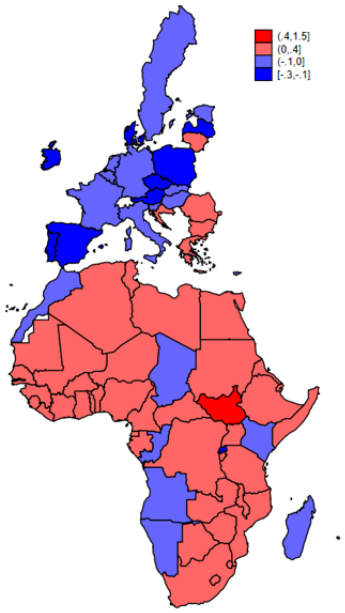
4 An application to Africa

We used the IMS (2022) data on the bilateral stocks of migrants to solve the system in 4 to separate the role of shocks at origin, at destination, and at the global level in shaping the outflows from Africa. 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. Fig. 2 shows the results for the African and EU countries in 2020.[3] For most EU members, the domestic component is lower than the median level, suggesting that the incentive to emigrate from these countries is lower than the level observed in most countries. On the contrary, in Africa it tend to be above median, with some exceptions that could be due to three non-mutually excluding explanations. First, the blue or red coloring depend on the median value, but the median tend to be closer to the mean for emerging economies which are more than advanced countries; second, the incentive to emigrate from those countries may have been low in that particular year due to positive domestic shocks. Finally, the fact that some African countries are blue is consistent with the well-known fact that the majority of migrants move within the continent.

In a second exercise, country-level results are aggregated for African countries and the role of the domestic component is compared to the destination and global ones. In particular,

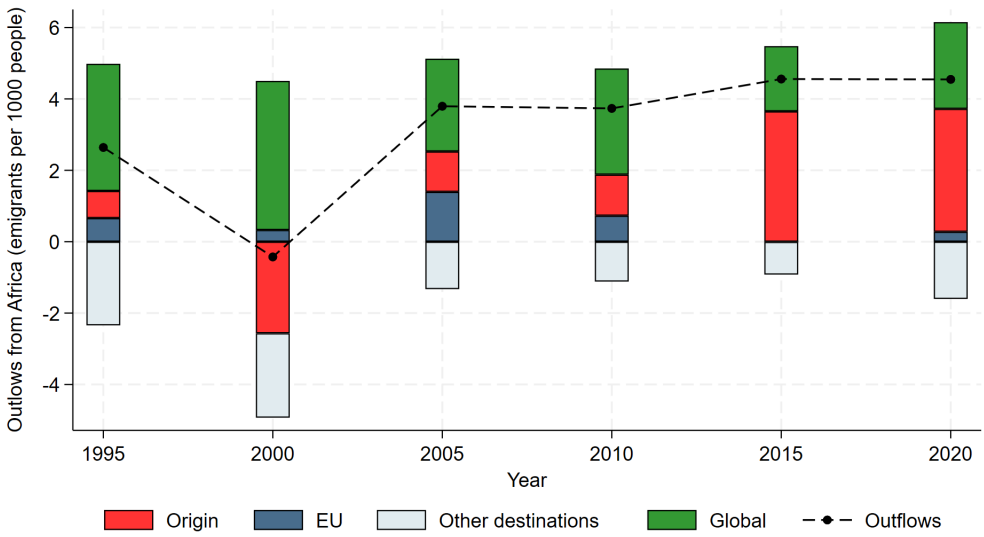
[3] the $\bar{EO}_{o,2020}$ in the notation introduced above

Figure 2: Role of domestic shocks in Africa and the EU



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

Figure 3: 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 domestic component ($\bar{ED}_{o,t}/N_{o,t-1}$); the black bars measure the destination component ($\bar{ED}_{o,t}/N_{o,t-1}$); and the grey bar measures the global component ($G_t/N_{o,t-1}$).

Figure 3 shows the decomposition of the outflows from Africa in the period 1990 to 2020 expressed as migrants per 1,000 people at origin. The dashed line measures the 5-year change in the stock of African emigrants; the red bars measure the domestic component of the outflows; the dark blue bars measure the change due to shocks in the EU; the light blue ones the contribution of shocks in other destinations; and finally, the green bars indicate the global component in each year.[4] The results suggest that the increase in the stock of people emigrated from Africa increased between 3 and 5 people per 1,000 people every 5 years, except for a small reduction observed in 2000 (relative to 1995). The global component contributes positively to the increase in all years, suggesting that shocks common to both origin and destination countries favored the increase of emigrants worldwide. These shocks may include lowering transportation costs or better diplomatic international relations that made legal emigrations easier. The contribution of the domestic component is positive in most years, except in 2000, and its role has become larger in more recent years. On the destination side, the contribution of shocks in the EU is always positive, even though relatively small compared to other components. On the contrary, shocks in other destinations acted as a drag to the outflows from Africa in all years.

4.1 Regression analysis of the origin component

The above decomposition disentangles how much domestic shocks in African countries contributed to the outflows of migrants compared to other countries (first exercise) and compared to shocks at destination or at the global level (second exercise). However, the exercise provides no indication on what kind of domestic shocks may affect the origin component. In the case of Africa, for instance, it would be interesting to quantify the role of the demographic factors relative to other economic and non-economic ones. To this goal, we perform two types of regression analysis. In the first one, which is more related to the first exercise, we estimate the following autoregressive probit model of the probability that the domestic factor is above median:

$$\begin{cases} Y_{o,t} = \mathbb{1}[\bar{EO}_{o,t} > 0] \\ \bar{EO}_{o,t} = \alpha + \rho \bar{EO}_{o,t-1} + \beta^{\intercal} X_{o,t-1} + u_{o,t} \end{cases} \tag{6}$$

Summary statistics for the covariates used in the regressions are reported in table 3. The marginal probability that the domestic component of a country lays above median during a 5-year period is assessed against several factors. The first one is the change in labor force occurred in the 5 previous years. We expect that when the labor force in a country of origin increases this may increase the incentive to emigrate and, consequently, the probability of having a domestic component above the median. A second group of variables is intended to explore the role of initial economic conditions, namely: the level of GDP per capita in USD at the beginning of the period, its average growth rate in the previous five years, as well as

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

$$\bar{ED}_{o,t} = \sum_{d \in EU} \phi_{o,d,t}(D_{d,t} - \bar{D}_t) + \sum_{d \notin EU} \phi_{o,d,t}(D_{d,t} - \bar{D}_t) = \bar{ED}_{EU,t} + \bar{ED}_{Other,t} \tag{5}$$

Table 3: Summary statistics of covariates

Variable	Obs	Mean	Std. dev.	Min	Max
Δ labor force (Million)	829	2.3	8.1	-4.8	82.4
GDP per capita growth rate	815	10.9	16.6	0.1	118.1
Initial GDP per capita (USD, Th.)	790	28.8	49.2	-81.8	473.2
Initial unemployment rate (%)	829	8.3	6.0	0.1	37.3
Δ Unemployment rate (pp)	829	0.1	3.0	-14.5	17.1
People affected by natural disasters (share)	829	0.1	0.1	0.0	0.94
Damage per capita from natural disasters (USD, Th.)	829	0.1	0.9	0.0	24.1
Network (emigrants from the country per 10,000 emigrants)	735	65.5	104.1	0.4	908.3

the initial level of unemployment and its lagged growth rate. We have no priors on the sign of the coefficients for these variables because, despite the huge literature on the issue, there is still no full consensus on whether better economic conditions would increase or reduce emigration, especially in low and middle income countries. On the one hand, higher income would make emigration more affordable; on the other hand, improved economic conditions make the local living conditions better, therefore reducing the incentive to leave. Which effect dominates is an open empirical question and our analysis aims at contributing to the debate. Finally, following an increasing literature on the topic, we consider the role of natural disasters as an additional domestic shock that could affect emigration. Their impact is measured both in terms of the percentage of the domestic population affected and in terms of per capita damage, measured in UDS. Results for several specifications are reported in table 4. To begin with, we find a positive and significant persistency, suggesting that countries that push people to emigrate above the median level in a certain quinquennium tend to remain above median in the next one. On top of that, an increase in labor force is associated to a higher probability of being above median, as expected. A higher initial level of per capita GDP lowers the probability that the domestic component is larger than in most countries, as well as a higher unemployment. This result is apparently inconsistent as higher unemployment is associated with lower GDP per capita. In this case, notice that the correlation between the two is negative, but very close to zero. At the same time, the other variable describing the conditions on the labor market, i.e. the change in unemployment during the previous five years, has the expected sign. It is positive and larger than the coefficient on the initial level of unemployment. All in all, we conclude that worsening labor market conditions increase the probability that the incentive to leave the country are above median. Finally, the incentive to emigrate also increases when the percentage of people affected by natural disasters increases. The coefficient for per capita damage is also positive, although not statistically significant. In order to explore whether being an African country of origin would impact the estimated relations, we consider the interactions of a dummy for African countries with the covariates whose coefficients were statistically significant. The results in Table 5 suggest that in general being an African country do not change the above relations, except for the coefficient on the labor force and on the impact of natural disasters, suggesting that these two aspects may have in Africa a larger impact than elsewhere.

In a second group of regressions, that is more related to the second decomposition exercise presented above, we look at the role of the same covariates in affecting the *size* of $\bar{OD}_{o,t}$, rather than its sign. The results confirm that an increasing labor force is associated with a larger domestic component, i.e. the domestic push to emigrate tends to be higher for

Table 4: Probit analysis

	(1)	(2)	(3)	(4)
Lagged dependent variable	1.159***	1.001***	0.989***	0.904***
	(0.090)	(0.105)	(0.109)	(0.114)
Δ labor force (Million)	0.067***	0.037*	0.032*	0.034
	(0.021)	(0.020)	(0.019)	(0.021)
GDP per capita growth rate		-0.000	-0.000	0.001
		(0.001)	(0.001)	(0.001)
Initial GDP per capita (USD, Th.)		-0.018***	-0.020***	-0.021***
		(0.003)	(0.003)	(0.004)
Initial unemployment rate			-0.018**	-0.016*
			(0.009)	(0.009)
Δ Unemployment rate			0.035*	0.034*
			(0.018)	(0.019)
People affected by natural disasters (%)				1.107***
				(0.425)
Damage per capita from natural disasters (USD, Th.)				0.086
				(0.070)
Constant	-0.646***	-0.347***	-0.206	-0.239
	(0.112)	(0.134)	(0.161)	(0.171)
Observations	905	738	724	680
Time fixed effects	Y	Y	Y	Y
Country fixed effects	N	N	N	N

Standard errors in parentheses.
* p< 0.10, ** p< 0.05, *** p< 0.01

Table 5: Probit analysis with interactions

	(1)	(2)	(3)	(4)
Lagged dependent variable	1.150***	1.006***	1.119***	0.892***
	(0.091)	(0.105)	(0.102)	(0.112)
Δ labor force ×				
Africa = 0	0.043**			
	(0.020)			
Africa = 1	0.219***			
	(0.055)			
Initial level of GDP per capita ×				
Africa = 0		-0.017***		
		(0.003)		
Africa = 1		0.033		
		(0.032)		
Initial level of unemployment rate ×				
Africa = 0			-0.038***	
			(0.011)	
Africa =1			0.005	
			(0.009)	
Δ unemployment rate ×				
Africa = 0			0.045**	
			(0.019)	
Africa = 1			0.052	
			(0.044)	
Share of people affected by natural disasters ×				
Africa = 0				1.129*
				(0.626)
Africa = 1				1.144**
				(0.438)
Constant	-0.674***	-0.376***	-0.397***	-0.171
	(0.113)	(0.135)	(0.151)	(0.143)
Observations	905	738	745	680
Time fixed effects	Y	Y	Y	Y
Country fixed effects	N	N	N	N

Standard errors in parentheses.
* p< 0.10, ** p< 0.05, *** p< 0.01

countries in which the labor force is increasing. The negative relation with the initial per capita income level is also confirmed, but only for the subset of low and middle income countries, while the coefficient is close to zero and not significant on the entire sample. Finally, we find no statistically significant correlations with labor market and natural disaster variables, although controlling for them do not affect the results for the other covariates.

Table 6: Regression analysis

	(1) All ctys	(2) All ctys	(3) L&M ctys	(4) L&M ctys	(5) L&M ctys
Δ stock of emigrants	0.894***	0.767***	0.767***	0.763***	0.759***
	(0.027)	(0.046)	(0.056)	(0.056)	(0.057)
Network	0.342***	0.331***	0.385***	0.383***	0.378***
	(0.036)	(0.043)	(0.052)	(0.052)	(0.053)
Δ labor force	0.015***	0.017***	0.015***	0.015***	0.014***
	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)
Initial GDP per capita		0.072	-2.052*	-1.906*	-2.755**
		(0.181)	(1.082)	(1.106)	(1.259)
GDP per capita growth rate		0.025	0.035	0.034	0.057*
		(0.022)	(0.027)	(0.027)	(0.031)
Initial unemployment rate				0.694	0.695
				(0.703)	(0.742)
Δ Unemployment rate				-0.694	-0.589
				(0.654)	(0.689)
Share of people affected by natural disasters					2.004
					(9.959)
Damage per capita from natural disasters					-9.313
					(11.696)
Observations	905	736	488	484	468
Time fixed effects	Y	Y	Y	Y	Y
Country fixed effects	Y	Y	Y	Y	Y

Standard errors in parentheses
* p< 0.10, ** p< 0.05, *** p< 0.01

5 Concluding remarks

The emigration from Africa is a debated issue in the European Union, especially in countries where the African communities are relatively large. In this paper, we explore the patterns of Africa emigration over a 30-years period, particularly towards the European Union, and their drivers. To this goal, we first isolate the change in the stock of emigrants that can be ascribed to domestic shocks, as opposed to shocks abroad or at the global level. We find that in Africa, the domestic component is generally higher than in most countries, positive and increasing over time. This is a policy-relevant information because when the domestic component is very large, higher migration barriers at destination would not stop people from emigrating. Instead, they could either increase the share of illegal migrants or affect the distribution of migrants across destination countries, or both. A higher share of illegal immigrants is detrimental for the hosting country. These migrants are more difficult to integrate, tend to

work in the informal labor market, have limited access to social services and pay limited taxes. Internationally, asymmetric barriers at entry in destination areas like the EU, may fuel diplomatic tensions between neighboring countries. As a second contribution, we explore the role of several types of shocks, traditionally found to affect migration by the existing literature, in driving the domestic component. With a particular focus on African countries. Our findings suggest that growing labor force, lower per capita GDP and worsening labor market conditions, as well as higher exposure to natural disasters in the country of origin are associated with higher incentives to emigrate. African countries tend to behave in line with other countries, however, their sensitivity to labor force dynamics and to natural disaster is found to be higher than elsewhere. This result is relevant because African countries are expected to experience the world largest labor force increases in the next decades and they will be likely more exposed to the negative impacts of global warming. Therefore, migration from Africa may accelerate in the future more than from other countries. Moreover, provided that the EU-born population is already in a declining path, the size of African communities in the EU relative to the domestic population will likely increase more than in other destination areas, therefore fueling the policy debate on the issue. While these results could help in informing the debate, more remains to be done. In particular, a deeper exploration of what attracts immigrants into the EU (not only from Africa) could pair and complete the analysis developed here. Understanding these mechanisms can help formulate policies that address the challenges and opportunities of migration in a sustainable and equitable manner. A task we leave for future research.

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Table 7: Summary statistics by per capita income level

	Source	Obs	Mean	Std. dev.	Min	Max
High-income countries:						
Δ Stock of emigrants (Th.)	UN	282	6.1	15.5	-36.8	125.7
Δ labor force (Million)	UN	282	41.7	153.4	-477.6	1206.8
GDP per capita growth rate	WEO	274	25.0	34.9	-46.5	176.4
Initial GDP per capita (USD, Th.)	WEO	280	30.0	19.9	1.6	118.1
Initial unemployment rate	World Bank	282	7.3	4.1	0.1	25.0
Δ Unemployment rate (pp)	World Bank	282	0.0	3.6	-10.3	16.4
People affected by natural disasters (share)	EMDAT	255	0.0	.1	0.0	0.5
Damage per capita from natural disasters (USD, Th.)	EMDAT	255	0.3	1.6.0	0	24.1
Network (emigrants from the country per 10,000 emigrants)	UN	235	47.6	57.4	0.9	270.5
Low- and Middle-income countries:						
Δ Stock of emigrants (Th.)	UN	600	14.4	45.7	-333.3	539.0
Δ labor force (Million)	UN	600	284.3	896.9	-1031.3	7914.4
GDP per capita growth rate	WEO	558	31.1	57.3	-81.8	473.2
Initial GDP per capita (USD, Th.)	WEO	581	2.6	2.7	0.1	17.2
Initial unemployment rate	World Bank	600	9.0	7.0	0.2	37.3
Δ Unemployment rate (pp)	World Bank	600	0.2	2.7	-14.5	17.1
People affected by natural disasters (share)	EMDAT	581	0.1	0.2	0.0	0.9
Damage per capita from natural disasters (USD, Th.)	EMDAT	581	0.0	0.1	0.0	2.2
Network (emigrants from the country per 10,000 emigrants)	UN	500	73.8	119.0	0.4	908.3

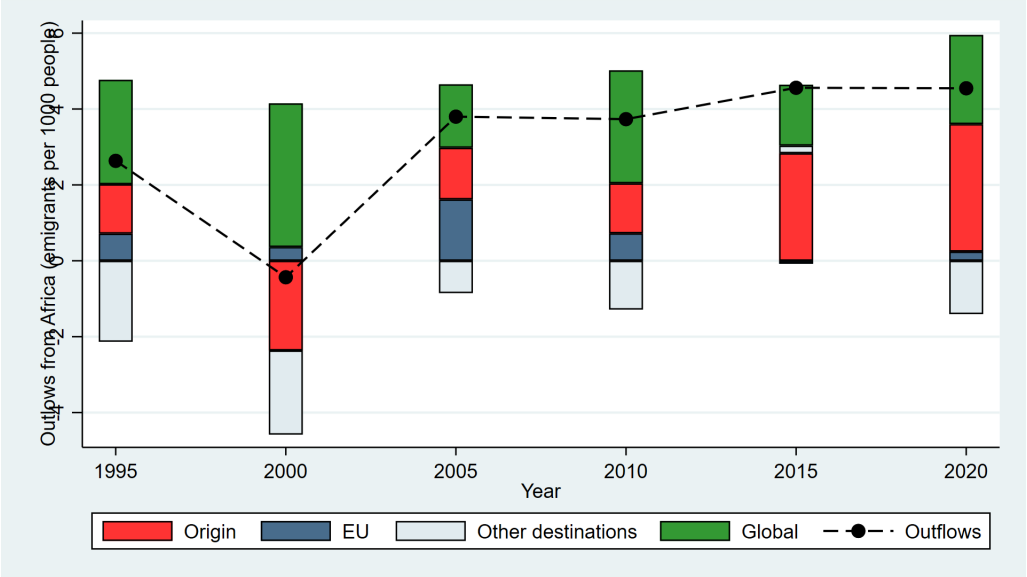
A Appendix

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,

Figure 4: 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.

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. Table 7 shows the summary statistics for the variables used in the paper.

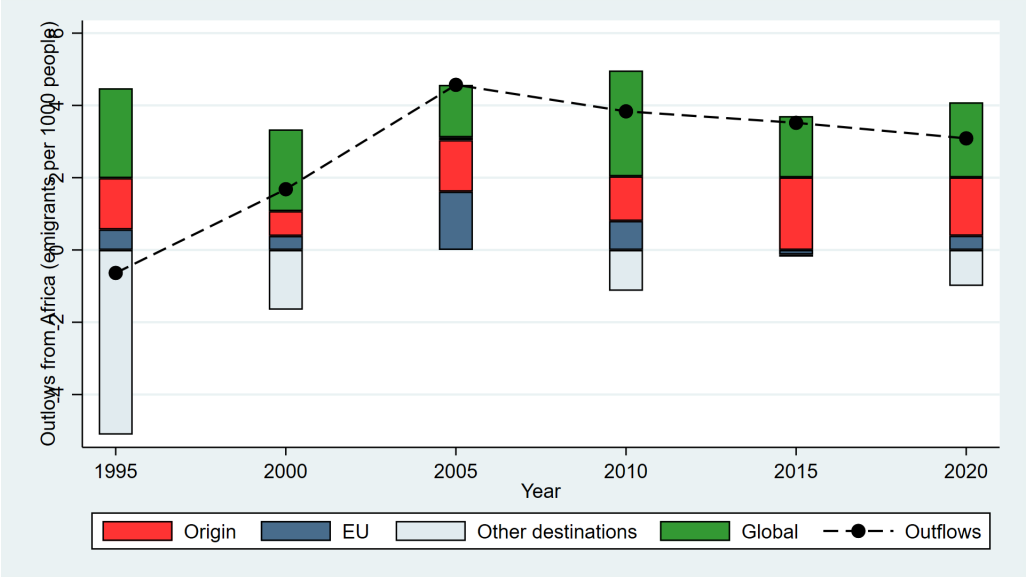
A.2 Sensitivity analysis on sample composition

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. 4 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 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 5 confirms that the results are qualitatively consistent with the findings in the

Figure 5: 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.

paper. In particular the signs of the origin, destination and global componenents do not change.

A.3 Countries by income level and area

Table 8: Country Grouping by Region and Income Level

	Country groups											
Country	Advanced	Africa	Asia	Eurozone	EU	North America	Latam	High income	Upper-middle income	Lower-middle income	Middle income	Low income
Afghanistan			x									x
Albania									x		x	
Algeria		x								x	x	
American Samoa									x		x	
Andorra	x							x				
Angola		x								x	x	
Anguilla							x					x
Antigua and Barbuda							x	x				
Argentina							x		x		x	
Armenia			x						x		x	
Aruba							x	x				
Australia	x							x				
Austria	x			x	x			x				
Azerbaijan			x						x		x	
Bahamas							x	x				
Bahrain			x					x				
Bangladesh			x							x	x	
Barbados							x	x				
Belarus									x		x	
Belgium	x			x	x			x				
Belize							x		x		x	
Benin		x								x	x	
Bermuda								x				
Bhutan			x							x	x	
Bolivia (Plurinational State of)							x			x	x	
Bonaire, Sint Eustatius and Saba							x					x
Bosnia and Herzegovina									x		x	
Botswana		x							x		x	
Brazil							x		x		x	
British Virgin Islands							x	x				
Brunei Darussalam			x					x				
Bulgaria					x				x		x	
Burkina Faso		x										x
Burundi		x										x
Cabo Verde		x								x	x	
Cambodia			x							x	x	
Cameroon		x								x	x	
Canada	x					x		x				
Caribbean												
Cayman Islands							x	x				
Central African Republic		x										x
Chad		x										x
Channel Islands												x
Chile							x	x				
China			x						x		x	
China, Hong Kong SAR	x		x					x				
China, Macao SAR	x		x					x				
China, Taiwan Province of China	x		x					x				
Colombia							x		x		x	
Comoros		x								x	x	
Congo		x								x	x	
Cook Islands												x
Costa Rica							x		x		x	
Croatia	x			x	x			x				
Cuba							x		x		x	
Curaçao							x	x				
Cyprus	x		x	x	x			x				
Czechia					x			x				
Côte d'Ivoire		x								x	x	

	Country groups											
Country	Advanced	Africa	Asia	Eurozone	EU	North America	Latam Latam	High income	Upper-middle income	Lower-middle income	Middle income	Low income
Dem. People's Republic of Korea			x									x
Dem. Republic of the Congo		x										x
Denmark	x				x			x				
Djibouti		x								x	x	
Dominica							x		x		x	
Dominican Republic							x		x		x	
Ecuador							x		x		x	
Egypt		x								x	x	
El Salvador							x			x	x	
Equatorial Guinea		x							x		x	
Eritrea		x										x
Estonia	x			x	x			x				
Eswatini		x								x	x	
Ethiopia		x										x
Falkland Islands (Malvinas)							x	x				
Faroe Islands								x				
Fiji									x		x	
Finland	x			x	x			x				
France	x			x	x			x				
French Guiana							x	x				
French Polynesia								x				
Gabon		x							x		x	
Gambia		x										x
Georgia			x						x		x	
Germany	x			x	x			x				
Ghana		x								x	x	
Gibraltar								x				
Greece	x			x	x			x				
Greenland								x				
Grenada							x		x		x	
Guadeloupe							x	x				
Guam								x				
Guatemala							x			x	x	
Guinea		x								x	x	
Guinea-Bissau		x										x
Guyana							x			x	x	
Haiti							x			x	x	
Holy See								x				
Honduras							x		x		x	
Hungary	x				x			x				
Iceland	x			x	x			x				
India			x							x	x	
Indonesia			x						x		x	
Iran (Islamic Republic of)			x						x		x	
Iraq			x						x		x	
Ireland	x			x	x			x				
Isle of Man								x				
Israel	x		x	x	x			x				
Italy	x			x	x			x				
Jamaica							x	x				
Japan	x		x	x	x			x				
Jordan			x					x	x		x	
Kazakhstan			x						x		x	
Kenya		x							x		x	
Kiribati												x
Kuwait			x					x				
Kyrgyzstan			x						x		x	
Lao People's Democratic Republic			x							x	x	
Latvia	x			x	x			x				

	Country groups											
Country	Advanced	Africa	Asia	Eurozone	EU	North America	Latam Latam	High income	Upper-middle income	Lower-middle income	Middle income	Low income
Lebanon			x							x	x	
Lesotho		x									x	x
Liberia		x										x
Libya		x							x		x	
Liechtenstein								x				
Lithuania	x			x	x			x				
Luxembourg	x			x	x			x				
Madagascar		x										x
Malawi		x										x
Malaysia			x						x		x	
Maldives			x						x		x	
Mali		x										x
Malta	x			x	x			x				
Marshall Islands									x		x	
Martinique							x	x				
Mauritania		x								x	x	
Mauritius		x							x		x	
Mayotte		x						x				
Melanesia												
Mexico							x		x		x	
Micronesia												x
Micronesia (Fed. States of)										x	x	
Monaco								x				
Mongolia			x							x	x	
Montenegro									x		x	
Montserrat							x					x
Morocco		x								x	x	
Mozambique		x										x
Myanmar			x							x	x	
Namibia		x							x		x	
Nauru								x				
Nepal			x							x	x	
Netherlands	x			x	x			x				
New Caledonia								x				
New Zealand	x							x				
Nicaragua							x			x	x	
Niger		x										x
Nigeria		x								x	x	
Niue												x
Northern Mariana Islands								x				
Norway	x							x				
Oman			x					x				
Pakistan			x							x	x	
Palau									x		x	
Panama							x	x				
Papua New Guinea										x	x	
Paraguay							x		x		x	
Peru							x		x		x	
Philippines			x							x	x	
Poland					x			x				
Polynesia												
Portugal	x			x	x			x				
Puerto Rico	x						x	x				
Qatar			x					x				
Republic of Korea			x					x				
Republic of Moldova									x		x	
Romania				x	x			x				
Russian Federation									x		x	
Rwanda		x										x
Réunion		x						x				

	Country groups											
Country	Advanced	Africa	Asia	Eurozone	EU	North America	Latam Latam	High income	Upper-middle income	Lower-middle income	Middle income	Low income
Saint Barthélemy							x	x				
Saint Helena		x										x
Saint Kitts and Nevis							x	x				
Saint Lucia							x		x		x	
Saint Martin (French part)								x				
Saint Pierre and Miquelon								x				
Saint Vincent and the Grenadines							x		x		x	
Samoa										x	x	
San Marino	x							x				
Sao Tome and Principe		x								x	x	
Saudi Arabia			x					x				
Senegal		x								x	x	
Serbia									x		x	
Seychelles		x						x				
Sierra Leone		x										x
Singapore	x		x					x				
Sint Maarten (Dutch part)								x				
Slovakia				x	x			x				
Slovenia	x			x	x			x				
Solomon Islands										x	x	
Somalia		x										x
South Africa		x							x		x	
South Sudan		x										x
Spain	x			x	x			x				
Sri Lanka			x							x	x	
State of Palestine			x							x	x	
Sudan		x										x
Suriname							x		x		x	
Sweden	x				x			x				
Switzerland	x							x				
Syrian Arab Republic			x									x
Tajikistan			x							x	x	
Thailand			x						x		x	
Timor-Leste			x							x	x	
Togo		x										x
Tokelau												x
Tonga									x		x	
Trinidad and Tobago							x	x				
Tunisia		x								x	x	
Turkey			x						x		x	
Turkmenistan			x						x		x	
Turks and Caicos Islands							x	x				
Tuvalu									x		x	
Uganda		x										x
Ukraine										x	x	
United Arab Emirates			x					x				
United Kingdom	x							x				
United Republic of Tanzania		x								x	x	
United States Virgin Islands							x	x				
United States of America						x		x				
Uruguay							x	x				
Uzbekistan			x							x	x	
Vanuatu										x	x	
Venezuela (Bolivarian Republic of)							x					x
Viet Nam			x							x	x	
Wallis and Futuna Islands												x
Yemen			x									x
Zambia		x										x
Zimbabwe		x								x	x	

Note: The countries in the dataset are grouped by geographic areas and by income level according to the World Bank classification.Holy See and Small Island Developing States (https://www.un.org/ohrlls/content/list-sids) are excluded.